ANNUAL REPORT OF THE COMMISSIONER OF PATENTS

VOL. 1 1854

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33d CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 59.

REPORT

OF THE

COMMISSIONER OF PATENTS

FOR THE YEAR 1854.

ARTS AND MANUFACTURES.

VOLUME I.—TEXT.

WASHINGTON:
A. O. P. NICHOLSON, PRINTER.
1855.

IN THE HOUSE OF REPRESENTATIVES, *February* 14, 1855.

Resolved, That there be printed one hundred thousand extra copies of the Agricultural part of the Patent Office Report, with the plates, for the use of the members of the present House of Representatives, and ten thousand copies for the use of the Commissioner of Patents; and also fifty thousand extra copies of the Mechanical part of said Report for the use of the said members, and ten thousand copies for the use of the said Commissioner.

Attest:

J. W. FORNEY, *Clerk.*

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REPORT

OF THE

COMMISSIONER OF PATENTS.

UNITED STATES PATENT OFFICE, *January* 31, 1855.

SIR: I have the honor to submit the following report for the year 1854.

The condition of the office at the present time, and also as compared with previous years, will be seen in a general way by reference to the following statements, numbered 1, 2, 3, and 4.

No. 1.

Statement of moneys received at the Patent Office during the year 1854.

Received on applications for patents, reissues, additional improvements, and extensions, and on caveats, disclaimers, and appeals	$134,125 00
Received for copies, and for recording assignments	13,664 84
Amount reimbursed to patent fund, per act August 4, 1854	16,000 00
	163,789 84

No. 2.

Statement of expenditures from the Patent Fund during the year 1854.

Salaries	$51,000 85
Additional compensation, per act April 22, 1854, (including six months in 1853)	8,827 59
Temporary clerks	32,750 86
Books for the library	3,772 28
Contingent expenses	32,339 78
Agricultural statistics, and purchase of seeds	2,838 00
Librarian	700 00
Payments to judges in appeal cases	475 00

Refunding money paid by mistake	$302 00
Refunding money on withdrawals	34,139 96
Total amount	167,146 32
Excess of expenditures over receipts during the year	3,356 48
Excess of withdrawals this year over last	10,673 32

No. 3.

Statement of the Patent Fund.

Amount to the credit of the patent fund, January 1, 1854	$28,950 00
Amount paid in during the year 1854, including $16,000 reimbursed by the act of August 4, 1854	163,789 84
	192,739 84
From which deduct—	
Amount of expenditures during the year	167,146 32
Leaving in the treasury January 1, 1855	25,593 52

No. 4.

Table exhibiting the business of the office for fourteen years, ending December 31, 1854.

Years.	Applications filed.	Caveats filed.	Patents issued.	Cash received.	Cash expended.
1841	847	312	495	$40,413 01	$23,065 87
1842	761	291	517	36,505 68	31,241 48
1843	819	315	531	35,315 81	30,776 96
1844	1,045	380	502	42,509 26	36,344 73
1845	1,246	452	502	51,076 14	39,395 65
1846	1,272	448	619	50,264 16	46,158 71
1847	1,531	533	572	63,111 19	41,878 35
1848	1,628	607	660	67,576 69	58,905 84
1849	1,955	595	1,076	80,752 78	77,716 44
1850	2,193	602	995	86,927 05	80,100 95
185	2,258	760	869	95,738 61	86,916 93
1852	2,639	996	1,020	112,056 34	95,916 91
1853	2,673	901	958	121,527 45	132,869 83
1854	3,324	868	1,902	163,789 84	167,146 32

From this last statement, it appears that 3,324 patents have been applied for within the past year, which is an increase of 651 over the applications of the previous year.

The number of patents issued in 1854 is nearly twice as great as in 1853.

The number of cases in the office awaiting examination on the first day of January, 1854, was stated, in the report of last year, to have been 582. Owing to an imperfect mode of computation, this number was found to be incorrect. An actual count showed that there were really 823 cases on hand and undisposed of at the commencement of the past year. That number is now reduced to 89, so that the work of the office can hardly be regarded as being at all behindhand. Applications are now acted upon within a very few days after being made.

The receipts of money from all sources, during the past year, amount to $163,789 84, and the whole expenditure has been $167,146 32. This exceeds the receipts by $3,356 48. Among the receipts is included the sum of $16,000, refunded to the Patent Office for expenses incurred, partly in 1853 and partly in 1854, for fitting up the rooms of the new building, and for other similar purposes, so that the revenue arising from fees alone during the year 1854 has been only $147,789 84. This falls short of the actual expenditure by $19,356 48.

This excess of expenditure has resulted, partly, from the additional compensation allowed by the act of 22d of April, 1854, to clerks and other persons employed in the office; in accordance with which, the sum of $8,827 59 has been paid during the past year, as appears from the foregoing statement No. 2.

The expenditures have also been very much augmented during the year by the necessity of repairing a large number of the models in the office, and also of cleaning, varnishing, and removing them to their new receptacles.

The crowded condition in which it has heretofore been necessary to place them had resulted in numerous and great injuries, which it was incumbent on the office to repair. They will be, in a great degree, exempt from such injuries in future.

But the largest item of extraordinary expenditure has resulted from the augmentation of force necessary to dispose of the accumulation of arrearages before mentioned.

The number of cases now on hand is less, by 734, than that which existed a year previous.

The fees of these 734 cases (amounting to more than $20,000) were received in 1853; the labor has been performed, and the expense incurred, in 1854.

The entire income which has resulted from all the cases disposed of during the past year, has been greater than the whole expenditure of that year.

It is, therefore, possible that the receipts for the coming year may be nearly, or quite, equal to the expenditure, if rigidly confined to those things which are indispensably necessary. There are, however, some matters which, though not altogether indispensable, seem to commend themselves strongly to the favorable consideration of Congress, and which will call for some increase of expenditure in future. Among these may be reckoned, in the first instance, an increase of salary to some of the examiners. In the report for last year it was stated that the examining force had been augmented by placing an additional clerk in each of the examining rooms as a second assistant examiner. The despatch of business in the office was much facilitated by this arrangement, which was, however, found inadequate to the rapid

increase in the number of applications. It was therefore thought expedient to place several of the assistant examiners in charge of duties which had previously been intrusted only to the principal examiners.

Accordingly, on the first of April last, five of the assistant examiners were each intrusted with the charge of an independent examining desk; so that for nine months of the past year there have been eleven separate and independent examining rooms, with each an acting principal and assistant examiner. These assistant examiners who have thus been performing the duties of principals, and the clerks of the second class who have been acting as assistant examiners, seem to have just claims to be placed on a footing of equality, as to compensation, with others who are performing the same duties, and are subject to the same responsibilities. The necessary examinations cannot be made with proper promptness with a less force than ten principal and as many assistant examiners; and should the business of the office continue increasing, as it now promises, before the end of the present year we shall need twelve of each class of examiners. The number should, therefore, I think, be increased to that extent at once, or power given to the Commissioner so to increase it as soon as occasion requires.

The business of the Patent Office progresses, or lingers, in precise proportion to the efficiency of the examining corps. The increased expense of supplying a few additional examiners is trifling, in comparison with the advantage of having the business of examination despatched in a few days after the application is made, instead of obliging the applicant to wait as many months for that purpose.

The report for the year 1853 was illustrated with wood engravings, which, though somewhat imperfect, are believed to have added much to the value of that report, by rendering it vastly more intelligible than it could otherwise have been made. Steps have more recently been taken to improve still further in this particular, by providing copper-plate engravings for this purpose. A conditional contract has been made with a competent artist, which, if approved by Congress, will render the report for the year 1854 highly creditable to the office, and eminently useful to the public. I feel great confidence that the advantages resulting from these illustrations will fully justify the increased expenditure thereby rendered necessary.

The present rate of fees has been in existence for more than sixty years with but little variation. During that time the intrinsic value of money has been very essentially diminished. The labor and expense thrown upon the office has been more than doubled by the change which took place in 1836; and the additional compensation more recently provided for clerks and other persons employed in the office has still further contributed to swell the ratio of expenditure to that of revenue, and to call for a new tariff of fees, in order to prevent the necessity of curtailing the expenses of the office in a way which cannot but be prejudicial to the best interests of those by whom those fees will be paid.

It is believed that the inventors themselves would prefer a sufficient augmentation of the rate of fees, to enable the business of the office to be promptly and successfully conducted, rather than to save a few

dollars at the expense of great vexation and delay in obtaining official action upon their applications for patents.

In my last annual report, the attention of Congress was invited to the consideration of the propriety of abolishing all discrimination in the rate of fees as between citizens and aliens; subsequent reflection has only confirmed the opinion then entertained and expressed on that subject. Some of the beneficial results of the liberal policy then recommended in inducing a like liberality on the part of other nations, are already sufficiently obvious.

At the present time, the laws of Canada do not permit our citizens to obtain patents in that province under any circumstances; which causes great inconvenience and loss to our inventors. All machines invented here, can be made and used in Canada without any license from the American patentee; and the products of those machines can, with little trouble or expense, be brought into our markets to compete with like commodities manufactured here by persons who are obliged to pay for the right to use the patented machines for that purpose. This operates like a discriminating tariff against the home manufacturer, which cannot but be prejudicial to his interests.

Reliable information of a private character has, however, been received, to the effect that the Canadian Parliament is taking steps to remove this cause of complaint. A bill was introduced into that body at a recent session (which has been adjourned over to some time in the present month,) and is still pending, which contemplates allowing American inventors to obtain patents in Canada; and the only cause of doubt as to its becoming a law is believed to grow out of the enormous fee demanded by this office from all Canadian inventors. The proposed modification in our rate of fees, would doubtless be followed by the desired change in the Canadian law. This would remedy the difficulty complained of by our inventors above alluded to, so far as future patentees are concerned, and might perhaps do so in relation to patentees of a previous date.

It may be thought that we shall best attain our object by retaliatory measures. Such a course would be calculated to arouse angry and hostile feelings, rather than to lead to any final advantage to either party.

A course dictated by kindness and liberality, will soon dissolve the barriers which make nations strangers and enemies.

We can well afford to lead the way in a course of measures which will contribute no inconsiderable share towards rendering us and our Canadian neighbors practically one people.

I take the liberty of inviting the attention of Congress to the other matters treated of in my report for 1853, to which I have nothing to add at present.

Very respectfully, yours, &c., &c,

CHARLES MASON,
Commissioner.

Hon. LINN BOYD,
Speaker of the House of Representatives.

CLASSIFIED LIST OF PATENTS THAT HAVE EXPIRED DURING THE YEAR 1854.

CLASS I.—AGRICULTURE, *including instruments and operations.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Bee-hives	Martin Engel	Easton, Pa	April 15
Bee-hives	Robert Martin	Fairfield, Ohio	May 19
Butter, working and pressing, (additional improvement, July 20, 1841.)	Titus D. Gail	Eden, N. Y	Oct. 10
Churn	Constant Webb	Wallingford, Conn	Nov. 26
Churn	A. & W. A. Crowell	Salisbury, Conn	June 26
Corn-sheller	Porter A. Gladwin	Chester, Conn	April 24
Cultivator, corn, &c	Noah Barnes	East Hampton, N. Y	Sept. 10
Grubs and bushes, extracting from land	Young William Short	Oglethorpe county, Ga	Jan. 28
Hoes, garden	Charles S. Homer	Boston, Mass	May 8
Hulling, husking, and shelling corn, (additional improvement, March 29, 1841.)	Samuel S. Allen	Miamisburg, Ohio	Jan. 15
Hulling machines	James McGregor	Saratoga, N. Y	May 12
Hulling oats, barley, &c	J. Andrews & E. Piper	Camden, Me	Dec. 10
Hulling rice, &c	Warner Groat	Troy, N. Y	Aug. 28
Hulling rice, machinery for	Daniel Tomlinson	Brookfield, Conn	May 12
Hulling rice, machinery for	William C. Grimes	York, Pa	Oct. 8
Mowing, cutting grass under water	Jacob Hinds	Hindsburg, N. Y	Sept. 5
Mowing machine	Seth Lamb	New York, N. Y	June 20
Plough	William Bryant	Davidson county, Tenn	Mar. 31
Plough, combined	Jonathan Knodle	Bakersville, Md	April 8
Plough, hill-side, (improvement on Teeter's plough.)	Daniel Gochnour, jr	Conemaugh, Pa	June 12
Plough, shares and cutters of, constructing and fastening.	Mahlon Smith	Tinicum, Pa	Jan. 28
Seeding, planting corn, &c	Samuel W. Cole	Chelsea, Mass	Aug. 25
Seeding, planting machines	Martin Nichols	Clearfield, Pa	Oct. 16
Seeding, seed-planters, (additional improvement, April 1, 1842.)	Lorenzo Bachelder	Hampstead, N. H.	April 30
	Samuel L. Bachelder	Haverhill, Mass.	
Seeding, seed-planters	T. J. & G. F. Lewis	Boston, Mass	June 27
Seeding, seed-planters	T. J. & G. F. Lewis	Boston, Mass	June 27
Seeding, seed-planters, (additional improvement, May 4, 1841.)	Joseph Gibbons	Adrian, Mich	Aug. 25
Seeding, seed-planting machine	George Page	Baltimore, Md	May 25
Seeding, sowing cotton-seed	L. Miner & L. Felts	Yanceyville, N. C	July 18
Smut machine	Jacob Russell	Jenner, Pa	April 24
Smut machine	Hiram Smith	Bethany, N. Y	July 31
Smut machine	Amos Adams	Port Henry, N. Y	Aug. 3
Smut machine	John Burch	Millport, N. Y	Aug. 22
Smut machine, cleaning grain	Samuel Spangler	Stony Creek, Pa	May 19
Smut machine, cleaning grain, &c., by machinery.	Edward Bradfield	Rochester, N. Y	Sept. 19
Straw-cutter	Joseph Worley	Hawkins county, Tenn	June 20
Straw-cutter, feeding and pressing the straw.	Israel W. Groff	Lampeter, Pa	April 30
Thrashing machine	David Stafford	Syracuse, N. Y	May 19
Thrashing machine	James Cummings	Canonsburg, Pa	Dec. 10
Thrashing machine, conducting the straw and grain from the thrasher.	Luther Whitman	Winthrop, Me	Aug. 25
Thrashing machine, removing straw and separating the grain in.	John Criswell	Cecil, Pa	Nov. 26
Thrashing machine, shaking the screen in	Jesse Lincoln	Uniontown, Pa	May 8
Trees, protecting from the canker worm, (additional improvement, April 24, 1841.)	Daniel Newhall	Lynn, Mass	Oct. 31
Winnowing machine	Abel & Asahel Lomax	Clinton county, Ohio	May 8
Winnowing, separating garlic from grain	William C. Grimes	York, Pa	Sept. 3
Winnowing, separating garlic from wheat	Jonathan F. Barrett	N. Granville, N. Y	Oct. 31

Classified list of expired patents—Continued.

CLASS II.—METALLURGY, *and manufacture of metals and instruments therefor.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Bands, key, for tobacco casks	James M. Talbot	Richmond, Va	Sept. 14
Brads, cutting	Henry Waterman	New York, N. Y	Jan. 10
Buckles and clasps	William Church	Citizen of U. S., now in Birmingham, Eng.	Feb. 18
Catches, oblique, &c., forming on plates, &c., of cast iron.	Jordon L. Mott	New York, N. Y	Dec. 1
Clasps of carpet bags	Jas. Sellers and Abraham L. Pennock.	Philadelphia, Pa	May 25
Dies for making door and other knobs of plate metal.	Lucien E. Hicks	Middletown, Conn	June 27
Forges and furnaces, apparatus for blowing, (antedated July 1, 1840.)	James A. Stewart	Springfield, Tenn	Aug. 18
Furnace, heating the blast of	William H. Phillips	Brooklyn, N. Y	Aug. 28
Furnace, puddling, manufacturing iron with anthracite coal, (re-issued March 18, 1841.)	Thos. Cooper	New York, N. Y	Aug. 25
Knob, door, of glass	Francis Draper	East Cambridge, Mass.	Sept. 10
Latch, door	Benjamin M. Bosworth	Warren, R. I	Mar. 6
Latch, door	Oliver Judd	Cherry Valley, N. Y	Dec. 10
Latch, knob, for doors, &c	L. & W. Hotchkiss	Derby, Conn	Mar. 6
Latch, thumb, (disclaimer, August 25, 1840.)	Eli W. Philos, & Jno. A. Blake	New Haven, Conn	July 21
Lock, door	Peter Rogers	Philadelphia, Pa	Sept. 25
Lock, door, &c., alarm	David Edwards	McConnellsville, Ohio	Aug. 12
Lock, door, &c	August Prutzman	Philadelphia, Pa	Sept. 5
Lock, door, and key	Wm. M. Williams	England	Dec. 1
Nails, brads, &c., cutting	George W. Strong and Jonathan Dodge, assignees of Walter Hunt.	New York, N. Y	Nov. 13
Nails and spikes, wrought	John McCrone	Ellicott's Mills, Md	Feb. 21
Nails, wrought	Theophilus Somerby	Wells, Maine	Jan. 22
Padlocks for mail bags	Solomon Andrews	Perth Amboy, N. J	Dec. 5
Pipes, machine for making, continuously, from lead.	Geo. Escol Sellers	Upper Darby, Pa	Dec. 17
Puddle-balls, &c., rolling, in the manufacture of iron.	Henry Burden	Troy, N. Y	Dec. 10
Punching sheet iron for stove-pipes	Samuel Davis	Mifflin, Pa	Feb. 21
Rivets, making	Oliver Edes and Andw. Holmes.	Braintree, Mass	April 24
Rivets, making	Alph. Fobes & Fitch W. Taylor, assignees of Chas. Lyon and Alpheus Fobes.	New York, N. Y	Sept. 2
Saws, circular, cutting the teeth of	Eleazer Carver	Bridgewater, Mass	Aug. 12
Saws, filing and smoothing teeth of	Eleazer Carver	Bridgewater, Mass	Aug. 12
Screw-wrench	Hawley D. Clapp, assignee of Henry W. Hewet.	New York, N. Y	June 27
Screw-wrench	Stephen Kane, and Thomas and James Keane.	New York, N. Y	Aug. 12
Spikes, heading	William Thomas	Hingham, Mass	Mar. 14
Spikes, hook, or brad-headed, (antedated March 2, 1840.)	Henry Burden	Troy, N. Y	Sept. 2
Spring bolt for door and other locks	G. W. and Ezra B. Robinson	Boston, Mass	June 10
Spring, door	Wm. W. Smith and Benj. Mulliken, jr.	New York, N. Y	Nov. 13
Spring, door, for closing doors and gates	Gardner Barton, jr	Shaftsbury, Vt	July 1
Stove-pipe, mouldings, &c., making	John Farrar	Cuyahoga, Ohio	Sept. 2

Classified list of expired patents—Continued.

CLASS III.—MANUFACTURES OF FIBROUS AND TEXTILE SUBSTANCES, *including machines for preparing fibres of wool, cotton, silk, fur, paper, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Braiding machine	Dudley D. Sacket	Westfield, Mass	Jan. 22
Braiding machine, braiding manilla	Daniel, Jesse, and Elisha Fitzgerald	New York, N. Y	April 24
Cloth, &c., reducing worn out	Reuben Daniels	Woodstock, Vermont	Oct. 10
Cloth, stretching, in process of fulling	Baxter D. Whitney and George W. Lawton.	Winchendon, Mass	Mar. 25
Cloth, taking wrinkles out of, while fulling	John Tillou	New Haven, Conn	Dec. 14
Cloth of various kinds, manufacturing	Reuben Daniels	Woodstock, Vt	Oct. 8
Cocoomeries, removing the filth from hurdles.	Benjamin Benson	Smyrna, Del	Jan. 10
Cordage, clothes line, straining and preserving.	E. Allyn and C. B. Hildreth	Boston, Mass	Nov. 26
Cotton waste or rags, &c., dressing	Emery Smith	North Sudbury, Mass	Sept. 16
Felt cloths, without spinning and weaving, machinery for.	Thomas R. Williamson	Citizen of U. S., now in London, Eng.	Dec. 14
Flax and hemp, preparing, preparato y to the various processes of cleaning and separating the fibres.	Sands Olcott	New Hope, Pa	Mar. 31
Flax and hemp, reducing the fibres of	Sands Olcott	Philadelphia, Pa	April
Flier, for twisting silk	Edward L. Young	Norfolk, Va	Oct.
Gin, cotton	Fones McCarthy	Demopolis, Ia	July 3
Gin, cotton, constructing and affixing the ribs or grates of saw-gins, (re-issued February 12, 1842.)	Asa Copeland, jr	Bridgewater, Mass	April 8
Hair, curled, carding and picking	Francis Harding	Cleveland, Ohio	Aug. 25
Hats, bonnets, &c., ironing and pressing	Richard Murdock	Baltimore, Md	June 17
Hats, bonnets, &c., straw, pressing and finishing.	William Chaplin	New York, N. Y	Sept. 10
Hats, buoyant, used as life-preservers	Samuel White White	England	Oct. 14
Hats, palm-leaf, pressing	Chester Gorham	Barre, Mass	Mar. 3
Hemp, &c., preparing and spinning, (re-issued March 12, 1844.)	Moses Day	Roxbury, Mass	April 30
Hemp, tarring sliver or bands of machinery for, and making oakum.	William Montgomery	Boston, Mass	Aug. 28
Knitting stockings, machine for	Benjamin Hutchinson	Springfield, Mass	Oct. 22
Loom, heddle, metallic, (antedated January 21, 1840.)	Charles Strong	Hartford, Vt	April 24
Loom, heddle stuff, making weavers' eye harness.	Jno. Thorpe and Wm. G. Angell	Providence, R. I	Feb. 26
Loom, power, weaving figured counterpanes.	Erastus B. Bigelow	Lancaster, Mass	April 24
Looms, temple, rotary	George Draper	Palmer, Mass	Oct. 28
Looms, shuttle, for weaving cloth	James Baldwin	Nashua, N. H	Jan. 31
Paper, card, machine for making	William Dickinson	Worcester, Mass	Sept. 3
Paper, making card	Edward L. Perkins	Boston, Mass	July 10
Paper making, ruling, and cutting, at one operation.	John Ames	Springfield, Mass	July 31
Rags, boiling and washing, for the manufacture of paper.	George Spafford	Windham, Conn	Sept. 2
Silk, reeling, from the cocoons, machinery for.	George Heritage	Chestertown, Md	Dec. 19
Silk, skeining, machinery for	George Heritage	Chestertown, Md	Nov. 26
Spinning, mule, self acting for	Daniel Lapham, administrator of Benjamin Lapham, dec'd.	Adams, Mass	Sept. 25
Spinning, mule, self acting for	William Mason	Taunton, Mass	Oct. 8
Spinning silk from cocoons, machinery for.	George Heritage	Chestertown, Md	Dec. 19
Stuffs in which the fibres of various materials are united with adhesive mixtures, machinery for manufacture of.	Thomas R. Williams (now in London)	Newport, R. I	April 24
Wool, cleaning, from burs, &c., and ginning cotton.	Milton D. Whipple	East Douglass, Mass	Oct.
Wool, cotton, &c., picking and opening, (antedated October 30, 1839.)	George C. Kellogg and Phineas Gallett.	New Hartford, Conn	April 30
Yarn, washing and cleaning	Sands Olcott	Philadelphia, Pa	April 11

Classified list of expired patents—Continued.

CLASS IV.—CHEMICAL PROCESSES, MANUFACTURES, AND COMPOUNDS, *including medicine, dyeing, color-making, distilling, soap and candle making, mortars, cements, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Alkali, extracting from ashes in the manufacture of potass.	Jacob Osborn	Elyria, Ohio	July 18
Cement for covering buildings	Jacob Bump	Kirtland, Ohio	Sep. 3
Composition for rendering leather waterproof.	Charles F. Miller	Baltimore, Md	Aug. 28
Distilling, cooling the mash used in the process of.	Allen D. Ward	Minerva, Ky	Nov. 7
Gas, purifying, for illumination	Daniel Ganet	Richfield, N. Y	June 27
Lead, white, manufacture of	Horace Cory	England	Oct. 8
Lead, white, manufacture of	Smith Gardner	New York, N. Y	Aug. 28
Lead, white, preparing	James N. Treville	Christiansburg, Va	Mar. 31
Oil, lamp, ascertaining quality of	John W. Harris	Dorchester, Mass	Sep. 3
Paint, galvanic, protecting iron from rust	Lewis Knapp	New York	July 1
Paints, or pigments, improvement in mode of applying and preserving, (antedated October 7, 1839.)	Francis G. Spilsbury, Fanny Corbaux, Alexander S. Byrne.	England	July 10
Salt kettles, constructing and setting	Charles C. P. Crosby	Brooklyn, N. Y	Jan. 11
Soap frames, (antedated June 14, 1838)	Joseph R. Doe	London, England	Mar. 31
Solutions, decoctions, &c., evaporating, &c.	James W. W. Gordon	Baltimore, Md	Oct. 8
Tallow, preparing, for manufacture of candles, (antedated July 2, 1840.)	John Kirkman	New York, N. Y	Oct. 31

CLASS V.—CALORIFICS, *comprising lamps, fire-places, stoves, grates, furnaces for heating buildings, cooking apparatus, preparation of fuel, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Boilers, for heating water, &c	Daniel L. Pickard	Hartland, N. Y	Oct. 14
Cabooses, ships', and other cooking-stoves	Lottus Wood	New York, N. Y	Nov. 26
Caldron and furnace combined	Jordan L. Mott	New York, N. Y	Dec. 1
Candlestick, improvement in	William Church	Citizen of U. States, now in England.	Mar. 28
Chimneys, draught of	Geo. H. Crosby	New Haven, Ohio	Jan. 28
Coffee-roaster	Abel Stillman	Poland, N. Y	Dec. 28
Cooking, apparatus for	Joshua Grime	Beekmantown, N. Y	Dec. 28
Cooking ranges	Herbert H. Stimpson	Boston, Mass	Mar. 14
Cooking, steam-boilers and evaporators.	Dudley Marvin Oran W. Seeley	New York, N. Y Sodus, N. Y	Aug. 28
Cooking-stoves	David H. Hilliard	Cornish, N. H	Nov. 26
Cooking-stoves	James Parmele	Ogden, N. Y	Oct. 14
Cooking-stoves	Jas. Still	Zanesville, Ohio	Sept. 19
Cooking-stoves	Joel Greene	Rochester, N. Y	Dec. 28
Cooking-stoves	Jordan L. Mott	New York, N. Y	Dec. 17
Cooking stoves	R. G. Cochran	Francistown, N. H	Oct. 10
Cooking stoves	Samuel L. Chase	Woodstock, Vt	Sept. 25
Cooking-stoves	Samuel W. Cole	Chelsea, Mass	Aug. 25
Cooking-stoves	William Gallup	Norwalk, Ohio	June 10
Cooking-stoves	William Jeanes	Philadelphia, Pa	May 25
Cooking-stoves	William Meilsheimer	Philadelphia, Pa	Dec. 19
Cooking-stoves	William B. Lawrence	Cincinnati, Ohio	Oct. 14
Cooking stoves, burning bituminous coal, &c.	Horace Strickland	Bradford, Vt	June 27
Cooking-stoves, draught, &c., in	John P. Williston and Willard A. Arnold.	Northampton, Mass	Aug. 25
Cooking-stoves, elevated ovens of	Charles Guild	Cincinnati, Ohio	June 20
Cooking-stoves, arranging flues, and governing the draught in.	Joel Houghton	Ogden, N. Y	May 12
Cooking-stoves, Franklin, &c., improvement in.	Reuben B. Houghton	Clarkson, N. Y	Aug. 25
Cooking-stoves, Franklin	Lester Tilden	Barre, Vt	July 18
Cooking-stoves having elevated ovens	Peter Getz	Lancaster, Pa	Jan. 11
Cooking-stove, steam apparatus for	Reuben Jackson	Zanesville, Ohio	Mar. 19
Cooking-stoves with double fire-places	William Frazier	Brooklyn, N. Y	April 30
Drums, for heating apartments	Homer Roberts	Delhi, N. Y	April 30
Fire-places, to prevent their smoking			

Classified list of expired patents—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Furnace, bakers'	Gardner Chilson	Boston, Mass	June 10
Furnace, portable, for heating water in bathing tubs.	Randolph Densmore	Hopewell, N. Y	Nov. 26
Heat transmitting, by circulation of hot water. (An improvement in the apparatus patented by him August, 1838.)	Angier M. Perkins	Citizen of U States, now in London, England.	Sept. 4
Heating buildings, apparatus, &c	George M. Dexter	Boston, Mass	Dec. 1
Kitchen ranges	Ebenezer Barrows	Rochester, Mass	July 18
Lamp, argand, oil-burner, adapted to burn spirits of turpentine.	Charles Carr	Philadelphia, Pa	June 20
Lamp, camphene	Michael B. Dyott	Philadelphia, Pa	Aug. 25
Ovens, portable, combined with stoves	Edward Gosselin	New York, N. Y	Nov. 7
Stoves	Charles R. Wheeler	Boston, Mass	July 18
Stoves	John Scott	Philadelphia, Pa	April 8
Stoves and kettles, for making varnish, &c.	Harmon Hibbard	Attica, N. Y	June 17
Stoves, fire-chambers of, mode of constructing.	Benjamin F. and Job S. Gold	New York, N. Y	July 15
Stoves, for heating the air of apartments	George C. Howe	New York, N. Y	July 10
Warming buildings, by converting hollow walls into flues.	John A. Stewart	Philadelphia, Pa	June 17

Class VI.—Steam and gas engines, *including boilers, and furnaces therefor, and parts thereof.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Boilers, steam	Jacob B. Eversole	St. Louis, Mo	Mar. 31
Boilers, steam, connecting and supplying water to the same	Cadwallader Evans	Pittsburg, Penn	Sept. 3
Boilers of locomotive engines	John Penniman	Baltimore, Md	April 24
Boilers, steam, supplying with water	Benjamin M. Hyatt	Wilmington, Del	Oct. 10
Boilers, steam, preventing explosion of	James Reid	Pawtucket, R. I	May 19
Heat of blast furnaces to steam-boilers, applying the waste.	Martin Bell	Antes, Pa	June 10
Spark arrester	David Matthew	Schenectady, N. Y	Dec. 31
Spark arrester	Leonard Phieger	Philadelphia, Pa	Sept. 10
Spark arrester (improvement in patent, dated September 10, 1840.)	Leonard Phieger	Philadelphia, Pa	Dec. 28
Spark arrester	Randal Fish	New York, N. Y	Oct. 14
Spark extinguishers	David Ritter	New Haven, Conn	Nov. 26
Spark extinguishers	William P. McConnell	Washington, D. C	Dec. 10
Steam engine, arranging the cylinders in double cylinder engines, for preventing a "dead point" on the crank	Caleb L. Ferris	Courtland, N. Y	July 1
Steam engine, condensing apparatus of	Daniel Treadwell	Cambridge, Mass	Mar. 31
Steam engine, locomotive	Asa Whitney	Rotterdam, N. Y	June 27
Steam engine, locomotive	Matthias W. Baldwin	Philadelphia, Pa	Dec. 31
Steam engines, locomotive, and railroad carriages.	Alfred C. Jones	Philadelphia, Pa	Oct. 10
Steam engine, locomotive, for consuming sparks.	Fras. B Longmire and H. Jones Brooke.	Philadelphia, Pa	July 10
Steam engine, locomotive, regulating waste steam.	Ross Winans	Baltimore, Md	Nov. 26
Steam engine, packing for pistons, &c	Chas. P. Pike	Providence, R. I	Aug. 12
Steam engine, rotary	Jacob C. Robie	Binghampton, N. Y	Nov. 26
Steam engine, connecting the piston rod with the pistons of steam cylinders.	Matthias W. Baldwin	Philadelphia, Pa	Dec. 17
Steam engine, rotary, Drummond's	James Moore	Elizabethtown, N. J	June 10
Steam engine, rotary, packing	John D. Akin	Columbus, Pa	Mar. 19
Steam power, applying to locomotives, &c	John Ericsson	Kingdom of Sweden	Nov. 5
Valves, cut-off, for steam engines	William A. Lighthall	Albany, N. Y	Nov. 26

Classified list of expired patents—Continued.

Class VII.—Navigation and maritime implements, *comprising all vessels for conveyance on water, their construction, rigging, and propulsion, diving-dresses, life-preservers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Building and propelling vessels	George Burnham	Philadelphia, Pa	Dec. 10
Constructing canal boats in sections, &c.	Robert Frazer	Waynesburgh, Pa	Sept. 10
Constructing vessels, ships, and boats	George F. Bigelow	Norfolk, Va	Feb. 18
Life-preserver	Henry B. Bourne	New York, N. Y	May 8
Life-preserver	Ralph Bulkley	New York, N. Y	May 8
Life preserver	Rufus Porter	Billerica, Mass	May 25
Propelling boats, &c., apparatus for	Hugh Ronalds	Albion, Ill	Dec. 14
Propelling boats upon canals, &c., by steam.	Mellen Battel	Albany, N. Y	Oct. 14
Propelling boats, inclined float paddle-wheels for.	Francis W. Stevens	Chigwell, England	Sept.
Propelling boats, paddle wheels for	Matthew W. King	New York, N. Y	Jan. 15
Vessels, stranded, hauling off	Thomas Bell	Bellport, N. Y	Oct. 22

Class VIII.—Mathematical, philosophical, and optical instruments, *including clocks, chronometers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Alarm, fire	Rufus Porter	Billerica, Mass	Dec. 28
Alarm to clocks and other time-pieces, applying.	Benjamin Knight	Slatersville, R. I	Sept. 10
Alarm, to protect houses against thieves	Lester E. Denison	Saybrook, Conn	Oct. 22
Compass, surveyors'	William C. Poole	Lancaster, Pa	July 31
Electro-magnetic machine	Truman Cook	New York, N. Y	Aug. 25
Lottery schemes, mathematical operation of drawing.	Joseph Vannini	New York, N. Y	July 18
Maps, charts, &c., instruments for delineating.	Amity Bailey	Newberry, S. C	Sept. 4
Watches, duplex escapement in	Chas. Edward Jacot des Combes	Baltimore, Md	April 30

Class IX.—Civil engineering and architecture, *comprising works on rail and common roads, bridges, canals, wharves, docks, rivers, weirs, dams, and other internal improvements, buildings, roofs, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Blinds, Venetian, raising and lowering	John Weir	New York, N. Y	Oct. 8
Blinds, window, opening and closing	George Butterfield	Hopkinton, N. H	Sept. 4
Boring rocks, &c	Simon Pettes	Schenectady, N. Y	July 3
Bridge, floating swing	John N. Vrooman	Danube, N. Y	April 15
Bridge, truss frames for	William Howe	Warren, Mass	July 10
Bridge, truss frames of	William Howe	Warren, Mass	Aug. 3
Canal locks, sluice gates for	George W. Hildreth	Lockport, N. Y	Mar. 19
Dock, dry	Charles F. Johnson	Tioga, N. Y	Mar. 6
Dock, dry	John S. Gilbert	New York, N. Y	May 12
Dock, floating dry	John S. Gilbert	New York, N. Y	Mar. 25
Dock, floating dry	John S. Gilbert	New York, N. Y	Sept. 19
Dock, floating dry	Joseph T. Martin	New York, N. Y	Mar. 19
Dock, floating dry, (improvement in the floating dry dock patented to James H. Peck *et al.*, March 26, 1834.)	William Thomas	St. Louis, Mo	May 19
Doors, hanging	William D. Beasom and E. G. Reed, assignees of George W. Wilson.	Nashua, N. H	July 10

Classified list of expired patents—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Dredging machine	Oliver Allen	Norwich, Conn	May 8
Dredging machine	William Easby	Washington, D. C	Aug. 25
Earth, removing	Jarvis Ring	Ogden, N. Y	July 1
Excavating ditches, canals, &c.	Joseph Hanchett	Cold Water, Mich	Feb. 28
Macadamizing roads, &c., breaking stone for.	Nicholas Cooper, jr.	Wheeling Us'p, Oh.	June 27
	Townsend McConnell	Wheeling Us'p, Oh.	
	William E. Lukens	Short Creek, Ohio	
Railroad carriages, connecting and disconnecting.	James Stimpson	Baltimore, Md	Dec. 10
Railroad chairs, for sustaining and holding the rails.	William Dripps	Coatesville, Pa.	April 8
Railroad, construction of	James Herron	Baltimore, Md	April 18
Railroad, construction of	William Russell	New York, N. Y.	May 8
Railroad, construction of, and mode of applying power to propel carriages thereon (antedated March 3, 1840.)	John Rangeley	Camberwell, England	Dec. 28
Railroad, pneumatic, valves for	Samuel Clegg & Jacob Samuda	England	Dec. 31
Railroad switches	Nathaniel Eaton	Worcester, Mass	Sept. 3
Railroad switches, constructing and shifting.	Jesse La Rue	Bristol, Pa	Nov. 10
Railroad switches, shifting	Richard W. Shekells	Baltimore, Md	Oct. 22
Railroad tracks	Benjamin H. Latrobe	Baltimore, Md	Oct. 8
Railroad tracks, cleaning	William and James Thorn, jr.	Plainfield, N. J	Jan. 29
Railroad tracks, cleaning snow from, (antedated January 15, 1840.)	Charles Lombaert	Philadelphia, Pa	Mar. 31
Railroad tracks, cleaning snow from	Joseph H. Moore	Worcester, Mass.	Oct. 31
Railroad tracks, for cars to turn short curves.	Benjamin Woodworth	Boston, Mass.	
	Henry M. Naglee	Philadelphia, Pa	Aug. 22
Roofing houses	William Docker	New Orleans, La	Dec. 10
Rools, metal, supporting	Peter Naylor	New York, N. Y	June 12
Signals, by electro-magnetism	Samuel F. B. Morse	New York, N. Y	June 20
Snags, sawing or cutting	James Hamilton	New York, N. Y	June 27
Stumps, extracting	Eleazer Marble	Wyalusing, Pa	Dec. 14
Stumps, extracting	Frederick A. Stuart	Cattaraugus, N. Y	April 30
Stumps, extracting	John D. Akin	Columbus, Pa	Feb. 26
Stumps, extracting	Lewis and Charles Howard	Reading, N. Y	Sept. 14
Stumps, extracting	Miles C. Mix	Tompkins c'nty, N. Y.	Mar. 31
Surveying, hydrographic, art of	H. Ariel Norris	New York, N. Y	June 27
Telegraph, electro magnetic, (antedated June 12, 1837.)	Charles Wheatstone and Wm. F. Cooke	Great Britain	June 10
Weather strip, preventing water from beating under doors of houses, (antedated November 20, 1840.)	Alexander Kirkpatrick	Newark, N. J	Dec. 14
Wells, sinking, in alluvial soils, apparatus for.	Ebenezer Rice	Salina, N. Y	Nov. 26

CLASS X.—LAND CONVEYANCE, *comprising carriages, cars, and other vehicles used on roads, and parts thereof.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Axles and boxes for carriage wheels	Asa R. Reynolds	Skaneateles, N. Y	Dec. 5
Axles and shafts, using horizontal	Hiram M. Smith	Richmond, Va	April 15
Brakes, friction, for railroad cars, machinery for operating.	John L. Clarke	Nashua, N. H	April 11
Brake, railroad car, to prevent accidents, &c.	Matthew W. King	New York, N. Y	May 8
Brake, railroad carriages	Petrus J. O. Conway	Philadelphia, Pa	Sept. 10
Carriages or cars, railroad, constructing; also, mode of dispensing with switches, &c.	Isaac N. Stanley	Philadelphia, Pa	Mar. 12
Carriages, railroad, &c., coupling irons for	Thomas G. Owen	Baltimore, Md	July 1
Carriages, railroad, connecting and disconnecting.	James Stimpson	Baltimore, Md	Dec. 10
Carriages, two-wheeled, (antedated August 12, 1840.)	John Page	New York, N. Y	Sept. 14
Carriages, whipple-tree for	Benjamin Fowler, jr.	Hartford, Conn	June 17
	Assignee of Jas. Josey, *inventor*.	Stafford, Conn	
Sleds for transporting ice in blocks	Nathaniel J. Wyeth	Cambridge, Mass.	Dec. 1
Sleigh, metallic runner	Azariah Spear	Braintree, Vt.	May 25
Wheels, car, cast iron	Wm. W. Bergstresser	Harrisburg, Pa.	Jan. 11
Wheels, car, constructing	Albert Fuller	Providence, R. I.	Oct. 14
Wheel hubs, carriage, greasing, &c.	Nathaniel C. Day	Lunenburgh, Mass.	July 10
Wheel hubs, carriage, securing the boxes to their axles.	Lyman Smith, jr., and Griffin R. Waring.	Derby, Conn	June 17

Classified list of expired patents—Continued.

CLASS XI.—HYDRAULICS AND PNEUMATICS, *including water-wheels, windmills, and other implements operated on by air or water, or employed in the raising and delivery of fluids.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Balance or scale beam	Seth E. Winslow	Philadelphia, Pa	July 31
Balance, platform	Albert Dole	Bangor, Me	July 18
Balance, platform	Chauncy Grain and Evert S. Wemple.	Madison, N. Y	April 8
Press, cheese	J. A. Fletcher	Irasburg, Vt	June 20
Press, cheese	Rufus Porter	Billerica, Mass	April 15
Press, cotton	Fowler M. Ray	Catskill, N. Y	Aug. 25
Press, cotton, hay, &c.	James E. Kelsey	Poughkeepsie, N. Y.	Sept. 25
	James A. Potter	Providence, R. I	

CLASS XII.—LEVER, SCREW, AND OTHER MECHANICAL POWER, *as applied to pressing, weighing, raising, and moving weights.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1849.
Cock, stop	James Robertson	New York, N. Y	May 8
Faucet, molasses gate	Ammi West	Greene, Maine	Aug. 28
Hose, fire, stopping accidental breaches in.	Ralph Balkley	New York, N. Y	May 8
Hydrants and fire-plugs	S. H. Davies	Cincinnati, Ohio	July 18
Pumps	Joseph Evens	Lebanon, Ohio	May 25
Pumps	Lebbeus Caswell	Harrison, Me	May 19
Raising water, apparatus for producing a vacuum.	Eugene Ablon, assigs. of Pierre Ravard, *inventor*.	Paris, France	Dec. 17
Sparger, self-acting, &c.	H. Jones Brook and Francis B. Longmire.	Philadelphia, Pa	May 8
Water, supplying to buildings for purpose of extinguishing fires.	Lonson Bush	Erie county, N. Y	Oct. 16
	Adm'r of Isaac Lowell, *inventor*.	Late of Pendleton, N. Y.	
Water-wheel	Edward Robbins, jr., and Wm. Ashby.	Bordentown, N. J	Mar. 25
Water-wheel	Joseph Hanchett	Cold Water, Mich	July 15
Water-wheel, chain bucket	John Dutton, jr.	Ashton, Pa	Feb. 26
Water-wheel, percussion and reaction, (improvement on patent of October 19, 1829.) & Austin Parker of	Zebulon Parker and Rob't McKivey, adm'r of A. Parker, joint inventor with Z. Parker.	Ohio	June 27
Water-wheel, reaction	Archibald Bryce	Campbelltown, N. Y	Oct. 16
Water-wheel, tide or current	F. H. Southworth	St. Louis, Mo	Jan. 23
Water-wheel, tub	Abijah Woodward	Athol, Mass	May 8
Windmill, &c.	Isaac Garver and Samuel Fahrney.	Boonsboro', Md	Dec. 28

CLASS XIII.—GRINDING-MILLS AND MILL-GEARING, *including grain-mills, mechanical movements and horse-powers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Apples, &c., grinding	Thos. A. Wells	New York, N. Y	Aug. 25
Bark mill, breaking and grinding	Rich'd Montgomery and Lewis W. Harris.	Sangerfield, N. Y	Aug. 12
Coffee mill, &c., constructing	Laureston R. Livingston and Calvin Adams.	Pittsburg, Pa	Sept. 25
Grain, cleaning, scouring, and conveying; and cooling, bolting, and conveying flour.	Aaron Bull	Caroline, N. Y	Jan. 18
Grist-mill	Edward Gray	Ulysses, N. Y	Mar. 25
Grist-mill, constructing bales and drivers	Ezra R. Benton	Ohio City, Ohio	Mar. 31
Grist-mill, cylinder	Harvey W. Pitts	Wilsonville, Ala	July 1

Classified list of expired patents—Continued.

Inventions and discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Grist-mill, portable	Isaac Straub	Cincinnati, Ohio	Feb. 18
Horse-power	Chas. Hibbard	Guilford, N. H	Sept. 14
Horse-power	Enoch Piper	Camden, Me	June 10
Horse-power	George Strenge & Jacob Rohrer	Lancaster, Pa	May 8
Horse-power	Samuel S. Allen	Miamisburg, Ohio	Jan. 10
Horse-power, endless floor	Orestes Badger	Cooperstown, N. Y	Dec. 14
Mill-bush, (antedated June 18, 1840.)	Jacob Aulabaugh	East Berlin, Pa	July 18
Mill-bush, and keeping same close to the spindle.	Elijah W. Welsh	Paris, Va	Jan. 28
Mill-bush, self-regulating and self-oiling	Samuel Moore	Chambersburg, Pa	April 8
Mill, crushing hard substances	James Rowe	Athens, Ala	April 24
Mill-spindles, oiling and protecting from dirt.	Jesse Hubbard	Watertown, Conn	April 8
Mill-spindle, and trundle-head of mills	Elbridge G. Potter	Lebanon, Ill	July 18
Mill, sugar-grinding	Nathan Sargent	Cambridgeport, Mass	Sept. 10
Mill-stones, dressing	Robert M. Smith	Rutherford Co., Tenn	Feb. 8
Mill, wing gudgeons for	David Phillips	Georgetown, Pa	Dec. 28
Power, applying water to propel machinery.	William Baker	Utica, N. Y	May 19

CLASS XIV.—LUMBER, *including machines and tools for preparing and manufacturing, such as sawing, planing, mortising, shingle and stave, carpenters' and coopers' implements.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Auger, screw	William Field	Pawtucket, R. I	April 15
Blocks, forming for wooden pavements	Redwood Fisher, assignee of Augustus Count de Lisle, inventor.	Paris, France	July 10
Blocks of wood, sawing paving	Amaziah Nash	Calais, Maine	Nov. 13
Boring and mortising in chair seats, &c	William L. Harley	Chagrin Falls, Ohio	Aug. 14
Boxes, turning wooden	John H. Stevens, assignee of Chauncey E. Warner, inventor.	New York, N. Y	Jan. 18
Corks, cutting	Charles R. Macy	Hyde Park, N. Y	Oct. 31
Corks, cutting	Samuel Sawyer	Boston, Mass	June 10
Hewing plough beams, &c	Draper Boggess, Joel Nourse, and John C. Mason, assignees of Elbridge G Matthews.	Worcester, Mass	Oct. 22
Lathe, chuck for	Simon Fairman	Waterford, N. Y	July 18
Lathe, machinery for turning	John Clark, jr	Mile End, Glasgow, North Britain.	July 30
Mortising and tenoning machine	Andrew Bailey	Jefferson, Ohio	June 20
Pails, buckets, &c, making and affixing the ears and bales.	John F. Phelps	Havana, N. Y	May 19
Pit-sawing and slitting machine for sawing logs, &c.	James Hamilton	New York, N. Y	June 27
Planing machine	James McGregor, jr	Savage Factory, Md	July 15
Sawing and splitting timber	Jno. P. McDowell	Summit, Pa	Aug. 12
Sawing stuff circular	Thos. Kenderdine, jr	Horsam, Pa	Aug. 12
Saw mill dogs	Martin Rich	Ithaca, N. Y	Aug. 28
Saw mill, self adjusting log brace	Benjamin Cushwa	Clear Spring, Md	July 15
Saw mill, self tending	Edwin Moody and Sam'l Morrill	Andover, N. H	Feb. 8
Shingles, cutting	Miles R. Payne	Andersontown, Ia	Oct. 30
Splints, match, cutting	John H. Stevens, assignee of Elisha Fitzgerald.	New York, N. Y	July 18
Splints, match, manufacturing	Norman T. Winans and Thaddeus Hyatt.	New York, N. Y	Nov. 26
Staves, crossing and chiming	Charles F. Beverly	Salem, Ohio	Oct. 16
Staves, cutting	Cephas Manning	Acton, Mass	Sept. 10
Staves, cutting	Isaac Hosmer and Wm. P. L. Badger.	Concord, Mass	Sept. 9
Staves, cutting	Oliver Sheldon	N. Marlborough, Mass.	Sept. 10
Staves, cutting, &c	Cephas Manning	Acton, Mass	Sept. 14
Staves, dressing and jointing	Hervey Law	Wilmington, N. C	July 15
Tenons, cutting round, &c	Mahlon Gregg	Philadelphia, Pa	Dec. 10
Veneers, cutting	John Dresser	Stockbridge, Mass	Sept. 3
Veneers, cutting	Wm. R. Greenleaf and Alonzo Cole.	Geary, N. Y	Feb. 18
Veneers, straight or curved, laying on	Casper Kittenger	Massilon, Ohio	Mar. 14

Classified list of expired patents—Continued.

CLASS XV.—STONE AND CLAY MANUFACTURES, *including machines for pottery, glass-making, brick-making, dressing and preparing stone, cements, and other building materials.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Brick machines	James Hodge	Fairplay, S. C	Mar. 6
Brick machines	Julius Willard	Baltimore, Md	Jan. 29
Brick machines	Samuel Talbott	Richmond, Va	April 8
Brick machines, moulding and pressing	Stacy Costill	Philadelphia, Pa	Sept. 4
Flower-pots, or vases for plants, &c	Joseph Adams	Boston, Mass	Sept. 3
Kiln, brick	Henry Read	Kensington, Pa	June 17
Kiln, lime, regulating the draught of	Isaac Richardson	Paoli, Pa	Feb. 21
Stone, sawing mill for	David V. Rannels	Washington, Ky	Feb. 8

CLASS XVI.—LEATHER, *including tanning and dressing, manufacture of boots, shoes, saddlery, harness, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Boots and shoes, heels of	Samuel Warner	Lowell, Vt	July 1
	Jere. Hodgkin	Westfield, Vt	
	William E. Traver	Watervliet	
Boot forms, beveling	Elijah Holmes	Stoughton, Mass	Aug. 12
Boot, gaiter, gum elastic gores	John H. Dupont and Theodore Hyatt.	New York, N. Y	Oct. 30
Harness and carriages, safety	Edwin Eastlack	Greenwich, N. J	Jan. 10
Harness, breast plate for horses	Abel Post	Henrietta, N. Y	April 8
Leather, fair, manufacturing	John L. Turner	Philadelphia, Pa	July 15
Leather, whitening	James C. Booth	Philadelphia, Pa	Dec. 5
Mail bags, &c., mouth piece	James Sellers and Abraham L. Pennock.	Philadelphia, Pa	June 12
Pricking leather, preparatory to stitching, (antedated September 30, 1840.)	Samuel Sheldon	Cincinnati, Ohio	Oct. 10
Pricking leather, preparatory to stitching, (antedated September 21, 1840.)	Samuel Sheldon	Cincinnati, Ohio	Oct. 10
Saddles	Owen McClure	Fredonia, N. Y	Mar. 25
Saddle, elastic spring seat	Charles E. King	Mount Pleasant, Ohio	Feb. 21
Soles of pumps, shoes, &c., channelling and scarfing.	Lewis Baker	Fort Plain, N. Y	Sept. 2
Tanning, process of	Abel H. Buzzell	North Bridgewater, Massachusetts.	Aug. 25
Tanning, process of	Daniel Howell, assignee of	New York, N. Y	Dec. 17
	Walter Buchanan	Milford, Pa	
Tanning, process of	Richard T. Downing	Monroe county, Pa	April 30
	George D. Smith	Philadelphia, Pa	
Trunks, rendering them water-proof	Peter Getz	Lancaster, Pa	Nov. 7

Classified list of expired patents—Continued.

CLASS XVII.—HOUSEHOLD FURNITURE, MACHINES, AND IMPLEMENTS FOR DOMESTIC PURPOSES, *including washing-machines, bread and cracker machines, feather-dressing, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Bedsteads	John Hart	Lebanon, Ky	Mar. 3
Bedsteads, constructing and cording the same.	Martin Engel	Easton, Pa	April 24
Bedsteads, cutting screws upon the ends of the rails.	Jacob Lindley	Cynthiana, Ky	Oct. 10
Bedsteads, fastening	William H. Sabin	New Milford, Pa	May 12
Bedsteads, fastening, and attaching and stretching sacking.	Mahlon Gregg	Philadelphia, Pa	Mar. 25
Bedstead, windlass	Thomas Lamb	Washington city, D. C	Nov. 13
Chairs	Matthew W. King	New York, N. Y	Aug. 25
Chair, rocking	Samuel H. Bean	Philadelphia, Pa	Mar. 31
Cot, or cross bedstead sofa	Gerard Sickels	Middletown, Conn	Sept. 25
Crackers, making	Humphrey Winslow	Swansey, Mass	Dec. 14
Cutting vegetables	George J. Nevell	Rising Sun, Pa	Oct. 14
Dough, breaking or working	John W. Post	Baltimore, Md	Mar. 14
Feathers, cleaning and drying	John Hucks Stevens, assignee of Robert B. Lewis, *inventor*	New York, N. Y. / Hallowell, Me.	June 27
Preserving and holding butchers' meat in market places, apparatus for.	Adam Seltzer	Baltimore, Md	Sept. 5
Refrigerators	John Scott	Philadelphia, Pa	July 10
Sofa which can be adapted to invalids	Martin Engel	Easton, Pa	May 12
Washing clothes, machine for	Sewall Benson	Waterville, Me	May 25

CLASS XVIII.—ARTS, POLITE, FINE, AND ORNAMENTAL, *including music, painting, sculpture, engraving, books, paper, printing, binding, jewelry, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Coloring maps, mode of	Lucius Stebbins	Hartford, Conn	Mar. 12
Files for filing papers, screw nuts to be applied to.	William Mann	Philadelphia, Pa	July 3
Likenesses, taking, by means of concave reflector and plates.	Alexander S. Walcott	New York, N. Y	May 8
Organ, vocal	John W. Campbell	Attica, In	Nov. 26
Pencil-case, ever-pointed	Thomas Woodward	Brooklyn, N. Y	June 10
Pencil, ever pointed	Thomas Woodward	Brooklyn, N. Y	Oct. 14
Pens, steel writing	David Thomas	Hingham, Mass	July 3
Piano-fortes	Jonas Chickering	Boston, Mass	Oct. 8
Printing press	Stephen P. Ruggles	Boston, Mass	Nov. 10
Printing press, card	Samuel Orcutt	Boston, Mass	Aug. 25
Printing press, locomotive cylinder	Chas. J. Carr and Andrew Smith	Belpher, England	Sept. 10
Writing on glass, composition for	William Davison	New York, N. Y	May 8

Classified list of expired patents—Continued.

CLASS XIX.—FIRE-ARMS AND IMPLEMENTS OF WAR, *and parts thereof, including the manufacture of shot and gunpowder.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Balls, &c., throwing, &c	Joseph Martin, M. D	Louisville, Ky	Aug. 3
Balls or shot, manufacturing	Levi Magers	Baltimore, Md	Nov. 13
Fire-arms	Silas Day	New York, N. Y	Oct. 8
Guns, pistols, &c	Geo. Stocker and Jos. Bentley	Birmingham, Eng	April 8
Pontoon equipage for military and other operations.	Elisha Mills Huntington, administrator of J. F. Lane, deceased.	Terre Haute, Ind	June 17
Rifles and other fire-arms	James R. Thomas	Collingsworth, Ga	May 19
Rifles, movable loading muzzle for	Alvan Clark	Cambridge, Mass	April 24
Rocket staffs, mode of stiffening	John W. Cochrane	New York, N. Y	April 30

CLASS XX.—SURGICAL AND MEDICAL INSTRUMENTS, *including trusses, dental instruments, bathing apparatus, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Bathing apparatus, (antedated February 6, 1840.)	George J. Bird and Peter Milne	New York, N. Y	June 17
Baths, portable	J. Wright Warren, jr	Boston, Mass	July 31
Club-foot, apparatus for treatment of	John B. Brown	Boston, Mass	April 30
Teeth, artificial, instrument for adjusting the grinding surfaces of.	James Cameron	Philadelphia, Pa	April 30
Teeth, artificial, manufacture of, (antedated June 18, 1840.)	Daniel Harrington	Philadelphia, Pa	Dec. 16
Teeth, artificial, mode of attaching	Alfred Riggs	New York, N. Y	July 3
Teeth and gums, obtaining casts from, &c	Daniel T. Evens	Philadelphia, Pa	Aug. 28
Trusses for hernia, (antedated August 26, 1839)	Moore R. Fletcher	Boston, Mass	Feb. 26
Trusses for prolapsus uteri	Goodown Bright	Bellbrook, Ohio	Dec. 17
Trusses, surgeons'	Enoch Thomas	New Athens, Ohio	Mar. 12
Trusses, surgeons'	W. B. Dodson	Louisville, Ky	June 17

CLASS XXI.—WEARING APPAREL, ARTICLES FOR THE TOILET, &c., *including instruments for manufacturing.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Buttons, metallic, making, &c	Festus Hayden	Waterbury, Conn	July 10
Buttons, mode of fastening	Stephen Clapp, assignee of Henry W. Hewet.	New York, N. Y	Dec. 10
Combs, cutting the teeth of	Joseph S. Ives	Bristol, Conn	Oct. 8
Comb-plates, planing and forming	Julius Pratt, Fenner Bush, Aaron Pratt, and Zina K. Murdock.	Meriden, Conn	Oct. 26
	Geo. Read, Alpheus Starkey, Geo. Spencer, and Jno. C. Rodgers.	Saybrook, Conn	
	Assignees of Wm. M. Fowler, *inventor*.	North Brandford, Conn.	
Garments, measuring and draughting	Isaiah J. Hendryx	Troy, N. Y	April 16
Garments, measuring body, draughting, and cutting coats.	Thos. E. Tilden	Baltimore, Md	Dec. 5
Garments, tailors' measure	Richard Dame	Hanover, N. H	May 8
Garments, tailors' measuring instruments	William J. Lemmond	Lancaster, S. C	April 16
Wigs, metallic	François Bourgeret	New York, N. Y	May 8

Classified list of expired patents—Continued.

CLASS XXII.—*Miscellaneous.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
			1840.
Fire-escapes	Sylvester Penfield	Hartford, Conn	Mar. 3
Fire-escapes	William P. Withey	Hartford, Conn	May 12
Ice, cutting	Nath'l J. Wyeth	Cambridge, Mass	Dec. 1
Ice, machinery for raising blocks of	Nath'l J. Wyeth	Cambridge, Mass	Dec. 1
Ice, machinery for reducing blocks to uniform thickness, &c.	Nath'l J. Wyeth	Cambridge, Mass	Dec. 1
Ice, machinery for raising blocks of, from water, and depositing the same on sleds.	Nath'l J. Wyeth	Cambridge, Mass	Dec. 1
Stencil-plate, or apparatus for marking boxes.	Edwin Allen	Windham, Conn	Sept. 4

CLASSIFIED LIST OF PATENTS FOR DESIGNS THAT HAVE EXPIRED DURING THE YEAR 1854.

Designs.	Patentees.	Residence.	Date of patent.
			1847.
Buttons, ornamental	D. A. Booth	New York, N. Y	July 24
Clock frames	Nathaniel Batchelor	New York, N. Y	July 24
Floor cloth	James Albro, jr	Elizabethtown, N. J	July 24
Grates, fire-place	Adam Hampton	New York, N. Y	May 15
Grates, fire-place	James L. Jackson, assignee of Henry Biggins.	New York, N. Y	June 5
Grates, fire-place	James L. Jackson	New York, N. Y	May 15
Ovens, frames for	Charles W. Warnich and Frederick Liebrandt.	Philadelphia, Pa	May 8
Spoons	John C. Moore	New York, N. Y	May 29
Spoons, forks, &c	William Gale and Nathaniel Hayden.	New York, N. Y	Sept. 11
Spoons and forks	William Gale and Nathaniel Hayden.	New York, N. Y	Sept. 11
Spoons and forks	Michael Gibney	New York, N. Y	June 19
Spoon-handles, &c	John C. Moore	New York, N. Y	April 3
Stoves	Samuel H. Ransom, Assignee of Thomas Barry	Albany, N. Y / New York, N. Y	Oct. 2
Stoves	George P. Bowers and Joseph Pratt.	Boston, Mass	April 10
Stoves	Asa C. Brownell	Boston, Mass	Aug. 14
Stoves	Gilbert Geer, assignee of John Burgee.	Troy, N. Y	July 3
Stoves	Roswell Bush	Rochester, N. Y	Sept. 11
Stoves	James H. Conklin	Peekskill, N. Y	Sept. 11
Stove ornaments	William P. Cresson, assignee of Jacob Beesley and David Stuart.	Philadelphia, Pa	Jan. 13
Stoves	William P. Cresson, assignee of S. H. Sailor, D. Stuart, and J. Beesley.	Philadelphia, Pa	April 17
Stoves	William P. Cresson, assignee of D. Stuart, J. Beesley, and S. A. Watson.	Philadelphia, Pa	April 17
Stoves	Gilbert Geer	Troy, N. Y	May 1
Stoves	Jesse C. Potts, assignee of Samuel W. Gibbs.	Albany, N. Y	Oct. 23
Stoves	Augustus Quackenbush, assignee of Samuel W. Gibbs.	Albany, N. Y	Nov. 27
Stoves	Daniel F. Goodhue and Charles Guild.	Cincinnati, Ohio	Jan. 13
Stove plates	Daniel F. Goodhue and Charles Guild.	Cincinnati, Ohio	Dec. 4
Stoves	James G. Gordon	Schagticoke, N. Y	Oct. 2
Stoves	James Vinil and George Warren, assignees of Jeremiah D. Green.	Troy, N. Y	Oct.
Stoves	Charles Guild	Cincinnati, Ohio	Oct. 23
Stoves	Jacob Heermans	Nassau, N. Y	Oct. 2
Stoves	William Hackett	New York, N. Y	Aug. 14; antedat'd Feb. 12, 1847.

Classified list of patents for designs—Continued.

Designs.	Patentees.	Residence.	Date of patent.
			1847.
Stoves, cooking	Peter Low	Troy, N. Y	May 22
Stoves	John F. Seymour, assignee of Lucius O. Palmer.	Utica, N. Y	Dec. 18
Stoves	Elijah P. Penniman	Rochester, N Y	April 17
Stoves, cooking	Cheney, Hunter, & Rowe, assignees of Elijah P. Penniman.	Rochester, N. Y	Feb. 10
Stoves	Samuel H. Ransom / Assignee of Thomas Barry	Albany, N. Y / New York, N. Y	Jan. 5
Stoves	Samuel H. Ransom / Assignee of Thomas Barry	Albany, N. Y / New York, N. Y	Jan. 5
Stoves	Samuel H. Ransom, assignee of A. Whitney.	Albany, N. Y	Jan 5; antedat'd July 5, 1846.
Stoves	Samuel H. Ransom	Albany, N. Y	Jan. 5
Stoves	Samuel H. Ransom	Albany, N. Y	Aug. 7
Stoves	John F. Rathbone	Albany, N. Y	Mar. 20
Stoves	John F. Rathbone	Albany, N. Y	Aug. 7
Stoves	John F. Rathbone	Albany, N. Y	Oct. 23
Stoves	William Reesor	Cincinnati, Ohio	July 17
Stoves	Johnson & Cox, assignees of Ezra Ripley.	Troy, N. Y	Feb. 27
Stoves, parlor	Johnson & Cox, assignees of Ezra Ripley.	Troy, N. Y	July 3
Stoves, parlor	Johnson & Cox, assignees of Ezra Ripley.	Troy, N. Y	July 3
Stoves	Johnson & Cox, assignees of Ezra Ripley.	Troy, N. Y	Sept. 11
Stoves	Rowland A. Robbins	Baltimore, Md	Aug. 7
Stoves	Charles J. Shepard	New York, N. Y	Aug. 28
Stoves	John F. Rathbone, assignee of Peter J. Simmons.	Troy, N. Y	Mar. 20
Stoves	George W. & Henry Sizer	Springfield, Mass	Sept. 14
Stoves, parlor	Elihu Smith	Troy, N. Y	June 12
Stoves, air-tight	Samuel D. Vose	Albany, N. Y	June 26
Stoves	James Wager	Troy, N. Y	June 26
Stoves	Allen S. Wallace and James S. Lithgow.	Louisville, Ky	June 12
Stoves	Charles Wolff	Cincinnati, Ohio	Jan. 21
Stoves	Charles J. Woolson	Cleveland, Ohio	July 17
Stoves	Charles J. Woolson	Cleveland, Ohio	July 17
Woolens, printing on	George W. Wight	New York, N. Y	Sept. 11

ALPHABETICAL LIST OF PERSONS WHOSE PATENTS HAVE EXPIRED DURING THE YEAR 1854, WITH THEIR INVENTIONS OR DISCOVERIES, AND CLASS.

No.	Patentees.	Inventions or discoveries.	Class.
1993	Ablon, Eugene, assignee of Pierre Ravard, *inventor*.	Raising water, apparatus for producing a vacuum	XI.
1712	Adams, Amos	Smut-machine	I.
1761	Adams, Joseph	Flower pots, or vases for plants, &c	XV.
	Adams, Calvin. (See L. R. Livingston.)		
1519	Akin, John D	Steam-engine, rotary, packing	VI.
1500	Akin, John D	Stumps, extracting	IX.
1767	Allen, Edwin	Stencil-plate, or apparatus for marking boxes	XXII.
1591	Allen, Oliver	Dredging-machine	IX.
1466	Allen, Samuel S	Horse power	XIII.
1472	Allen, Samuel S	Hulling, husking, and shelling corn	I.
1863	Allyn, Edwin, and Clifton B. Hildreth	Cordage, clothes line, stretching and preserving	III.
1709	Ames, John	Paper; making, ruling, and cutting, at one operation	III.
1894	Andrews, James, and Enoch Piper	Hulling oats, barley, &c	I.
1882	Andrews, Solomon	Padlocks for mail-bags, &c	II.
	Angell, William G. (See John Thorpe.)		
	Arnold, Willard A. (See John P. Williston.)		
	Ashby, Wm. (See Edward Robbins, jr.)		
1701	Aulabaugh, Jacob	Mill-bush	XIII.
1577	Bachelder, Lorenzo and Samuel H	Seeding, seed planters	I.
1898	Badger, Orestes	Horse power, endless floor	XIII.
	Badger, Wm. P. L. (See Isaac Hosmer.)		
1770	Bailey, Amity	Maps, charts, &c., instruments for	VIII.
1649	Bailey, Andrew	Mortising and tenoning machine	XIV.
1732	Baker, Lewis	Soles of pumps, shoes, &c., channelling and scarfing	XVI.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
1614	Baker, William	Power, applying water, to propel machinery	XIII.
1485	Baldwin, James	Loom, shuttles for weaving cloth	III.
1904	Baldwin, Matthias W	Steam-engine, connecting the piston-rod with pistons of steam cylinders.	VI.
1921	Baldwin, Matthias W	Steam-engine, locomotive	VI.
1779	Barnes, Noah	Cultivators	I.
1845	Barrett, Jonathan F	Winnowing, separating garlic from wheat	I.
1694	Barrows, Ebenezer	Kitchen-ranges	V.
1868	Barton, Gardner, jr	Spring, door, for closing doors, &c	II.
1930	Battel, Mellen	Propelling boats upon canals, &c., by steam	VII.
1531	Bean, Samuel H	Chair, rocking	XVII.
1678	Beasom, William D., and E. G. Reed, assignees of George W. Wilson.	Doors, hanging	IX.
1639	Bell, Martin	Heat of blast furnaces to steam-boilers, applying the waste.	VI.
1832	Bell, Thomas	Vessels stranded, hauling off	VII.
1468	Benson, Benjamin	Cocooneries, removing filth from hurdles	III.
1616	Benson, Sewall	Washing clothes, machine for	XVII.
	Bentley, Joseph. (See George Stocker.)		
1533	Benton, Ezra R	Grist-mill, constructing bales and drivers	XIII.
1470	Bergstresser, William W	Wheels, car, cast-iron	X.
1929	Beverly, Charles F	Staves, crossing and chimning	XIV.
1561	Bigelow, Erastus B	Loom, power, weaving figured counterpanes, &c	III.
1492	Bigelow, George F	Constructing ships, vessels, &c	VII.
1704	Blake, Philos, Eli W., and John A	Latch, thumb	II.
1891	Booth, James C	Leather, whitening	XVI.
1507	Bosworth, Benjamin M	Latch, door	II.
1585	Bourgeret, François	Wigs, metallic	XXI.
1596	Bourne, Henry B	Life-preserver	VII.
1794	Bradfield, Edward	Smut-machine, cleaning grain, &c	I.
1967	Bright, Goodown	Trusses, for prolapsus uteri	XX.
1597	Brooke, H. J., and Francis B. Longmire	Sparger, self-acting, &c	XI.
	Brooke, H. Jones. (See F. B. Longmire.)		
1572	Brown, John B	Club-foot, apparatus for treatment of	XX.
1527	Bryant, William	Plough	I.
1831	Bryce, Archibald	Water-wheel, reaction	XI.
	Buchanan, Walter. (See Dan'l Howell.)		
1598	Bulkley, Ralph	Hose, fire, stopping accidental breaches	XI.
1595	Bulkley, Ralph	Life preserver	VII.
1474	Bull, Aaron	Grain, cleaning, scouring, and conveying, &c	XIII.
1765	Bump, Jacob	Cement for covering buildings	IV.
1725	Burch, John	Smut machine	I.
1890	Burden, Henry	Puddle-balls, &c., rolling, in manufacture of iron	II.
1757	Burden, Henry	Spikes, hook or brad-headed	II.
1893	Burnham, George	Building and propelling vessels	VII.
	Bush, Fenner. (See Julius Pratt, F. Bush, and others.)		
1489	Bush, Lonson, administrator of Isaac Lowell, *inventor*.	Water, supplying to buildings for extinguishing fires	XI.
1766	Butterfield, George	Blinds, window, opening and closing	IX.
1741	Buzzell, Abel H	Tanning, process of	XVI.
1636	Byrd, Geo. J., and Peter Milne	Bathing apparatus	XX.
1574	Cameron, James	Teeth, artificial, instruments for adjusting the grinding surfaces of.	XX.
1859	Campbell, John W	Organ, vocal	XVIII.
1644	Carr, Charles	Lamp, argand oil burner, adapted to burn spirits of turpentine.	V.
1775	Carr, Chas. J., and Andrew Smith	Printing presses, locomotive cylinder	XVIII.
1717	Carver, Eleazer	Saws, circular, cutting teeth of	II.
1718	Carver, Eleazer	Saws, filing and mortising teeth of	II.
1610	Caswell, Lebbeus	Pumps	XI.
1785	Chapin, William	Hats, bonnets, &c., straw, pressing and finishing	III.
1799	Chase, Samuel L	Cooking stoves	V.
1802	Chickering, Jonas	Piano forte	XVIII.
1627	Chilson, Gardner	Furnace bakers	V.
1528	Church, William	Candlestick, improvement in	V.
1490	Church, William	Clasps and buckles	II.
1659	Clapp, Hawley D., assignee of Henry W. Hewet, *inventor*.	Wrench, screw	II.
1889	Clapp, Stephen, assignee of Henry W. Hewet, *inventor*.	Buttons, mode of fastening	XXI.
1565	Clark, Alvan	Rifles, movable loading muzzle	XIX.
1705	Clark, John, jr	Lathe, machinery for turning	XIV.
1548	Clarke, John L	Brakes, friction, for railroad cars, machinery for operating.	X.
1922	Clegg, Samuel, and Jacob Samuda	Railroad, pneumatic, valves for	IX.
1581	Cochran, John W	Rocket staffs, mode of stiffening	XIX.
1614	Cochran, R. G	Cooking stoves	V.
	Cole, Alonzo. (See Wm. R Greenleaf.)		
1730	Cole, Samuel W	Cooking stoves	V.
1729	Cole, Samuel W	Seeding, planting corn, &c	I.
1777	Conway, Petrus J. O	Brake, railroad carriage	X.
1735	Cook, Truman	Electro-magnetic machine, &c	VIII.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
	Cooke, Wm F. (See Chas. Wheatstone.)		
1660	Cooper, Nicholas, jr., Townsend McConnell, and William E. Lukens.	Macadamizing roads, &c., breaking stone for	IX.
1733	Cooper, Thomas	Furnaces, puddling, for manufacturing iron with anthracite coal.	II.
1547	Copeland, Asa	Gin, cotton, constructing and affixing ribs to	III.
	Corbaux, Fanny. (See Fras. G. Spilsbury.)		
1804	Cory, Horace	Lead, white, manufacture of	IV.
1769	Costill, Stacy	Brick machines, moulding and pressing	XV.
1546	Crain, Chauncey, and Evert L. Wemple	Balance, platform	XII.
1864	Criswell, John	Thrashing machine, removing straw and separating grain in.	I.
1471	Crosby, Charles C. P	Salt kettles, constructing and setting	IV.
1479	Crosby, George H	Chimneys, draught of	V.
1648	Crowell, Allen, and William A	Churn	I.
1891	Cummings, James	Thrashing machine	XIV.
1691	Cushwa, Benjamin	Saw-mill, self-adjusting log-brace	XXI.
1584	Dame, Richard	Garments, tailors' measure	III.
1813	Daniels, Reuben	Cloth, &c., machine for reducing worn out, to fibrous state.	III.
1809	Daniels, Reuben	Cloth of various kinds, manufacturing	XI.
1702	Davies, S. H	Hydrants and fire plugs	II.
1495	Davis, Samuel	Punching sheet-iron for stove-pipes, &c	XVIII.
1588	Davison, William	Writing on glass, composition for	III.
1580	Day, Moses	Hemp, &c., preparing and spinning	X.
1689	Day, Nathaniel C	Wheel-hubs, carriage, greasing, &c	XIX.
1810	Day, Silas	Fire-arms	
	De Lisle, Augustus Count. (See Redwood Fisher.)		
1835	Denison, Lester E	Alarm to protect houses against thieves	VIII.
1866	Densmore, Randolph	Furnace, portable, for heating water in bathing-tubs	V.
1570	Des Combes, Charles Edward Jacot	Watches, duplex escapement in	VIII.
1875	Dexter, George M	Heating buildings, apparatus, &c	V.
1760	Dickinson, William	Paper-engine	III.
1887	Dicker, William	Roofing houses	IX.
	Dodge, Jonathan. (See Geo. D. Strong.)		
1641	Dodson, W. B	Trusses, surgeons'	XX.
1529	Doe, Joseph Bolton	Soap frames	IV.
1699	Dole, Albert	Balance platform	XII.
1576	Downing, Richard T., and Geo. D. Smith	Tanning, process of	XVI.
1764	Draper, Francis	Knobs, glass, for doors, &c	II.
1838	Draper, George	Loom, temple, rotary	III.
1758	Dresser, John	Veneers, cutting	XIV.
1542	Drippe, William	Railroad, chairs for sustaining and holding the rails	IX.
1841	Dupont, John H., and Theodore Hyatt	Boot, gaiter, gum elastic gores	XVI.
1499	Dutton, John, jr	Water-wheel, chain bucket	XI.
1742	Dyott, Michael B	Lamp, camphine	V.
1727	Easby, William	Dredging machine	IX.
1467	Eastlack, Edwin	Harness, and carriages, safety	XVI.
1759	Eaton, Nathaniel	Railroad switches	IX.
1564	Edes, Oliver, and Andrew Holmes	Rivets, machinery for making	II.
1722	Edwards, David	Locks, alarm, for doors, &c	II.
1562	Engel, Martin	Bedsteads, constructing and cording	XVII.
1555	Engel, Martin	Bee-hive	I.
1604	Engel, Martin	Sofa, which can be adapted to invalids	XVII.
1847	Ericsson, John	Steam power, applying to locomotives, &c	VI.
1763	Evans, Cadwallader	Boilers, steam, connecting, and supplying water to the same.	VI.
1743	Evens, Daniel T	Teeth and gums, obtaining casts from	XX.
1615	Evens, Joseph	Pumps	XI.
1538	Eversole, Jacob B	Boilers, steam	VI.
	Fahrney, Samuel. (See Isaac Garver.)		
1692	Fairman, Simon	Lathe, chuck for	XIV.
1755	Farrar, John	Stove-pipes, moulding and making	II.
	Felts, Nicholas. (See Levin Miner.)		
1667	Ferris, Caleb L	Steam-engine, arranging the cylinders in double-cylinder engines for preventing a "dead point" on the crank.	VI.
1553	Field, William	Auger, screw	XIV.
1922	Fish, Randal	Spark-arrester	VI.
1683	Fisher, Redwood, assignee of A. Count de Lisle, *inventor*.	Blocks, forming for wooden pavements	XIV.
1566	Fitzgerald, Daniel, Jesse, and Elisha	Braiding manilla and other fibrous substances	III.
	Fitzgerald, Elisha. (See John H. Stevens.)		
1659	Fletcher, J. A	Press, cheese	XII.
1501	Fletcher, Moore R	Trusses for hernia	XX.
1756	Fobes, Alpheus, and Fitch W. Taylor, assignees under Chas. Lyon, *inventor*.	Rivets, making	II.
1642	Fowler, Benj., jr., assignee of James Jorey, *inventor*.	Carriages, whipple-tree for	X.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
	Fowler, William M. (See Julius Pratt, F. Bush, and others.)		
1776	Frazer, Robert	Constructing canal boats in sections, &c	VII.
1571	Frazier, William	Drums, for heating apartments	V.
1824	Fuller, Albert	Wheels, car, constructing	X.
1815	Gail, Titus D.	Butter, working and pressing	I.
1624	Gallup, William	Cooking-stoves	V.
1656	Ganet, Daniel	Gas, purifying, for illumination	IV.
1744	Gardner, Smith	Lead, white, manufacture of	IV.
	Gardner, Smith. (See Alpheus Fobes and F. W. Taylor.)		
1914	Garver, Isaac, and Samuel Fahrney	Wind-mill, &c	XI.
1469	Getz, Peter	Cooking-stove, steam apparatus for	V.
1849	Getz, Peter	Trunks, rendering them water-proof	XVI.
1731	Gibbons, Joseph	Seeding, seed planters	I.
1624	Gilbert, John S.	Dock, dry	IX.
1606	Gilbert, John S.	Dock, floating dry	IX.
1792	Gilbert, John S.	Dock, floating dry	IX.
	Gillett, Phineas. (See Geo. C. Kellogg.)		
1567	Gladwin, Porter A	Corn-sheller	I.
1632	Gochnour, Daniel, jr	Plough, hill-side	I.
1689	Gold, Benjamin F. and Job S.	Stoves, fire-chambers of, mode of constructing	V.
1805	Gordon, James W. W	Solutions, decoctions, &c., evaporating, &c	IV.
1503	Gorham, Chester	Hats, palm-leaf, pressing	III.
1548	Gosselin, Edward	Ovens, portable, combined with stoves	V.
1523	Gray, Edward	Grist mill	XIII.
1913	Green, Joel	Cooking-stoves	V.
1493	Greenleaf, Wm. R., and Alonzo Cole	Veneers, cutting	XIV.
1526	Gregg, Mahlon	Bedsteads, fastening, and attaching and stretching sacking.	XVII.
1925	Gregg, Mahlon	Tenons, cutting round, &c	XIV.
1918	Grune, Joshua	Cooking, apparatus for	V.
1903	Grimes, William C.	Hulling rice, machinery for	I.
1763	Grimes, William C.	Winnowing, separating garlic from grain	I.
1745	Groat, Warner	Hulling rice, &c	I.
1573	Groff, Israel W.	Straw-cutting, feeding and pressing the straw	I.
1646	Guild, Charles	Cooking stoves, arranging flues and governing the draught in.	V.
1652	Hamilton, James	Pit-sawing and slitting machine, for sawing logs, &c.	XIV.
1663	Hamilton, James	Snags, sawing or cutting	IX.
1802	Hanchett, Joseph	Excavating ditches, canals, &c	IX.
1686	Hanchett, Joseph	Water-wheel	XI.
1736	Harding, Francis	Hair, curled, carding and picking	III
1723	Harley, William L.	Boring and mortising in chairs, &c.	XIV.
1881	Harrington, Daniel	Teeth, artificial, manufacture of	XX.
1764	Harris, John W.	Oil, lamp, ascertaining quality of	IV.
	Harris, Lewis W. (See Richard Montgomery.)		
1504	Hart, John	Bedsteads	XVII.
1892	Hayden, Festus	Buttons, metallic, &c	XXI.
1557	Hendryx, Isaiah J	Garments, measuring and draughting	XXI.
1871	Heritage, George	Silk, machine for skeining	III.
1910	Heritage, George	Silk, reeling from the cocoons	III.
1909	Heritage, George	Spinning silk, &c., from cocoons	III.
1558	Herron, James	Railroad, construction of	IX.
	Hewet, Henry W. (See H. D. Clapp.)		
	Hewet, Henry W. (See S. Clapp.)		
1788	Hibbard, Charles	Horse-power	XIII.
1637	Hibbard, Harmon	Stoves and kettles for making varnish, &c	V.
1654	Hicks, Lucien E.	Dies, for making door and other knobs of plate-metal	II.
	Hildreth, Clifton B. (See Edwin Allyn.)		
1517	Hildreth, George W	Canal locks, sluice-gates for	IX.
1558	Hilliard, David H	Cooking-stoves	V.
1772	Hinds, Jacob	Mowing, cutting grass under water	I.
1509	Hodge, James	Brick machine	XV.
	Hoigkin, Jere. (See Samuel Warner.)		
	Holmes, Andrew. (See Oliver Edes.)		
1716	Holmes, Elijah	Boot-forms, bevelling	XVI.
1393	Homer, Charles S.	Hoes, garden	I.
1754	Hosmer, Isaac, and Wm. P. L. Badger	Staves, cutting	XIV.
1508	Hotchkiss, Lewis and Willis	Latch, knob, for doors	II.
1901	Houghton, Joel	Cooking stoves, Franklin, &c., improvement in	V
1734	Houghton, Reuben B.	Cooking-stoves, Franklin	V.
1791	Howard, Lewis and Charles	Stumps, extracting	IX.
1677	Howe, George C.	Stoves for heating the air of apartments	V.
1685	Howe, William	Bridge, truss-frames for	IX.
1711	Howe, William	Bridge, truss-frames for	IX.
1906	Howell, Daniel (assignee of Walter Buchanan.)	Tanning, process of	XVI.
1538	Hubbard, Jesse	Mill-spindles, oiling and protecting from dirt	XIII.
	Hunt, Walter. (See George D. Strong and Jonathan Dodge.)		

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
1634	Huntington, Elisha Mills, (administrator of J. F. Lane, deceased.)	Pontoon equipage for military and other operations	XIX.
1834	Hutchinson, Benjamin	Knitting stockings, machine for	III.
1819	Hyatt, Benjamin M	Boilers, steam, supplying with water	VI.
	Hyatt, Thaddeus. (See Norman T. Winans.)		
	Hyatt, Theodore. (See John H. Dupont.)		
1811	Ives, Joseph S	Combs, cutting teeth of	XXI.
1599	Jackson, Reuben	Cooking-stoves with double fire-places	V.
1621	Jeanes, William	Cooking-stoves	V.
1506	Johnson, Charles F	Dock, dry	IX.
1819	Jones, Alfred C	Steam engine, locomotive, and railroad carriages	VI.
	Jorey, James. (See Benj. Fowler, jr.)		
1888	Judd, Oliver	Latch, door	II.
1790	Kane, Stephen, and Thomas and James Keane.	Wrench, screw	II.
1575	Kellogg, Geo. C., and Phineas Gillett	Wool, cotton, &c., picking and opening	III.
1798	Kelsey, James E., and James A. Potter	Press, cotton, hay, &c	XII.
1719	Kenderdine, Thomas, jr	Sawing circular stuff	XIV.
1494	King, Charles E	Saddle, elastic, spring-seat	XVI.
1587	King, Matthew W	Brake, railroad car, to prevent accidents, &c	X.
1737	King, Matthew W	Chairs	XVII.
1473	King, Matthew W	Propelling boats, paddle-wheels for	VII.
1844	Kirkman, John	Tallow, preparing for manufacture of candles	IV.
1901	Kirkpatrick, Alexander	Weather strip, for preventing water from beating under doors.	IX.
1514	Kittenger, Casper	Veneers, straight or curved, laying on	XIV.
1664	Knapp, Lewis	Paint, galvanic, protecting iron from rust	IV.
1780	Knight, Benjamin	Alarm to clocks and other time-pieces, applying	VIII.
1543	Knodle, Jonathan	Plough, combined	I.
1645	Lamb, Seth	Mowing-machine	I.
1856	Lamb, Thos	Bedsteads, windlass	XVII.
	Lane, J. F. (See E. Mills Huntington.)		
1797	Lapham, Daniel P., administrator of Benjamin Lapham, deceased.	Spinning, self-acting mule for	III.
1852	La Rue, Jesse	Railroad switches, constructing and shifting	IX.
1808	Latrobe, Benjamin H	Railroad tracks	IX.
1687	Law, Hervey	Staves, dressing and jointing	XIV.
	Lawton, Geo. W. (See Baxter D. Whitney.)		
1821	Lawrence, Wm. B	Cooking-stoves, burning bituminous coal, &c	V.
1556	Lemmond, Wm. J.	Garments, tailors' measuring instruments	XXI.
	Lewis, Robert B. (See Jno. Hucks Stevens.)		
1657	Lewis, Thos. J. & Geo. F	Seeding, seed-planters	I.
1661	Lewis, Thos J. & Geo. F	Seeding, seed-planters	I.
1870	Lighthall, William A	Valves, cut off, for steam-engines	VI.
1590	Lincoln, Jesse	Thrashing machine, shaking the screen in	I.
1816	Lindly, Jacob	Bedsteads, cutting screws upon the ends of the rails	XVII.
1795	Livingston, Lawreston R., and Calvin Adams.	Coffee-mill, &c., constructing	XIII.
1592	Lomax, Abel & Asahel	Winnowing-machines	I.
1530	Lombaert, Charles	Railroad tracks, cleaning snow from	IX.
1681	Longmire, Fras. B., & H. Jones Brooke.	Steam-engine, locomotive for consuming sparks	VI.
	Longmire, Fras. B. (See H. Jones Brooke)		
	Lowell, Isaac. (See Lonson Bush.)		
	Lukens, Wm. E. (See Nicholas Cooper, jr.)		
	Lyon, Chas. (See Alpheus Fobes, and F. W. Taylor.)		
1842	Macy, Chas. R	Corks, cutting	XIV.
1855	Magers, Levi	Balls or shot, manufacturing	XIX.
1673	Mann, William	Files, for filing papers, screw-nuts to be applied to	XVIII.
1781	Manning, Cephas	Staves, cutting	XIV.
1787	Manning, Cephas	Staves, cutting, &c	XIV.
1900	Marble, Eleazer	Stumps, extracting	IX.
1713	Martin, Joseph, M. D	Balls, &c., throwing, &c	XIX.
1518	Martin, Joseph T	Dock, floating dry	IX.
1612	Martin, Robert	Bee-hive	I.
1746	Marvin, Dudley, and Oran W. Seeley	Cooking, steam-boilers and evaporators	V.
	Mason, Jno. C. (See Draper Ruggles.)		
1861	Mason, William	Spinning, self-acting mule for	III.
1920	Matthew, David	Spark-arrester	VI.
	Matthews, Elbridge G. (See Draper Ruggles, and others.)		
1675	McCarthy, Fones	Gin, cotton	III.
1591	McCluer, Orren	Saddles	XVI.
	McConnel, Towns'd, & W. E. Lukens. (See Nicholas Cooper, jr.)		
1892	McConnell, Wm. P	Spark-extinguishers	VI.
1497	McCrone, John	Nails and spikes, wrought	II.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
1731	McDowell, John P	Sawing and splitting timber	XIV.
1609	McGregor, James	Hulling-machines	I.
1690	McGregor, James, jr	Planing-machine	XIV.
	McKelvey, Robt. (See Zebulon Parker.)		
1911	Meisheimer, William	Cooking-stoves	V.
1749	Miller, Chas. F	Composition for rendering leather water-proof	IV.
	Milne, Peter. (See George J. Byrd.)		
1696	Miner, Levin, and Nicholas Feits	Seeding, sowing cotton seed	I.
1537	Mix, Miles C	Stumps, extracting	IX.
1714	Montgomery, Richard, and Lewis W. Harris.	Bark-mill, breaking and grinding	XIII.
1747	Montgomery, William	Hemp, machinery for tarring slivers or bands of, and making oakum.	III.
1486	Moody, Edwin, and Samuel Morrill	Saw-mill, self tending	XIV.
1628	Moore, James	Steam-engine, rotary, Drummond's	VI.
1843	Moore, Jos. H., and Benj. Woodworth	Railroad tracks, cleaning snow from	IX.
1541	Moore, Samuel	Mill bush, self-regulating and self-oiling	XIII.
	Morrill, Samuel. (See Edwin Moody.)		
1647	Morse, Samuel F. B	Signals by electro-magnetism	IX.
1873	Mott, Jordan L	Caldron and furnace combined	V.
1872	Mott, Jordan L	Catches, oblique, &c., forming on plates, &c., of cast-iron.	II.
1906	Mott, Jordan L	Cooking-stove	V.
	Mulliken, Benj., jr. (See W. W. Smith.)		
1635	Murdock, Richard	Hats, bonnets, &c., ironing and pressing	III.
	Murdock, Zina K	Comb plates, planing and forming	XXI.
1726	Naglee, Henry M	Railroad tracks for cars to turn short curves	IX.
1857	Nash, Amaziah	Blocks of wood, sawing paving	XIV.
1631	Naylor, Peter	Roofs, metal, supporting	IX.
1825	Nevell, George J	Cutting vegetables	XVII.
1846	Newhall, Daniel	Trees, protecting, from the canker-worm	I.
1839	Nichols, Martin	Seeding, planting machine	I.
1662	Norris, H. Ariel	Surveying, hydrographic art of	IX.
	Nourse, Joel. (See Draper Ruggles.)		
1532	Olcott, Sands	Flax and hemp, preparing, &c	III.
1550	Olcott, Sands	Flax and hemp, reducing the fibres of	III.
1549	Olcott, Sands	Yarn, washing and cleaning	III.
1732	Orcutt, Samuel	Printing-press, card	XVIII.
1687	Osborn, Jacob	Alkali, extracting from ashes in manufacture of potass.	IV.
1606	Owen, Thomas G	Carriage, railroad, &c., coupling irons for	X.
1817	Page, George	Seeding, seed planting machine	I.
1789	Page, John	Carriages, two-wheeled	X.
	Parker, Austin. (See Zebulon Parker.)		
1658	Parker, Zebulon, and Robt McKelvey, administrator of A. Parker, joint inventor with Z. Parker.	Water-wheel, percussion and reaction	XI.
1827	Parmele, James	Cooking-stoves	V.
1840	Payne, Miles R	Shingle-cutting	XIV.
1505	Penfield, Sylvester	Fire-escapes	XXII.
1568	Penniman, John	Boilers of locomotive engines	VI.
	Pennock, Abraham L. (See Jas. Sellers.)		
	Pennock, Abraham L. (See Jas. Sellers.)		
1788	Perkins, Angier M	Heat, transmitting, by circulation of hot water	V.
1679	Perkins, Edward L	Paper, card, making	III.
1672	Pettes, Simon	Boring rocks, &c	IX.
1605	Phelps, John F	Pails, buckets, &c., making and affixing the ears and bales.	XIV.
1917	Philips, David	Mill, wing gudgeons for	XIII.
1748	Philips, Wm. H	Furnaces, smelting, heating the blast of	II.
1778	Phleger, Leonard	Spark-arrester	VI.
1912	Phleger, Leonard	Spark-arrester	VI.
1808	Pickard, Daniel L	Boilers for heating water, &c	V.
1715	Pike, Charles P	Steam-engine, packing for pistons, &c	VI.
1629	Piper, Enoch	Horse-power	XIII.
	Piper, Enoch. (See James Andrews.)		
1670	Pitts, Harvey W	Grist-mill, cylinder	XIII.
1707	Poole, William C	Compass, surveyor's	VIII.
1915	Porter, Rufus	Alarm, fire	VIII.
1619	Porter, Rufus	Life-preserver	XII.
1554	Porter, Rufus	Press, cheese	VII.
1545	Post, Abel	Harness, breast plate for horses	XVI.
1516	Post, John W	Dough, breaking or working	XVII.
1703	Potter, Elbridge G	Mill-spindle and trundle-head of mills	XIII.
	Potter, James A. (See Jas. E. Kelsey.)		
1857	Pratt, Julius, Penner Bush, Aaron Pratt, Zina K. Murdock, Geo. Read, Alpheus Starkey, George Spencer, and John C. Rodgers, assignees of William M. Fowler, *inventor*.	Comb-plates, planing and forming	XXI.
	Pratt, Aaron. (See Julius Pratt.)		
1773	Pratsman, August	Locks, door, and other	II

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
1916	Rangely, John	Railroad, construction of, and mode of applying power to propel carriages thereon.	IX.
1487	Rannells, David V	Stone, sawing-mill for	XV.
	Ravald, Pierre. (See Eugene Ablon.)		
1738	Ray, Fowler M	Press, cotton	XII.
1638	Read, Henry	Kiln, brick	XV.
	Read, George. (See Julius Pratt.)		
	Reed, E. G. (See William D. Beason.)		
1607	Reid, James	Steam-boilers, preventing explosion in	VI.
1883	Reynolds, Asa R	Axles and boxes for carriage-wheels	X.
1869	Rice, Ebenezer	Wells, sinking in alluvial soils, apparatus for	IX.
1751	Rich, Martin	Saw-mill dogs	XIV.
1496	Richardson, Isaac	Kiln, lime, regulating draught of	XV.
1674	Riggs, Alfred	Teeth, artificial, mode of attaching	XX.
1669	Ring, Jarvis	Earth, removing	IX.
1851	Ritter, David	Spark extinguishers	VI.
1525	Robbins, Edward, jr., and Wm. Ashby	Water-wheel	XI.
1578	Roberts, Homer	Fire-places, to prevent their smoking	V.
1583	Robertson, James	Cock-stop	XI.
1862	Robie, Jacob C	Steam-engine, rotary	VI.
1626	Robinson, George W., and Ezra B	Spring-bolt for door and other locks	II.
	Rodgers, John C. (See Julius Pratt.)		
1798	Rodgers, Peter	Locks for doors	II.
	Rohrer, Jacob. (See George Strenge.)		
1899	Ronalds, Hugh	Propelling boats, &c., apparatus for	VII.
1566	Rowe, James	Mill, crushing hard substances	XIII.
1836	Ruggles, Draper, Joel Nourse, and John C. Mason, assignees of E. G. Matthews.	Hewing plough-beams	XIV.
1851	Ruggles, Stephen P	Printing-press	XVIII.
1869	Russell, Jacob	Smut-machine	I.
1594	Russell, William	Railroad, construction of	IX.
1603	Sabin, William H	Bedsteads, fastening	XVII.
1476	Sacket, Dudley D	Braiding-machine	III.
	Samuda, Jacob. (See Samuel Clegg.)		
1783	Sargent, Nathan	Mill, sugar grinding	XIII.
1643	Sawyer, Samuel	Corks, cutting	XIV.
1684	Scott, John	Refrigerators	XVII.
1540	Scott, John	Stoves	V.
	Seely, Oran W. (See Dudley Marvin.)		
1908	Sellers, George Escol	Pipes, machinery for making, continuously, from lead.	II.
1620	Sellers, James, and Abraham S Pennock	Clasps of carpet bags	II.
1633	Sellers, James, and Abr'm L. Pennock	Mail-bags, &c., mouth piece	XVI.
1774	Seltzer, Adam	Preserving and holding butchers' meat in market-places, apparatus for.	XVII.
1833	Sheckells, Richard W	Railroad switches, shifting	IX.
1786	Sheldon, Oliver	Staves, cutting	XIV.
1818	Sheldon, Samuel	Pricking leather preparatory to stitching	XVI.
1817	Sheldon, Samuel	Pricking leather preparatory to stitching	XVI.
1480	Short, Young Wm	Grubs and bushes, extracting from land	I.
1890	Sickels, Gerard	Cot or cross-bedstead sofa	XVII.
	Smith, Andrew. (See Chas. J. Carr.)		
1762	Smith, Emery	Cotton waste or rags, &c., dressing	III.
1706	Smith, Hiram	Smut machine	I.
1559	Smith, Hiram M	Axles and shafts, oiling horizontal	X.
	Smith, George D. (See Rich. T. Downing.)		
1640	Smith, Lyman, jr., and Griffin R. Waring	Wheel-hubs, carriage, securing the boxes to their axles.	X.
1482	Smith, Mahlon	Plough, shares and cutters of, constructing and fastening.	I.
1488	Smith, Robert M	Mill-stones, dressing	XIII.
1854	Smith, Wm. W., and Benj. Mulliken, jr.	Spring, dow	II.
1477	Somerby, Theophilus	Nails, wrought	II.
1478	Southworth, F. H	Water-wheel, tide or current	XI.
1753	Spafford, George	Rags, boiling and washing	III.
1608	Spangler, Samuel	Smut-machine, cleaning grain	I.
1618	Spear, Arannah	Sleigh, metallic, runner	X.
	Spencer, George. (See George Read and others.)		
1676	Spilsbury, Francis, Fanny Corbaux, and Alexander S. Byrne.	Paints or pigments, applying and preserving	IV.
1613	Stafford, David	Thrashing machine	I.
1512	Stanley, Isaac Newton	Carriages or cars, railroad, constructing and mode of dispensing with switches.	X.
	Starkey, Alpheus. (See Julius Pratt.)		
1510	Stebbins, Lucius	Coloring maps, mode of	XVIII.
1771	Stevens, Francis W	Propelling boats, inclined float paddle-wheel	VII.
1475	Stevens, John Hucks, assignee of C. E. Warner, *inventor*.	Boxes, turning wooden	XIV.
1698	Stevens, John Hucks, assignee of E. Fitzgerald, *inventor*.	Splints, match, cutting	XIV.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
1656	Stevens, John Hucks, assignee of R. B. Lewis, inventor.	Feathers, cleaning and drying	XVII.
1794	Stewart, James A	Forges and furnaces, apparatus for blowing	II.
1639	Stewart, John A	Warming buildings by converting hollow walls into flues.	V.
1793	Still, James	Cooking-stoves	V.
1919	Stillman, Abel	Coffee-roaster	V.
1515	Stimpson, Herbert H	Cooking ranges	V.
1885	Stimpson, James	Railroad carriages, connecting and disconnecting	IX.
1544	Stocker, George, and Jos. Bentley	Guns, pistols, &c	XIX.
1491	Straub, Isaac	Grist-mill, portable	XIII.
1588	Strenge, Geo ge, and Jacob Rohrer	Horse-power	XIII.
1651	Strickland, Horace	Cooking-stoves, draught in	V.
1563	Strong, Charles	Loom, metallic heddle for	III.
1853	Strong, Geo. D., and Jonathan Dodge, assignees of Walter Hunt	Nails, brads, &c., cutting	II.
1579	Stuart, Frederick A	Stumps, extracting	IX.
1790	Talbot, James M	Bands, key, for tobacco casks	II.
1539	Talbott, Samuel	Brick-machine	XV.
	Taylor, Fitch W. (See Alpheus Fobes.)		
1671	Thomas, David	Pens, steel writing	XVIII.
1511	Thomas, Enoch	Trusses, surgeons'	XX.
1611	Thomas, James R	Rifles and other fire-arms	XIX.
1605	Thomas, William	Dock, floating dry	IX.
1513	Thomas, William	Spikes, heading	II.
1483	Thorn, William, and James, jr	Railroad tracks, cleaning	IX.
1498	Thorpe, John, and William G. Angell	Loom, heddle stuff, for making weavers' eye harness	III.
1698	Tilden, Lester	Cooking-stoves, having elevated ovens	V.
1880	Tilden, Thomas E	Garments, measuring body, and draughting and cutting coats.	XXI.
1902	Tillou, John	Cloth, taking wrinkles out of, while fulling	III.
1602	Tomlinson, Daniel	Hulling rice, machinery for	I.
	Traver, Wm. E. (See Samuel Warner.)		
1534	Treadwell, Daniel	Steam-engine, condensing apparatus of	VI.
1535	Trovillo, James N	Lead, white, preparing	IV.
1698	Turner, John L	Leather, fair, manufacturing	XVI.
1700	Vannini, Joseph	Lottery schemes, mathematical operation of drawing	VIII.
1551	Vrooman, John N	Bridge, floating swing	IX.
1850	Ward, Allen D	Distilling, cooling the mash used in process of	IV.
	Waring, Griffin R. (See Lyman Smith, jr.)		
	Warner, Chauncey E. (See John Hucks Stevens.)		
1665	Warner, Samuel, Jeremiah Hodgkin, and William E. Traver.	Boots and shoes, heels of	XVI.
1710	Warren, J. Wright, jr	Baths, portable	XX.
1465	Waterman, Henry	Brads, cutting	II.
1860	Webb, Constant	Churn	I.
1807	Weir, John	Blinds, Venetian, raising and lowering	IX.
1739	Wells, Thomas A	Apples, &c., grinding	XIII.
1481	Welsh, Elijah W	Mill-bush, and keeping same close to the spindle	XIII.
	Wemple, Evert L. (See Chauncey Crain.)		
1750	West, Ammi	Faucet, molasses gate	XI.
1622	Whetstone, Chas., and Wm. F. Cooke	Telegraph, electro-magnetic	IX.
1693	Wheeler, Charles R	Stoves	V.
1859	Whipple, Milton D	Wool, cleaning from burrs, &c., and ginning cotton	III.
1826	White, Samuel White	Hats, buoyant, used as life-preservers	III.
1728	Whitman, Luther	Thrashing-machine, conducting the straw and grain from the thrasher.	I.
1653	Whitney, Asa	Steam-engine, locomotive	VI.
1582	Whitney, Baxter D., and George W. Lawton	Cloth, stretching, in the process of fulling	III.
1484	Willard, Julius	Brick-machines	XV.
1697	Williams, Thomas Robinson	Felt cloths, without spinning and weaving, machinery for.	III.
1559	Williams, Thomas R	Stuffs, &c., machinery for manufacture of	III.
1874	Williams, William Morrett	Lock and key	III.
1740	Williston, John P., and Willard A. Arnold	Cooking-stoves, elevated ovens of	V.
	Wilson, Geo. W. (See Wm. D. Beasom.)		
1867	Winans, N. T., and Thaddeus Hyatt	Splints, match, manufacturing	XIV.
1868	Winans, Ross	Steam-engine, locomotive, regulating waste steam	VI.
1806	Winslow, Humphrey	Crackers, making	XVII.
1708	Winslow, Seth E	Balance or scale beams	XII.
1599	Withey, William P	Fire-escapes	XXII.
1592	Wolcott, Alexander S	Likenesses, taking, by means of concave reflector and plate.	XVIII.
1865	Wood, Loftis	Caboosses, ships', and other cooking-stoves	V.
1589	Woodward, Abijah	Water-wheel tub	XI.
1863	Woodward, Thomas	Pencil-case, ever-pointed	XVIII
1695	Woodward, Thomas	Pencil, ever-pointed	XVII.
	Woodworth, Benjamin. (See Joseph H. Moore.)		
1643	Worley, Joseph	Straw cutters	I.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
1877	Wyeth, Nathaniel J	Ice cutting	XXII.
1886	Wyeth, Nathaniel J	Ice, machinery for raising blocks of, &c	XXII.
1879	Wyeth, Nathaniel J	Ice, machinery for reducing blocks to uniform thickness.	XXII.
1878	Wyeth, Nathaniel J	Ice, machinery for raising blocks of, from water, and depositing same on sleds.	X.
1876	Wyeth, Nathaniel J	Ice, in blocks, sleds for transporting	III.
1896	Young, Edward L	Spinning, flier to twisting silk	

ALPHABETICAL LIST OF PERSONS WHOSE PATENTS FOR DESIGNS HAVE EXPIRED DURING THE YEAR 1854.

No.	Patentees.	Designs.
138	Albro, James, jr	Floor cloth.
154	Barry, Thomas, assignor to S. H. Ransom	Stoves.
137	Batchelor, Nathaniel	Clock frames.
125	Biggins, Henry, assignor to James L. Jackson	Grates, fire-place.
139	Booth, D. A	Buttons, ornamental.
113	Bowers, George P., and Joseph Pratt	Stoves.
143	Brownell, Asa C	Stoves.
133	Burgess, John, assignor to Gilbert Geer	Stoves.
147	Bush, Roswell	Stoves.
148	Conklin, James H	Stoves.
108	Cresson, Wm. P., Jacob Beesley, and David Stuart—the last two assignors to the *first*	Stoves, ornaments.
117	Cresson, Wm. P., S. H. Sailor, D. Stuart, and J. Beesley—the last *three* assignors to the *first*	Stoves.
116	Cresson, Wm. P., D. Stuart, J. Beesley, and S. A. Watson—the last *three* assignors to the *first*	Stoves.
149	Gale, William, and Nathaniel Hayden	Spoons, forks, &c.
150	Gale, William, and Nathaniel Hayden	Spoons and forks.
119	Geer, Gilbert	Stoves.
	Geer, Gilbert. (See John Burgess.)	
158	Gibbs, Samuel W., assignor to Jesse C. Potts	Stoves.
160	Gibbs, Samuel W., assignor to Augustus Quackenboss	Spoons and forks.
128	Gibney, Michael	Stoves.
107	Goodhue, Daniel F., and Charles Guild	Stove plate.
161	Goodhue, Daniel F., and Charles Guild	Stoves.
155	Gordon, James G	Stoves.
156	Green, Jeremiah D., assignor to Viall & Warren	Stoves.
159	Guild, Charles	Stoves.
	Guild, Charles. (See Daniel F. Goodhue.)	
122	Hampton, Adam	Grates, fire-place.
	Hayden, Nathaniel. (See William Gale.)	
153	Heermans, Jacob	Stoves.
144	Hickok, William	Stoves.
	Jackson, James L. (See H. Biggins.)	
121	Jackson, James L	Grates, fire-place.
	Johnson & Cox. (See Ezra Ripley.)	
	Liebrandt, Frederick. (See Chas. W. Warnich.)	
123	Low, Peter	Stoves, cooking.
	Lithgow, Jas. S. (See A. S. Wallace.)	
114	Moore, John C	Spoon handles, &c.
124	Moore, John C	Spoons.
162	Palmer, Lucius O., assignor to John F. Seymour	Stoves.
118	Penniman, Elijah P	Stoves.
110	Penniman, Elijah P., assignor to Cheney, Hunter, and Rowe	Stoves, cooking.
	Potts, Jesse C. (See Sam'l W. Gibbs.)	
	Quackenboss, Augustus. (See Sam'l W. Gibbs.)	
103	Ransom, Samuel H., assignee of Thos. Barry	Stoves.
104	Ransom, Samuel H., assignee of Thos. Barry	Stoves.
105	Ransom, Samuel H., assignee of A. Whitney	Stoves.
106	Ransom, Samuel H	Stoves.
141	Ransom, Samuel H	Stoves.
	Ransom, Samuel H. (See Thomas Barry.)	
113	Rathbone, John F	Stoves.
	Rathbone, John F. (See Peter J. Simmons.)	
142	Rathbone, John F	Stoves.
157	Rathbone, John F	Stoves.
134	Resor, William	Stoves.
115	Ripley, Ezra, assignor to Johnson & Cox	Stoves, parlor.
131	Ripley, Ezra, assignor to Johnson & Cox	Stoves, parlor.
132	Ripley, Ezra, assignor to Johnson & Cox	Stoves.
151	Ripley, Ezra, assignor to Johnson & Cox	Stoves.
140	Robbins, Rowland A	

Alphabetical list of patents for designs—Continued.

No.	Patentees.	Designs.
145	Seymour, John F. (See Lucius O. Palmer.)	Stoves.
119	Shepard, Chas. J.	Stoves.
146	Simmons, Peter J., assignor to Jno. F. Rathbone	Stoves.
136	Sizer, Geo. W. & Henry	Stoves.
120	Smith, Elihu	Stoves, parlor.
139	Vail, James. (See Jeremiah D. Greene.)	
138	Voet, Samuel D.	Stoves, air-tight.
137	Wager, James	Stoves.
130	Wallace, Allen S., and Jas. S. Lathgow	Stoves.
147	Warnick, Chas. W., and Frederick Liebrandt	Ovens, frames for.
148	Warren, George. (See J. D. Greene.)	
109	Whitney, Amariah. (See S. H. Ransom.)	Woolens, printing on.
135	Wight, Geo. W.	Stoves.
126	Wolff, Chas.	Stoves.
	Woolson, Chas. J.	Stoves.
	Woolson, Chas. J.	Stoves.

CLASSIFIED LIST OF PATENTS GRANTED DURING THE YEAR 1854, WITH THE NAMES OF PATENTEES, PLACES OF RESIDENCE, AND DATE OF PATENTS.

CLASS I.—AGRICULTURE, *including instruments and operations.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Beehives	John H. Dennis	Boston, Mass	Jan. 24, 1854.
Beehives	Clark Wheeler	Little Valley, Cattaraugus county, N. Y.	May 9, 1854.
Beehives	Henry Eddy	N. Bridgewater, Mass	Sept. 19, 1854.
Cheese-hoops	John Beach	De Ruyter, Madison county, N. Y.	May 23, 1854.
Cheese-vats	Henry A. Roe	West Andover, Ohio	Dec. 12, 1854.
Churns	Isaac L. Dickenson	Richmond, Wayne county, Ind	Jan. 31, 1854.
Churns	Robert W. Davis	Rodgersville, N. Y	Feb. 28, 1854.
Churns	R. H. Harrison, assignor to R. H. Harrison and J. J. Gallaher, jr.	Washington, D. C	Mar. 28, 1854.
Churns	Elbridge Webber	Gardiner, Maine	Dec. 5, 1854.
Clover-hullers	A. B. Crawford	Wooster, Ohio	Nov. 28, 1854.
Corn-crushers. (See Class XIII.)			
Corn, mill for shelling and grinding	Henry R. Miller	Louisville, Ky	Dec. 5, 1854.
Corn-shellers	George A. Xander	Hamburg, Pa	Jan. 3, 1854.
Corn-shellers	Banford Gilbert	Strongsville, Ohio	Jan. 3, 1854.
Corn-shellers	A. J. Smith	Piqua, Miami county, Ohio	Aug. 29, 1854.
Corn-shellers	Gilbert Maynard	Gill, Franklin county, Mass	Sept. 12, 1854.
Corn-shellers	Samuel Gumaer	Aurora, Ill	Nov. 7, 1854.
Corn-shellers	Jeremiah P. Smith	Hummelstown, Pa	Nov. 7, 1854.
Corn-shellers	Enos Boughton	East Bloomfield, N. Y	Jan. 31, 1854.
Cultivators	Charles K. Farr	Hinds county, Miss	May 9, 1854.
Cultivators	Whitman Price	Goldsborough, N. C	June 6, 1854.
Cultivators	Griffith Lechtenthaler	Limestoneville, Pa	July 25, 1854.
Cultivators	Charles H. Dana	West Lebanon, N. H	July 25, 1854.
Cultivators	Charles K. Farr	Auburn, Miss	Aug. 1, 1854.
Cultivators	Daniel W. Shares	Hamden, Ct	Aug. 1, 1854.
Cultivators	William T. Bazemore	Macon, Ga	Aug. 29, 1854.
Cultivators	William Bancroft	Whiteford, Ohio	Nov. 14, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Cultivators	Job Brown	Lawn Ridge, Ill	Nov. 14, 1854.
Cultivators, rotary	George B. Field	St. Louis, Mo	Mar. 14, 1854.
Cultivators, rotary	Philander Shaw	Abington, Mass	Mar. 14, 1854.
Cultivator, rotary	H. M. Johnson	Carlisle, Pa	June 27, 1854.
Cultivators' teeth, machines for forming	David B. Rogers	Pittsburg, Pa	Mar. 28, 1854.
Cutter, corn-cob	Isaac Straub	Cincinnati, Ohio	July 25, 1854.
Eggs, hens' in the nest, devices for preserving	C. V. Ament	Dansville, N. Y	Mar. 21, 1854.
Forks, hay and manure, shanks of	R. M. Hine, assignor to Silsby and Hines	Seneca Falls, N. Y	Jan. 3, 1854.
Fruit-picker	John Melendy	Southbridge, Mass	June 27, 1854.
Grain, cleaning, screens for hulling clover-seed and.	Martin H. Mansfield	Ashland, Ohio	Aug. 1, 1854.
Grain, threshers and cleaners of	James Robinson	West Hebron, N. Y	Jan. 24, 1854.
Grain, threshers and separators of	Charles R. Soule	Fairfield, Vt	Jan. 24, 1854.
Grain, threshers and separators of	John Zink	Greensville, Augusta county, Va	Feb. 21, 1854.
Grain, threshers and separators of the feeding-hoppers of.	Spencer Moore	Central Bridge, N. Y	Oct. 3, 1854.
Grain-threshers	J. L. Garlington	Snapping Shoals, Newton county, Ga.	Mar. 21, 1854.
Granaries	Ebenezer Ford	Spring Cottage, Miss	Oct. 24, 1854.
Grape-frame	S. Oscar Cross	Sandy Hill, Washington county, N. Y.	June 27, 1854.
Harrows	Washington F. Pagett	Stone Bridge, Clarke county, Va.	May 2, 1854.
Harrows	William Anderson	Jacksonville, N. Y	Aug. 1, 1854.
Harrows	Jacob Myers	Powhatan Point, Belmont county, Ohio.	Aug. 15, 1854.
Harrows	John G. McCauley	Stone Bridge, Va	Aug. 29, 1854.
Harrows	E. L. Hager	Frankfort, N. Y	Dec. 12, 1854.
Harrows, flexible	W. B. & G. M. Ramsay	South Strabane, Washington county, Penn.	May 2, 1854.
Harvesters	Solyman Bell	Marseilles, Ill	Feb. 28, 1854.
Harvesters	Philip H. Kells	Hudson, N. Y	Mar. 21, 1854.
Harvesters	Wm. H. Seymour	Brockport, N. Y	Mar. 28, 1854.
Harvesters	Ira Reynolds	Republic, Seneca county, Ohio	June 13, 1854.
Harvesters, clover	Thomas S. Steadman	Murray, Orleans county, N. Y	May 23, 1854.
Harvesters, clover	John S Gage	Dowagiac, Mich	Dec. 19, 1854.
Harvester cutters	Bronson Murray	Farm Ridge, Ill	June 13, 1854.
	Assignor to T. R. Spencer	Geneva, N. Y	
	Assignor to J. S. Wright	Chicago, Ill	
Harvesters, discharge apparatus of	A. J. Cook	Enon, Clark county, Ohio	Mar. 28, 1854.
Harvesters, grain	Aaron Palmer	Brockport, Wis	Jan. 24, 1854.
	S. G. Williams	Janesville, Wis	
Harvesters, grain	Daniel S. Middlekauff	Hagerstown, Md	Mar. 14, 1854.
Harvesters of grain	Benjamin G. Fitzhugh	Frederick, Md	Mar. 28, 1854.
Harvesters, grain and grass	Henry Greene	Ottawa, La Salle county, Ill	Mar. 21, 1854; antedated Sept. 21, 1853.
Harvesters of grain and grass	John J. Weeks	Oyster Bay, N. Y	Sept. 26, 1854.
Harvesters, grain and grass	John H. Manny	Freeport, Ill	Oct. 17, 1854; antedated June 15, 1854.
Harvesters, grain and grass	Jacob Swartz	Buffalo, N. Y	Nov. 14, 1854.
Harvesters, grain and grass	Cyrenus Wheeler, jr	Poplar Ridge, N: Y	Dec. 5, 1854.
Harvesters, grain and grass	Wm. F. Ketchum. assignor to R. L. Howard.	Buffalo, N. Y	Dec. 19, 1854.
Harvesters, grass	Martin Hallenbeck	Albany, N. Y	April 18, 1854.
Harvesters, grass	George Esterly	Heart Prairie, Walworth county, Wis.	June 27, 1854.
Harvesters, grass, track cleaners to	Abner Whiteley	Springfield, Ohio	Aug. 22, 1854.
Harvesters, guard fingers of	Wm. F. Ketchum, assignor to R. L. Howard.	Buffalo, Erie county, N. Y	April 25, 1854.
Harvesters, maize	Seneca Lapham, deceased; Wm. Lapham, executor of.	Salem, Ohio	April 18, 1854.
Harvesters, maize	Gardner A. Bruce	Mechanicsburg, Ill	Aug. 29, 1854.
Harvesters, maize	James S. Burnham	West Jefferson, Ohio	Sept. 19, 1854.
Harvester rakes	Cyrus Roberts	Bellsville, St. Clair county, Ill	May 16, 1854.
Harvester rakes	Collins B. Brown	Upper Alton, Madison county, Ill	July 11, 1854.
Hay elevators	Thomas T. Jarrett	Horsham, Montgomery county, Pa	May 30, 1854.
Hay knives	Seth Whalen	West Milton, Saratoga county, N. Y.	May 2, 1854.
Hedge trimmer	Leonard Woods	Quincy, Ill	July 25, 1854.
Hoes	Moses Gates	Gallipolis, Ohio	Dec. 12, 1854.
Hoes, planting	Wm. G. Stirling	Bridgeport, Conn	Feb. 14, 1854.
Hog pens	Robert M. Abbe	Thompsonville, Hartford county, Conn.	Aug. 29, 1854.
Hullers, clover, concaves of	Thomas Carpenter	Manlius, N. Y	Mar. 21, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Manure excavators	Abraham R. Hurst	Harrisburg, Pa	Aug. 29, 1854.
Manure and lime spreaders	Joseph W. Fawkes	Christiana, Lancaster county, Pa.	Aug. 29, 1854.
Manure spreader	Elbridge Marshall	Clinton, N. J.	Aug. 22, 1854.
Manure and sand loader	Horatio G. Marchant	Annisquam, Essex county, Mass.	May 9, 1854.
Milkers' protector	John M. Weare	Seabrook, Rockingham county, N. H.	May 2, 1854.
Moth-killer	W. A. Flanders	Sharon, Windsor county, Vt.	June 6, 1854.
Mowing machine	Alanson Gale	Poughkeepsie, N. Y.	July 25, 1854.
Planters, corn	Samuel Malone	Fremont, Ill.	Jan. 3, 1854.
Planters cotton-seed	George W. Cooper	Palmyra, Lee county, Ga.	Mar. 7, 1854.
Planters, seed	Lewis W. Colver	Louisville, Ky.	Feb. 28, 1854.
Planters, seed	Thomas D. Henson and George Rohr	Charlestown, Va.	Feb. 28, 1854.
Planters, seed	John G. Snyder and Joseph Young	Duncannon, Pa.	Feb. 28, 1854.
Planters, seed	Luther B. Fisher	Coldwater, Branch county, Mich.	Mar. 7, 1854.
Planters, seed	J. C. Gaston	Reading, Hamilton county, Ohio.	Mar. 7, 1854.
Planters, seed	J. G. Macfarlane	Centre, Perry county, Pa.	Mar. 14, 1854.
Planters, seed	Charles W. Billings	South Deerfield, Mass.	Mar. 14, 1854.
Planters, seed	Welcome Sprague	Ellicottsville, Cattaraugus county, N. Y.	Mar. 14, 1854.
Planters, seed	David & Herman Wolf	North Lebanon, Pa.	Mar. 21, 1854.
Planters, seed	Luther B. Fisher	Coldwater, Branch county, Mich.	Mar. 28, 1854.
Planters, seed	Thomas Carter	Laurens District, S. C.	April 11, 1854.
Planters, seed	Elbridge Marshall	Clinton, Hunterdon county, N. J.	April 11, 1854.
Planters, seed	George T. Enoch and Daniel Wissenger	Springfield, Ohio	May 9, 1854.
Planters, seed	William B. Johnson	Staunton, Va.	June 6, 1854.
Planters, seed	Waitman Davis	Morgantown, Monongalia county, Va.	June 6, 1854.
Planters, seed	Daniel Hill	Bartonia, Randolph county, Ind.	June 27, 1854.
Planters, seed	Samuel Ide	East Shelby, Orleans county, N. Y.	July 4, 1854.
Planters, seed	Charles A. Wakefield	Plainfield, Mass.	July 25, 1854.
Planters, seed	Wm. Bullock, assignor to Burton G. Morse	Red Falls, N. Y.	Aug. 1, 1854.
Planters, seed	J. T. & L. J. Wait	Waterloo, S. C.	Aug. 15, 1854.
Planters, seed	John H. King, jr	Georgetown, D. C.	Aug. 29, 1854.
Planters, seed	Samuel M. Hockman	Tom's Brook, Va.	Aug. 29, 1854.
Planters, seed	Wm. Redick	Uniontown, Fayette county, Pa.	Aug. 29, 1854.
Planters, seed	Louis Daser	Washington, D. C.	Sept. 5, 1854.
Planters, seed	Charles H. Dana	West Lebanon, N. H.	Sept. 5, 1854.
Planters, seed	Absalom B. Earle	Franklin, N. Y.	Oct. 24, 1854.
Planters, seed	George W. Lee	Ercildown, Pa.	Nov. 21, 1854.
Planters, seed	Milan Waterbury	Cuba, N. Y.	Nov. 21, 1854.
Planters, seed	John Andrews, assignor to John Andrews, N. A. Richardson, and Gardner Symmes.	Winchester, Mass	Dec. 12, 1854.
Planters, seed, and cultivators	Daniel W. Shares	Hamden, Conn	Dec. 12, 1854.
Ploughs	John S. Hall	Manchester, Alleghany county, Pa.	Feb. 7, 1854.
Ploughs	Jacob Revercomb	Botetourt Springs, Roanoke county, Va.	June 27, 1854.
Ploughs	Thomas F. Chapin	Walpole, N. H.	July 25, 1854.
Ploughs	John S. Hall	Manchester, Pa.	Aug. 1, 1854.
Ploughs	Joshua Gibbs	Canton, Stark county, Ohio	Aug. 15, 1854.
Ploughs	O. G. Ewing	Heart Prairie, Walworth county, Wis.	Aug. 29, 1854.
Ploughs	Henry F. Baker	Centreville, Ind.	Oct. 24, 1854.
Ploughs	Jonathan Hibbs	Tullytown, Pa.	Nov. 14, 1854.
Ploughs, ditching	Joseph C. Tiffany	Coxsackie, Greene county, N. Y.	April 25, 1854.
Ploughs, ditching	John Lyon	Harrisburg, Iowa	July 25, 1854.
Ploughs, ditching, and excavator	Charles A. Robbins	Iowa City, Iowa	Nov. 14, 1854.
Ploughs, fastenings of	David & Samuel Swarts	Tom's Brook, Va.	Aug. 22, 1854.
Ploughs, handles, and other articles, machine for polishing.	Thomas Blanchard	Boston, Mass.	Feb. 7, 1854.
Ploughs, mould-boards of	Edwin M. Bard	Philadelphia, Pa.	Mar. 14, 1854.
Ploughs, for planting potatoes	Whitman Price	Goldsborough, N. C.	Aug. 29, 1854.
Potato diggers	Charles H. Dana	West Lebanon, Grafton co., N. H.	May 16, 1854.
Potato diggers	Galusha J. Bundy	Lyndon, Caledonia county, Vt.	July 4, 1854.
Potato diggers	Ives W. McGaffey	Philadelphia, Pa.	Nov. 7, 1854.
Rakes	D. M. Cummings	E. field, Mass.	Aug. 15, 1854.
Rakes, horse	Moses D. Wells	Morgantown, Va.	Aug. 15, 1854.
Scythe-fastenings	S. B. Bachelor	Watertown, N. Y.	Feb. 28, 1854.
Scythe-fastenings	Thomas C. Ball, assignor to Nathaniel Lamson.	Shelburne Falls, Mass.	Nov. 21, 1854.
Scythe, form of	Joseph W. Robinson	Kirkland, Oneida county, N. Y.	Mar. 14, 1854.
Separators, clover	Christian Reif	Hartleton, Pa.	Aug. 8, 1854.
Separators, straw and grain	Archibald Bowen	Wadesville, Va.	Oct. 24, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Spade, ditching	David Stouder	New Burlington, Ind	July 25, 1854.
Straw-cutters	William S. Dillehay	Floydsburg, Ky	Jan. 3, 1854.
Straw-cutters	Warren Gale	Louisville, Ky	Mar. 9, 1854.
Straw-cutter	Robert Hodgin	Barnesville, Belmont county, Ohio	May 2, 1854.
Straw-cutters	Absalom B. Earle	Franklin, N. Y	Aug. 22, 1854.
Straw cutters	Warren Gale	Troy, N. Y	Sept. 12, 1834.
Straw-cutters	S. M. Yeaman	Elizabethtown, Ky	Nov. 7, 1854.
Straw-cutters, feed apparatus of	Harvey Trumbull	Centre College, Ohio	Jan. 24. 1854.
Straw-cutters, springs to the knives of	Joseph B. Stockton	Warren county, Ky	Sept. 26, 1854.
Threshers	William Russell Palmer	Elizabeth City, N. C	June 13, 1854; English patent, April 11, 1853.
Thrashing-machine	William M. Palmer	Palmyra, Me	Aug. 1, 1854.
Vine, training the	Joseph Sollenberger	Higginsport, Ohio	April 4, 1854.
Winbowers	Michael Shimer	Union Township, Bedford county, Pa.	Feb. 7, 1854.
Winnowers	Josiah Turner and W. C. Sturoc	Sunapee, Sullivan county, N. H.	Feb. 7, 1854.
Winnowers	Henry H. Beach	Chicago, Ill	Aug. 15, 1854.
Winnowers, cranberry	Phanuel Flanders	Lowell, Mass	April 4, 1854.
Winnowers, grain	Joseph Bone	Warrenton, Jefferson county, Ohio.	June 20, 1854.
Winnowers of grain	B. D. Sanders	Holliday's Cove, Brooke county, Va.	June 27, 1854.
Winnowers, grain	Joseph Barker	Honesdale, Pa	Oct. 31, 1854.
Winnowers, grain	William Moore	Belleville, Ohio	Nov. 14, 1854.
Winnowing machine	Jos. Keech and Stephen Stilwell	Waterloo, Seneca county, N. Y.	June 13, 1854.
Yokes, neck	John R. Pierce	Castile, Wyoming, N. Y	May 30, 1854.
Yokes, neck	Schuyler Briggs and John G. Talbot	Sloansville, N. Y	Sept. 26, 1854.
Yokes, ox	Heman B. Hammon	Bristolville, Trumbull county, Ohio.	May 16, 1854.
Yokes, ox	Isaac W. Little	Newburg, Essex county, Mass	May 16, 1854.

Class II.—Metallurgy, *and manufacture of metals, and instruments therefor.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Blowing-fan	Thos. Wallace and Elizabeth Backmeister, administratrix of Henry Backmeister.	Philadelphia, Pa	June 6, 1854.
Bit, expansive	Asa Weeks	South Boston, Mass	May 2, 1854.
Bits for carving machines	Charles F. Bauersfeld	Cincinnati, Ohio	Aug. 1, 1854.
Bit or drill-stock	Dexter H. Chamberlain	Boston, Mass	Feb. 7, 1854.
Brace stocks, catch for holding the bit in	Chas. M. Daboll, assignor to C. M. Daboll and A. P. Daboll.	New London, Conn	May 16, 1854.
Brads, machines for cutting	William J. Miller	Cold Spring, Putnam county, N. Y.	June 27, 1854.
Buckles	Wm. Shove	Elizabethport, N. J	June 13, 1854.
Cards, cotton, machines for grinding	Nathan Smith and Asa Crandall	North Kingston, Washington county, R. I.	Mar. 14, 1854.
Chain-hook	Willis Straw	Dalton, Coos county, N. H	July 11, 1854.
Chains, jack, making links of machines for	A. Wyckoff	Wellsburg, N. Y	Feb. 14, 1854.
Clamps for holding steel-plates while being hardened and tempered.	Chas. W. Fillmore	Coral, Ill	Jan. 10, 1854.
Cut-nail machine	John P. Sherwood	Fort Edward, N. Y	Dec. 19, 1854.
Cutter for metallic bars and rods	John Gallagher	New York, N. Y	May 2, 1854.
Dies, finishing, in machine for making rings from sheet metal.	Charles W. Dickenson	Newark, N. J	July 25, 1854.
Dies for making augers	Ezra L'Hommedieu	Chester, Conn	Aug. 29, 1854.
Dies for making seamless metal-tubes	Timothy D. Jackson	New York, N. Y	Feb. 28, 1854.
Dies, spring, arrangement of, in machines for making clinch-rings.	G. M. Patten	Bath, Lincoln county, Maine	May 2, 1854.
Door-fastener, portable	Geo. W. Griswold	Carbondale, Pa	Sept. 5, 1854.
Door-knobs, instrument for manufacturing	Artemas Rogers	Painesville, Ohio	Aug. 22, 1854.
Drill for metal drilling	Abiel Pease	Enfield, Conn	April 4, 1854.
Drills, metal	William Wakeley	Homer, N. Y	Nov. 28, 1854.
Drills, pawl	Simon Ingersoll	New York, N. Y	Oct. 10, 1854.
Fences, iron	Matthias P. Coons	Brooklyn, N. Y	April 18, 1854.
Fence, iron picket	Matthew Walker, assignor to M. Walker & Sons.	Philadelphia, Pa	July 11, 1854.
Fence, multigrade iron	Matthias P. Coons	Brooklyn, N. Y	Nov. 14, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Fence posts, device for securing ends of wires in	Wm. G. Lavers	New York, N. Y.	July 25, 1854.
Fences, wire-rivet clamp for	Matthias P. Coons	Brooklyn, N. Y	June 6, 1854.
Forging and punching machines, drop and die	Solomon Andrews	Perth Amboy, N. J.	April 4, 1854.
Furnaces for making wrought iron directly from the ore.	Thos. W. Harvey, Edward P. Cowles, and H. A. Harvey, administrators of assignors to the Harvey Steel and Iron Company.	New York, N. Y.	Aug 22, 1854.
Furnaces for making iron direct from the ore	Martin Bell and E. B Isett	Tyrone, Pa	Nov. 14, 1854.
Glaziers' points, machines for cutting	Ward Eaton	Carbondale, Luzerne county, Pa.	May 16, 1854.
Gold amalgamators	Robert H. Collyer	New York, N. Y.	June 6, 1854.
Gold amalgamators	A. S. Wright	San Francisco, Cal.	Aug. 15, 1854.
Gold collector	James Perry	New York, N. Y.	Dec. 12, 1854.
Gold and silver amalgamating	A. K. Eaton	New York, N. Y.	April 4, 1854.
Gold separator	David Pierce	Woodstock, Vt.	Jan. 10, 1854.
Gold separator	Edw. L. Seymore, assignor to Danl. B. Brown.	New York, N. Y.	Sept. 19, 1854.
Hammers, steam	John L. L. Morris	Reading, Pa	Jan. 31, 1854.
Hammers, steam	Peter L. Weimer	Reading, Pa	Jan. 31, 1854.
Hammers, steam	Thomas Sumner	Paterson, N. J	June 27, 1854.
Hammers, trip	Bernard Hughes	Rochester, Monroe county, N. Y.	May 16, 1854.
Harvesters, grain and grass	Abner Whiteley	Springfield, Ohio	Sept. 19, 1854.
Hasps, trunk lock	Conrad Liebrich	Philadelphia, Pa	May 2, 1854.
Hinges, cast	Nelson Gates	Cincinnati, Ohio	Aug. 29, 1854.
Hinges, door	John Elgar	Baltimore, Md	April 11, 1854.
Hinges, inclined plane, arrangement of friction roller in.	Enoch Woolman	Damascoville, Columbiana county, Ohio.	May 9, 1854.
Hinges, machines for making	Edward Brown, assignor to the Scovill Manufacturing Company.	Waterbury, New Haven county, Conn.	May 16, 1854.
Hinges, shutter	Harvey Lull, assignor to H. Lull & Richard Porter.	South Coventry, Conn	Jan. 31, 1854; antedate Jan 2, 1854.
Hinges, shutter, self-fastening	Ambrose Nicholson	Poland, Herkimer county, N. Y.	Mar. 21, 1854.
Hinge, spiral or worm joint	Perry G. Bates	Waterbury, Conn.	Jan. 17, 1854.
Hinges, spring, double-acting	Theodore F. Englebrecht	New York, N. Y.	Jan. 3, 1854.
Horse-shoes	William H. Towers	Philadelphia, Pa	July 25, 1854.
Horse-shoeing apparatus	Noah Warlick	Lafayette, Ala.	Aug. 29, 1854.
Horse-shoes, machine for forging	Griffiths & Shield, assignors to Robert Griffiths.	Allegheny City, Pa	Dec. 19, 1854.
Iron, coating with brass or copper	Hugh Burgess	England	July 18, 1854. Patented in England Feb. 17, 1854.
Iron, making wrought direct from the ore	James Renton	Cleveland, Ohio	Oct. 24, 1854.
Iron-railing strap, device in constructing	M. Lachenmaier	Philadelphia, Pa	May 2, 1854.
Iron, sheet, manufacture of	Ebenezer G. Pomeroy	Pittsburg, Pa	Jan. 31, 1854.
Locks	Charles Wilson	Springfield, Mass	Nov. 7, 1854.
Locks	John B. Brennan	Mount Vernon, N. Y	Nov. 7, 1854.
Locks, bank	Linus Yale	Newport, N. Y	Feb. 28, 1854.
Locks, bank	William Hall	Boston, Mass	June 27, 1854.
Locks, bank	A. C. Harig & D. C. Stoy	Louisville, Ky.	July 25, 1854.
Locks, door	William Cayce	Franklin, Tenn	Aug. 1, 1854.
Locks, door	Jacob Weimar	New York, N. Y.	Dec. 12, 1854.
Locks, door, extension bit, guard-key for	Wm. Damerel	Brooklyn, N. Y.	May 9, 1854.
Locks, door, portable	Jos. W. Webb	Washington, D. C	Feb. 7, 1854.
Locks, operating bolts and, for controlling series of doors.	David J. Stagg	Hoboken, Hudson county, N. J.	June 13, 1854.
Locks, pad	Stephen White and Henry C. Jones	Newark, N. J	June 20, 1854.
Locks, safe	F. C. Goffin, assignor to A. B. Ely	New York, N. Y. / Boston, Mass	Mar. 21, 1854.
Metal bars, machines for straightening heavy	Isaac B. Howe	Northfield, Vt.	Dec. 19, 1854.
Metal boxes, sheet, machines for closing	Charles G. Everitt	Brooklyn, N. Y.	Nov. 21, 1854.
Metallic bodies, squeezing and compressing, machines for.	Ebenezer A. Lester	Boston, Mass	Jan. 10, 1854.
Metallic plates, manufacture of hollow slabs, and flanged.	Thomas Prosser	New York, N. Y.	Jan. 24, 1854.
Metallic castings, machines for moulding for	David Brown, assignor to J F Clark and D Brown.	Baltimore, Md	June 27, 1854.
Metal of unequal thickness, machines for uniting plates of.	Jeremiah Carhar	New York, N. Y.	Aug. 1, 1854.
Metal, machines for bending	William W. Cumberland	Newark, N. J	Dec. 12, 1854.
Metals, machines for scraping	Jeremiah Stever	Bristol, Conn	Dec. 12, 1854.
Metal plates, corrugating	Richard Montgomery	New York, N. Y.	Feb 21, 1854.
Metal separators	Thomas J. Chubb	New York, N. Y.	Dec. 19, 1854.
Metal, sheet, machines for bending	William Webster	Morrisania, Westchester county, N. Y.	Mar. 28, 1854.
Metal, sheet, machine for corrugating	Solomon G. Booth	New York, N. Y.	April 4, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Metals, machines for planing	Dustin F. Mellen, assignor to D. F. Mellen, John F. Augustus, and Samuel A. Eaton.	Wentworth, N. H	Aug. 1, 1854.
Metals, plating	Robert G. Pine	Newark, N. J	July 11, 1854.
Metals, baths for coating with other metals	George Rogers	Enfield, Middlesex, England	May 16, 1854.
Metals and stone, machines for planing. (See Class XV.)			
Minerals and other substances, machine for crushing and grinding.	T. O. Cutler	New York, N. Y	Dec. 12, 1854; patented in England Jan. 23, 1854.
Moulding hollow ware	James J. Johnston	Alleghany City, Pa	June 6, 1854.
	James V. Cunningham	Pittsburg, Pa	
Nail, cut, machines	Thomas H. Barlow	Lexington, Ky	June 20, 1854.
Nail machines	John Wotton	Boonton, N. J	Aug. 29, 1854.
Nail plate feeders	Jos. Iler and Wm. Fitzpatrick	Troy, N. Y	June 13, 1854.
Nuts, machines for making	Jacob Reese	Sharon, Mercer county, Pa	Feb. 7, 1854.
Ores, machine for crushing	Wm. Henry Plumb	New York, N. Y	Dec. 5, 1854.
Ores, &c., machinery for crushing and pulverizing.	Samuel Gardiner, jr	New York, N. Y	July 25, 1854.
Ores, &c., mills for grinding	William Ball	Chicopee, Mass	April 11, 1854.
Ores, pulverizing, machines for	A. K. Eaton	New York, N. Y	Feb. 28, 1854.
Ore-stamping machines	Joseph F. Laird	Philadelphia, Pa	July 4, 1854.
Pins, machines for sticking	John B. Ferry	Hartford, Conn	Jan. 3, 1854.
Pins, machines for sticking	Thomas W. Harvey, assignor to	New York, N. Y	Jan. 3, 1854.
	John B. Terry	Hartford, Conn	
Polishing wheels	Benjamin Webb	Unadilla Forks, N. Y	July 25, 1854.
Punches and dies for punching watch-hands	Aaron L. Dennison	Roxbury, Mass	Aug. 15, 1854.
Punches, metal, portable	Samuel McKenna	Cincinnati, Ohio	Mar. 21, 1854.
Quartz-crushers	J. W. Cochran	New York, N. Y	Nov. 28, 1854; patented in England Nov 21, 1853.
Quartz-crushers	T. O. Cutler	Jersey City, N. J	Jan. 31, 1854.
Quartz-crushers	Smith W. Bullock, assignor to Stillman, Allen, & Co.	New York, N. Y	Feb. 28, 1854.
Quartz-crushers	Heman Gardiner	New York, N. Y	Mar. 21, 1854; patented in England July 5, 1853.
Quartz-crushers	Daniel Poole	Mount Carmel, Wabash county, Ill.	May 30, 1854.
Quartz-crushers	D. C. Ambler	New York, N. Y	June 20, 1854.
Quartz-crushers	Heman Gardiner	New York, N. Y	July 4, 1854.
Quartz-crushing machines	James Hamilton	New York, N. Y	Jan. 3, 1854.
Quartz and minerals, crushing and grinding	Samuel Perkes	Walbrook, England	June 13, 1854; patented in England Oct. 12, 1852.
Quartz-pulverizer	Robert H. Colyer	New York, N Y	Jan. 3, 1854.
Rolling axles and shafts	Jacob Reese	Sharon, Pa	Jan. 24, 1854.
Rolling, iron machinery, hanging the fore-plate to.	Jacob Reese	Sharon, Pa	Feb. 14, 1854.
Rolling shoulders on axles, machines for	Wm. Van Anden	Poughkeepsie, N. Y	Aug. 22, 1854.
Safe	Benjamin Sherwood	New York, N. Y	Oct. 24, 1854.
Safes, fire and burglar-proof	F. C. Goffin	New York, N. Y	Feb. 14, 1854.
Safes, iron	Obadiah Marland	Boston, Mass	Mar. 21, 1854.
Sash-bolt, curved	E. G. Connelly	Indianapolis, Ind	Feb. 21, 1854.
Sash-fasteners	Henry B. Kimble	Rochester, N. Y	Mar. 7, 1854.
Sash-fasteners	Charles Merrill	Malden, Mass	Dec. 19, 1854.
Sash-sustainers	Geo. C. Hinman	New Haven, Conn	Mar. 7, 1854.
Sashes, window, securing	Alpheus Kimball	Fitchburg, Mass	Mar. 14, 1854.
Sashes, window, mode of balancing. (See Class IX.)			
Sashes, window, casting metal	Thomas J. Sloan	New York, N. Y	Dec. 5, 1854.
Saw-set	Oliver Lesley	Attica, Fountain county, Ind	Mar. 14, 1854.
Saws, mill, apparatus for filing	John Sheffield	Pultneyville, Wayne county, N. Y.	June 6, 1854.
Screw-bolts and nuts	Lucius Page	Cavendish, Vt	Jan. 3, 1854.
Screw-blanks, impressing the thread upon	Samuel McCormick	Dublin, Ireland	June 6, 1854. Patented in England Mar. 22, 1853.
Screw-blanks, machines for threading	Elliot Savage	Berlin, Ct	Nov. 21, 1854.
Screws in lathes, arrangement for cutting	Joseph Nason	New York, N. Y	Jan. 3, 1854.
Screws, threading, machines for	Geo. F. Wilson and James M. Whiting	Providence, R. I	July 18, 1854. Patented in England April 4, 1854.
Screw-wrenches	Dexter H. Chamberlain	Boston, Mass	Mar. 21, 1854.
Screw-wrenches	Aury G. Coes	Worcester, Mass	July 4, 1854.
Screw-wrenches	Jabez C. Terry	Springfield, Mass	July 11, 1854.
Shovel-handles, machines for making	Russell D. Bartlett	Bangor, Penobscot county, Maine	Mar. 14, 1854.
Shovel-handles, machine for making the heads of	Russell D. Bartlett	Bangor, Penobscot county, Maine	July 11, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Shovel-handles, machine for making head part of	Elbridge Webber	Gardiner, Maine	Nov. 7, 1854.
Slag-ware, making	William G. Elliott	Blisworth, England	Sept 19, 1854; Patented in England Oct. 5, 1853.
Spike-machines, hanging of the griping-jaws of, in weighted levers.	James H. Swett	Pittsburg, Pa	Mar. 14, 1854.
Spike-machines	Fenton Humphrey	Boonton, Morris county, N. J	July 4, 1854.
Spring and spring-catch for closing doors, arrangement of.	John Clark	North Hadley, Mass	July 25, 1854.
Steel direct from the ore, process of making	George Hand Smith	Rochester, N. Y	July 18, 1854.
Tea-pots, casting the spouts of. (See Class XVII, letter S.)			
Tin foils, or sheets, manufacture of	John J. Crooke	New York, N. Y	Feb. 7, 1854.
Tire-bending machines	Robert L. Wright	Blue Rock, Chester county, Pa	May 23, 1854.
Tires for carriage-wheels	George Souther	South Boston, Mass	Aug. 1, 1854.
Tires, making car and other wheel	Alfred Krupp	Essen, Prussia	June 6, 1854.
Tool-handle	George W Griswold	Carbondale, Pa	June 20, 1854.
Tool-holders	Dexter H. Chamberlain	Boston, Mass	Feb. 7, 1854.
Tool-holders	Elias Hall	Rutland, Vt	Feb. 7, 1854.
Tool-holders, operating catches in	John Allender	New London, Ct	May 2, 1854.
Tools, securing, to their handles	Anthony Vitally and Carl Kolb	Newark, N. J	June 13, 1854.
Tubes, making metal rods and	James Newman	Burmingham, England	Nov. 28, 1854. Patented in England March 23, 1854.
Tubes, making seamless metal	Jared Pratt	Taunton, Bristol county, Mass	June 6, 1854.
Tubes, rollers for scarfing the edges of skelps for, lap-welded.	James McCarty	Reading, Pa	Jan. 31, 1854.
Tubes, wrought-iron, heating skelps for the manufacture of.	James McCarty	Reading, Pa	April 4, 1854.
Tuyeres	George D. Miller	New Berlin, Pa	Jan. 3, 1854.
Vaults, safes, and bank, powder-channel to doors of.	F. C. Goffin, assignor to Alfred B. Ely	New York, N. Y	June 27, 1854.
Vault and safe doors, attaching cross-bar fastenings to.	T. C. Goffin, assignor to A. B. Ely	New York, N. Y Boston, Mass	Jan. 10, 1854.
Vises	Bernard Hughes	Rochester, N. Y	June 13, 1854.
Vises, cast iron	Charles Parker	Meriden, Conn	June 20, 1854.
Vises or chucks for holding cylindrical bodies	Charles Gregg	Brooklyn, N. Y	May 30, 1854.
Wire-netting, machines for making	John Nesmith	Lowell, Mass	April 4, 1854.
Wire-rope, manufacturing	John A. Roebling	Trenton, N. J	Nov. 21, 1854.
Wire-screens, weaving	Joseph M. Schuyler and William Zern, assignors to D. L. Easterly.	Pottsville, Pa	Feb. 21, 1854.

CLASS III.—MANUFACTURES OF FIBROUS AND TEXTILE SUBSTANCES, *including machines for preparing fibres of wool, cotton, silk, fur, paper, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Binding folder	John B. Nichols	Lynn, Mass	Aug. 29, 1854.
Braiding machines	Jas. A. Bazin, assignor to A. B. Ely	Canton, Mass Boston, Mass	Aug. 8, 1854.
Braiding machines, Sacket's	Ephraim Titus, Emerson Sizer, and A. Halladay.	Westfield, Hampden county, Mass	Mar. 28, 1854.
Carding machines, cleaning top cards of	Horace Woodman	Biddeford, Me	Aug. 1, 1854.
Cards of carding engines, cleaning	Samuel Greene	Woonsocket, R. I	Nov. 21, 1854.
Card-teeth machine	William Montgomery	Roxbury, Mass	June 13, 1854.
Card teeth, machines for sticking	G. W. Coats & J. Russell	Springfield, Mass	Aug. 1, 1854.
Carpets and rugs, manufacturing	John G. McNair	West Farms, N. Y	Oct. 24, 1854.
Carpets, two-ply, manufacturing	Thomas Crossley	Boston, Mass	Aug. 22, 1854; antedated Feb. 22, 1854.
Cloth, drying	Robert Preston	North Pownal, Vt	Feb. 14, 1854.
Cloth, drying. (See Class V, letter D.)			
Cloth, drying	R. L. Hawes	Worcester, Mass	Oct. 3, 1854.
Cloth, folding and measuring	William C. Wright	Boston, Mass	June 20, 1854.
Cloth, fulling, machinery for	James H. Jennings & Thomas Brierly	Clayville, N. Y	Jan. 24, 1854.
Cloth, machines for winding and folding	Thomas P. Forsythe	Dalton, Wayne county, Ia	April 18, 1854.
Cloth, machinery for stretching and drying	Benjamin J. Tayman	Philadelphia, Pa	Nov. 14, 1854.
Cloth, napping, machinery for	Joseph Weight	Lawrence, Essex county, Mass	June 13, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Cloth on looms, mechanism for measuring	H. Halvorson, assignor to H. Halvorson & H. Barnes.	Boston, Mass	Aug. 1, 1854
Cloth, stretching and drying	D. & H. Stearns	Pittsfield, Mass	Feb. 21, 1854.
Cloths, &c., water-proofing	M. Jacob Lieberman, assignor to	Subject of the Emperor of Russia, at present residing in N Y.	Dec. 12, 1854.
	George S. Hanford & Co	New York, N. Y	
Cloth, tentering	Warren Shaw & Parley G. Green	Wales, Hampden county Mass	June 20, 1854.
Cordage, flexible	Harry H. Matteson	Buffalo, N. Y	Jan. 10, 1854.
Cordage machinery	Philos B. Tyler	Springfield, Mass	June 27, 1854.
Cordage, machinery for making	Rufus Porter, assignor to	Washington, D. C	Feb. 21, 1854.
	George Stephenson	Northfield, Boon county, Ia	
Cotton and other fibrous substances, cleaning	Julius C. Hurd	Medway, Norfolk county, Mass	April 18, 1854.
Cotton and other fibrous substances, machinery for picking.	Richard Kitson	Lowell, Mass	Oct. 31, 1854.
Cotton and other fibrous materials, combing	James Noble	Leeds, York, England	June 27, 1854.
Cotton, machinery for cleaning	Samuel W. Brown	Lowell, Mass	Oct. 24, 1854.
Cotton, machines for cleaning	Charles Leavitt, assignor to	Quincy, Adams county, Ill	April 11, 1854.
	S. C. Cockrill	Nashville, Tenn	
Cotton picker, cylinder	James Pitts	Lancaster, Mass	Feb. 28, 1854.
Cotton spinning	John W. Adams	Thompsonville, Conn	May 2, 1854.
Cotton thread, covering with wool	James Taylor	Newark, N. J	Dec. 5, 1854.
Cotton, throstles for spinning	Charles Danforth	Paterson, N. J	Dec. 12, 1854.
Felt garments, seamless, uniting bats for making.	D. W. Gitchell, assignor to John W. Wagstaff	Rahway, N. J	Sept. 26, 1854.
Fibre, machinery for separating the, from the woody portion of tropical plants.	John Lilley	Birkenhead, England	Dec. 5, 1854. Patented in England July 21, 1853.
Fibre, vegetable, the preparation of	David A. Wells	Cambridge, Mass	April 4, 1854.
Flax and hemp dressing	Lewis S. Chichester	Brooklyn, N. Y	April 11, 1854.
Flax and hemp, machines for breaking	John Hind	Schenectady, N. Y	Sept. 5, 1854.
Flax, machinery for dressing	E. L. Norfolk	Salem, Essex county, Mass	May 9, 1854.
Flax, machinery for dressing	Daniel Warner, jr	South Hadley, Mass	Sept. 5, 1854.
Flax, machines for bleaching	J. A. Roth & J. Lea	Philadelphia, Pa	April 18, 1854. Patented in England Feb. 7, 1854.

Flax, picking and cleaning	A. H. Caryl	Sandusky City, Ohio	Feb. 14, 1854.
Flax, processes for bleaching	J. A. Roth & J. Lea	Philadelphia, Pa	April 18, 1854. Patented in England May 26, 1853.
Flocks for felting, machines for preparing	Leander W. Boynton	South Coventry, Tolland county, Conn.	July 18, 1854.
Flyers	Edward C. Johnson	Lowell, Mass	Dec. 12, 1854.
Gin, cleaning seed cotton and feeding it to the	Major B. Clarke	Newnan, Geo	Dec. 19, 1854.
Gin, cotton, ribs	Israel F. Brown	Columbus, Geo	July 18, 1854.
Ginning and cleaning cotton	Cornelius Speer	New York, N. Y	Oct. 10, 1854.
Gins, cotton	L. S. Chichester	Brooklyn, N. Y	July 25, 1854.
Gins, cotton	Benjamin D. Gullett	Aberdeen, Miss	Jan. 10, 1854.
Gins, cotton	Leonard Campbell	Columbus, Miss	Jan. 10, 1854.
Goods, elastic. (See Class XVI, letter G.)			
Hackling corn husks	Wm. H Fullerton	Louisville, Ky	July 11, 1854.
Hair, treating for weaving	John Gledhill	New York, N. Y	Feb. 21, 1854.
Hat bodies, forming and hardening	A. Spencer & A. Loeschner	New York, N. Y	April 25, 1854.
Hat bodies, machinery for forming	Daniel Barnum	New York, N. Y	Oct. 17, 1854.
Hat bodies, machinery for making	Leander W. Boynton	South Coventry, Conn	Oct. 10, 1854.
Hat bodies, machinery for making	Isaac Searle	Newark, N. J	Nov. 7, 1854.
Hat bodies, making	Andrew Rankin	Newark, N. J	Oct. 3, 1854.
Hats and hat bodies, machinery for felting	John Baptiste Laville	Paris, France	Sept. 26, 1854. Patented in France Aug. 20, 1852.
Hats, felt. (See Class XXI.)			
Hats, finishing palm-leaf	Dexter Dennis	Barre, Worcester county, Mass	July 4, 1854; antedated Jan. 4, 1854.
Heddle eyes, wire, machines for making	Thos. Clegg, assignor to Clegg & Stevens	Andover, Mass	July 11, 1854.
Heddles for looms, machines for casting metallic eyes or mails of.	Jacob Senneff	Philadelphia, Pa	Aug. 22, 1854.
Heddles, weavers'	Jacob Senneff	Philadelphia, Pa	July 18, 1854.
Hemp and flax, machinery for softening	Robert Boyack	Poughkeepsie, N. Y	Oct. 24, 1854.
Hemp, process for treating. (See Class IV, letter P.)			
Hemp rotting processes. (See Class IV, letter P.)			
Knitting-machines	Israel M. Hopkins	Pascoag, Providence county, R. I.	May 16, 1854.
Knitting-machines	Henry Burt, assignor to Newark Patent Hosiery Company.	Newark, N. J	May 16, 1854.
Knitting-machines	John H. Barsanter	Philadelphia, Pa	May 30, 1854.
Knitting-machines	Elias M. Ray	Providence, R. I.	May 30, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Knitting-machines	Brown S. Wood	Burrillville, Providence county, R. I.	June 6, 1854.
Knitting-machines	Newark Patent Hosiery Company, assignee of Henry Burt.	Newark, N. J	July 4, 1854.
Knitting-machines	George Jackson	Cohoes, N. Y	Aug. 22, 1854.
Knitting-machines	Joseph A. Corwin	Newark, N. J	Sept. 26, 1854.
Knitting-machines	James Y. Leslie	Cincinnati, Ohio	Oct. 3, 1854.
Knitting-machines	Joseph Hollen	White Township, Pa	Nov. 28, 1854.
Knitting-machines	John Pepper, jr., assignor to the Franklin Mills.	Portsmouth N. H	Dec. 5, 1854.
Loom-beams	Samuel T. Thomas and Eliza Ann Everett, administratrix of E. Everett.	Lawrence, Mass	Nov. 7, 1854.
Loom for weaving cut-pile fabrics	E. B. Bigelow	Clinton, Mass	Oct. 17, 1854. Patented in England Dec. 31, 1851.
Loom, harness, clasps for	George Copeland	Danville, Maine	Sept. 26, 1854.
Looms	George Yates and Eli Clayton	Lancaster, Pa	June 13, 1854.
Looms	Edward W. Brown	Fall River, Mass	July 25, 1854.
Looms	Joseph Welsh	Philadelphia, Pa	Oct. 3, 1854.
Looms	Stephen C. Mendenhall	Richmond, Ind	Oct. 10, 1854.
Looms	Barton H. Jenks	Bridesburg, Pa	Oct. 24, 1854.
Looms	George Roth	New York, N. Y	Dec. 12, 1854.
Looms, fancy check	Enoch Burt	Manchester, Conn	Jan. 24, 1854.
Looms for weaving bags	William Talbot	Sanford, Maine	Nov. 28, 1854.
Looms for weaving figured fabrics	George Crompton	Worcester, Mass	Nov. 14, 1854.
Looms operating by electricity	Gaetan Bonelli	Turin, Kingdom of Sardinia	Dec. 12, 1854. Patented in France Aug. 15, 1853.
Looms, rollers for pattern-chains for	George Crompton and M. A. Furbush	Worcester, Mass	Nov. 14, 1854.
Looms, power	John Shuttleworth	Frankfort, Pa	Jan. 3, 1854.
Looms, power	Joseph T. Barnes	Manayunk, Pa	Oct. 17, 1854.
Looms, power, shuttle-guards for	Peter Miggett	Hoosick Falls, N. Y	Aug. 8, 1854.
Looms, wire heddle-eyes for	Thomas Clegg, assignor to Thomas Clegg and Nathaniel Stevens.	North Andover, Essex county, Mass.	Mar. 7, 1854.
Mules, self-acting	Wanton Rouse	Taunton, Mass	Oct. 3, 1854.
Mules, self-acting roller, catch for	Mark R. Pearson, assignor to Mark R. Pearson and Samuel Shaw.	Georgetown, Mass	Oct. 24, 1854.
Paper and other purposes, treating cane-fibre for.	B. A. Lavender and Henry Lowe	Baltimore, Md	April 4, 1854.
Paper from wood, manufacture of	Charles Watt and Hugh Burgess	London, England	July 18, 1854. Patented in England Aug. 19, 1853.
Paper, machinery for cutting	Nelson Gavitt	Philadelphia, Pa	May 9, 1854.
Paper, machinery for cutting rags for making.	Alonzo S. Woodward Benjamin F. Bartlett	Lowell, Mass Pepperell, Middlesex Co., Mass.	Oct. 31, 1854.
Paper, machinery for polishing	E. L. Perkins	Roxbury, Mass	Oct. 24, 1854.
Paper-making machinery	Obadiah Marland	Boston, Mass	Dec. 5, 1854. Patented in England Sept. 28, 1854.
Paper-making machinery	Obadiah Marland	Boston, Mass	Dec. 5, 1854. Patented in England Sept. 28, 1854.
Paper, making thick	Samuel G. Levis	Delaware county, Pa	Feb. 14, 1854.
Paper, thick, drying. (See Class V, letter D.)			
Picker, cylinder tooth, clothing for	Robert Heneage	Lowell, Mass	Oct. 31, 1854.
Reeling machines	George Levan	Lancaster county, Pa	Mar. 7, 1854.
Ribbon of strips of cloth, making	Augustus M. Eastman	New York, N. Y	Sept. 5, 1854.
Rope and cordage, machinery for making	Arad Woodworth, 3d George Chamberlain	Boston, Mass Olean, N. Y	Nov. 28, 1854.
Rope and cordage, machinery for making	J. Harris, J. B. Stott, and G. Richmond	Lansingburg, N. Y	Oct. 31, 1854.
Rope and cordage, spinning	Jesse Carpenter	New York, N. Y	Oct. 10, 1854.
Rope, machinery for laying	Stephen and James A. Bazin	Canton, Norfolk county, Mass	April 25, 1854.
Rope, machinery for making	William Robinson, jr	Warsaw, Wyoming county, N. Y	May 2, 1854.
Rope wire, manufacturing. (See Class II, letter W.)			
Roving tubes	Moses Sargent, jr	Meredith, N. H	Oct. 17, 1854.
Scouring piece goods, machines for	J. Augustus Roth and Joseph Lea	Philadelphia, Pa	July 18, 1854. Patented in England Feb. 7, 1854.
Self-acting mules for spinning	Geo. Wright	New England Village, Worcester county, Mass.	July 11, 1854.
Sewing-machines	Christopher Hodgkins, assignor to N. Hunt	Boston, Mass	Mar. 7, 1854.
Sewing-machines	Charles Miller	St. Louis, Mo	Mar. 7, 1854.
Sewing-machines	Wm. Wickersham	Boston, Mass	Mar. 7, 1854.
Sewing-machines	Wm. H. Johnson	Granville, Mass	Mar. 7, 1854.
Sewing-machines	James Harrison, jr	Milwaukie, Wis	April 11, 1854.
Sewing-machines	Samuel J. Parker	Ithaca, N. Y	April 11, 1854.
Sewing-machines	Isaac M. Singer	New York, N. Y	May 2, 1854.

Classified list of patents issued.—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Sewing-machines	Otis Avery	Honesdale, Wayne county, Pa	May 9, 1854.
Sewing-machines	Simeon Coon	Ithaca, Tompkins county, N. Y	May 9, 1854.
Sewing-machines	Heman Crosby, jr	Watertown, Litchfield co., Conn	May 9, 1854.
Sewing-machines	Christopher Hodgkins, assignor to N. Hunt	Boston, Mass	May 9, 1854.
Sewing-machines	Isaac M. Singer	New York, N Y	May 30, 1854.
Sewing-machines	Isaac M. Singer	New York, N. Y	May 30, 1854.
Sewing-machines	M. W. Stevens and E. G. Kingsley	Stoughton, Norfolk county, Mass	May 30, 1854.
Sewing-machines	Walter Hunt	New York, N. Y	June 27, 1854.
Sewing-machines	William Butterfield and Edgar M. Stevens, assignees of William Butterfield.	Boston, Mass	July 4, 1854.
Sewing-machines	Nehemiah Hunt, assignee of Geo. A. Leighton	Boston, Mass	July 11, 1854.
Sewing-machines	Alfred Swingle, assignor to Elmer Townsend	Boston, Mass	Aug. 8, 1854.
Sewing-machines	Sylvester H. Roper	Worcester, Mass	Aug. 15, 1854.
Sewing-machines	Edmund Shaw	East Abington, Mass	Aug. 22, 1854.
Sewing-machines	Sidney S. Turner, assignor to Elmer Townsend	Westborough, Mass	Aug. 22, 1854.
Sewing-machines	Sidney S. Turner, assignor to Elmer Townsend	Westborough, Mass	Aug. 29, 1854.
Sewing-machines	Philander Shaw	Abington, Mass	Sept. 12, 1854.
Sewing-machines	Daniel C. Ambler	New York, N. Y	Nov. 7, 1854.
Sewing-machines	Daniel Harris, assignor to John P. Bowker, jr.	Boston, Mass	Nov. 14, 1854.
Sewing-machines	Charles Parham	Philadelphia, Pa	Nov. 21, 1854.
Sewing-machines	Theodore E. Weed	Williamsburg, N. Y	Nov. 28, 1854.
Sewing-machines	Thomas J. W. Robertson, assignor to T. J. W. Robertson and N. E. Beach.	Brooklyn, N. Y	Nov. 28, 1854.
Sewing-machines	William Lyon, assignor to F. and G. Simpson, B. Dodd, and C. B. Merriman.	Newark, N. J	Dec. 12, 1854.
Sewing-machines	George W. Stedman	Vienna, N. J	Dec. 12, 1854.
Sewing-machines	W. P. N. Fitzgerald, assignee of Allen B. Wilson.	Watertown, Conn	Dec. 19, 1854.
Sewing-machines, binding guides for	Osgood G. Boynton, assignor to	Haverhill, Mass	Nov. 28, 1854; antedated June 1, 1854.
Sewing-machines, clamps for	Nehemiah Hunt	Boston, Mass	
	Melvin Shaw, assignor to Melvin Shaw and Daniel G. Wheeler.	East Abington, Mass	Aug. 22, 1854; antedated Feb. 22, 1854.
Sewing-machines, cops for	Wm. H. Akins, assignor to Samuel J. Parker.	Ithaca, N. Y	April 4, 1854.
Sewing-needles	John Wilcox and S. H. Whitridge	Philadelphia, Pa	Oct. 3, 1854.
Speeders, counter-twist	Jesse Whitehead	Manchester, Va	Aug. 29, 1854.
Speeders, stop-motion for	Lewis Cutting	Lowell, Mass	Aug. 8, 1854.
Spinning-frames	William Perry	Graniteville, S. C	Nov. 21, 1854.
Weaving cut pile fabrics	Thomas Crossley	Boston, Mass	June 6, 1854.
Weaving double cloth	Samuel Fay	Lowell, Mass	June 20, 1854.
Winding rope, cord, or yarn	Philos B. Tyler	Springfield, Mass	July 18, 1854.
Wool, combing, machinery for	Charles G. Sargent	Lowell, Mass	Aug. 15, 1854.
Wool, machine for cleaning	Lewis S. Chichester	Brooklyn, N. Y	Feb. 14, 1854.
Wool, machinery for combing	Charles G. Sargent	Lowell, Mass	May 16, 1854.
Wool, machines for cleaning	Leander W. Boynton	South Coventry, Conn	Sept. 12, 1854.
Wool, spinning, machinery for	Edmund Victory, assignor to D. M. Linsley and G. Goulding.	Watertown, Jefferson county, N.Y.	June 13, 1854.
Yarn, spooling from the cop	Smith Thompson	Newburyport, Mass	Feb. 21, 1854.
Yarns, warping and dressing	S. T. Thomas and E. A. Everett, administrators of Edward Everett, deceased.	Lawrence, Mass	Aug. 1, 1854.

Class IV.—Chemical processes, manufactures, and compounds, *including medicines, dyeing, color-making, distilling, soap and candle making, mortars, cements, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Acid, sulphuric, manufacture of	D. E. Contaret	Roxbury, Norfolk county, Mass.	June 13, 1854; patented in England Dec. 16, 1853.
Archil, the preparation of	Jonas Eberhart	Schuylkill Falls, Philadelphia county, Pa.	June 27, 1854.
Bleaching apparatus	J. A. Roth & J. Lea	Philadelphia, Pa.	May 9, 1854; patented in England Feb. 7, 1854.
Bleaching flax, machines for. (See Class III, F.)			
Bleaching flax, processes for. (See Class III, F.)			
Candle-mould apparatus	Willis Humiston	Troy, N. Y	April 4, 1854.
Camphor wash mixtures	C. W. Crozier	Knoxville, Tenn	July 11, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Cement compounds	William H. Poindexter, administrator of John R Remington.	Fayette county, Tenn	July 4, 1854.
Cement of boiled coal, tar, and earths	H. P Gengembre	Alleghany City, Pa	July 11, 1854.
Chlorine, compounds for neutralizing	E. N. Horsford	Cambridge, Mass	Oct. 10, 1854.
Compositions for coating telegraphic wires, and for other purposes.	Thomas, Earl of Dundonald	Belgrave Road, Middlesex county, England	June 13, 1854; patented in England Oct. 6, 1852.
Distilling apparatus	Carl E. Werner	New Castle, Illinois	Jan. 24, 1854.
Distilling apparatus	Halvor Halvorson, assignor to H. Halvorson and J. T. Heard.	Boston, Mass	May 2, 1854.
Distilling and condensing apparatus	James R. Stafford	Brooklyn, N. Y	April 25, 1854.
Distilling fatty bodies, stills for	Samuel Childs	New York, N. Y	June 13, 1854.
Dyeing apparatus	Charles T. Appleton	Roxbury, Norfolk county, Mass	Mar. 21, 1854; patented in England Jan. 7, 1854.
Dyeing processes	Charles T. Appleton	Roxbury, Mass	May 30, 1854.
Dyeing, processes for	Charles T. Appleton	Roxbury, Mass	Mar. 21, 1854.
Evaporators, milk and other	A. F. Dalson	New York, N. Y	June 27, 1854.
Evaporators, salt, construction of	Henry G. Bulkley	Kalamazoo, Mich	July 4, 1854.
Fires, compounds for extinguishing	Ralph Bulkley	New York, N. Y	Mar. 21, 1854.
Gas and liquid regulators	Thomas H. Dodge	Nashua, N. H	June 27, 1854.
Gas, dry meters	Franklin Darracott, assignor to George Darracott.	Boston, Mass	Dec. 5, 1854.
Gas generators	N. Aubin	Albany, N. Y	Sept. 26, 1854.
Gas generators, wood	William D. Porter	New York, N. Y	Aug. 22, 1854.
Gas, illuminating, from wood, process for making	William P. McConnell	Washington, D. C	Sept. 26, 1854.
Gas meters and regulators	Charles C. Lloyd	West Philadelphia, Pa	June 20, 1854.
Gas meters, movement of	Joseph Thatcher	Philadelphia, Pa	Oct. 3, 1854.
Gas retorts, coating in	Adrian R. Terry	Detroit, Mich	June 20, 1854.
Gas retorts, form of	Charles M. Cresson	Philadelphia, Pa	Oct. 3, 1854.
Gums, vulcanizing elastic	E. E. Marcy	New York, N. Y	Nov. 7, 1854.
Gums, vulcanizable, treating	Charles Goodyear	New Haven, Conn	April 4, 1854.
Gums, vulcanizable, treating caoutchouc and other.	L. O. P. Meyer	Newtown, Conn	April 4, 1854.

Gutta percha and like gums, desulphurizing	William E. Rider and John Murphy	New York, N. Y	Nov. 7, 1854.
Gutta percha, processes for treating	John Murphy	New York, N. Y	May 30, 1854.
Gutta percha, stereotype composition	(See 8, Class XVIII.)		
India rubber, processes for treating	E. D. S. Goodyear, assignor to New York India Rubber Company.	Stapleton, N. Y	Mar. 28, 1854.
India rubber and other gums, vulcanizing	L. O. P. Meyer	Newtown, Conn	Feb. 28, 1854.
India rubber, manufacture of	Daniel Hayward	Providence, R. I	Aug. 29, 1854.
India rubber overshoes	Julius A. Pease	New York, N. Y	Nov. 14, 1854.
Kerosene burning fluids, "A"	Abraham Gesner, assignor to the Asphalte Mining & Kerosene Gas Company.	New York, N. Y	June 27, 1854.
Kerosene burning fluids, "B"	Abraham Gesner, assignor to the Asphalte Mining & Kerosene Gas Company.	Williamsburg, N. Y	June 27, 1854.
Kerosene burning fluids, "C"	Abraham Gesner, assignor to the Asphalte Mining & Kerosene Gas Company.	Williamsburg, N. Y	June 27, 1854.
Kettles, for calcining plaster of paris	Jerome B. King	New York, N. Y	Nov. 21, 1854.
Lampblack, manufacture of	Wm. G. W. Jaeger	Baltimore, Md	July 18, 1854.
Lubricating apparatus. (See Class XII.)			
Lubricating compound. (See Class XII.)			
Lubricating material. (See Class XII.)			
Lubricator. (See Class XII.)			
Lubricator. (See Class XII.)			
Malt kilns, floor-plates of	Matthew Stewart	Philadelphia, Pa	Jan. 3, 1854.
Matches, friction, machinery for making	Wm. Gates, jr H. J. Harwood	Frankfort, N. Y Utica, N. Y	April 4, 1854.
Matches, machinery for making	Elkan Adler	New York, N. Y	Aug. 1, 1854.
Match-frames, machine for filling	Wm. Gates, jr	Frankford, N. Y	Oct. 31, 1854.
Match-frames, machine for filling	Anthony Sohn	Monroeville, Huron county, Ohio	April 18, 1854.
Oil, rosin, lamps. (See L, Class V.)			
Oil, rosin, processes for distilling	Halvor Halvorson, assignor to H. Halvorson and J. T. Heard	Boston, Mass	May 2, 1854.
Oils, purifying	Thomas Drayton, assignor to George W. McCready	Brooklyn, N. Y New York, N. Y	July 4, 1854.
Paint, compositions	Gabriel Blondin	New York, N. Y	June 20, 1854.
Paints, processes for treating	Gabriel Blondin	New York, N. Y	June 20, 1854.
Parti-coloring machines	Sol. Smith, assignor to S. Smith & Wm. Shoaler	Acton, Middlesex county, Mass	Feb. 21, 1854.
Pigments, manufacturing from iron ore	Joseph H. Davis	Morristown, N. J	Aug. 8, 1854.
Pill machine	Loriston G. Merrell	New Bedford, Pa	Jan. 17, 1854.
Powder, impalpable, for paints, process of separating.	George W. Griswold	Carbondale, Luzerne county, Pa	July 18, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Processes for enamelling iron	C. F. Thomin and C. Stumer	Cincinnati, Ohio	Oct. 17, 1854.
Processes for purifying fatty bodies	R. A. Tilghman	Philadelpha, Pa	Oct. 3, 1854.
Processes for treating hemp	Lewis C. Suggert	Springdale, Scott county, Ky	May 22, 1854.
Processes, hemp rotting	William Watt	Glasgow, Great Britain	Nov. 21, 1854. Patented in England May 22, 1852.
Processes of galvanizing metals	Christian B. Miller	Wilmington, Del	May 30, 1854.
Processes of treating the mother-water of salines.	Edward Stieren	Tarentum, Pa	Dec. 12, 1854.
Process of imitating marble and other substances.	William Bonney	New York, N. Y	Aug. 8, 1854.
Process of treating vegetable fibre	Jonathan Knowles	Trenton, N. J	Feb. 14, 1854. Patented in France April 4, 1853.
Salt, apparatus for the manufacture of	Samuel B. Howd, assignor to Thos. F. Davis, James S. Leach, and Richard F. Stevens.	Syracuse, N. Y	Oct. 10, 1854.
Salt kilns	John P. Conger	Newark, N. J	Feb. 28, 1854.
Soap compounds	T. C. Taylor	Camden, N. J	June 13, 1854. Patented in England Sept. 17, 1853.
Soap, manufacturing processes	T. C. Taylor	Camden, N. J	June 13, 1854.
Stone, applying colors to	Hiram Tucker, assignor to H. Tucker and Joseph Story.	Cambridgeport, Middlesex county, Mass.	Feb. 21, 1854. Patented in England Sept. 24, 1853.
Sugar-boilers, construction of	Edward J. Woolsey	Astoria, N. Y	Oct. 10, 1854.
Sugar-making apparatus, construction of	Louis A. Gossin	Thibodeaux, La	Oct. 10, 1854.
Sugar-moulds, making	James Myers, jr	New York, N. Y	Dec. 19, 1854.
Tallow, process for hardening	Charles Schinz	Camden, N. J	June 13, 1854.
Varnishes, processes for making	Jonathan Burrage, assignor to J. Burrage and F. W. Newton.	Roxbury, Mass	Mar. 14, 1854.
Vinous fermenting in close vessels	A. Harvie and C. Guild	Cincinnati, Ohio	April 25, 1854.
Zinc, white, furnaces	James Renton	Newark, N. J	Feb. 28, 1854.
Zinc, white, furnaces for	Jonathan G. Trotter	Newark, N. J	Mar. 28, 1854.
Zinc, white, furnaces for making	John E. Burrows	Newark, N. J	Nov. 7, 1854.
Zinc, white, making	Richard Jones	Burlington county, N. J	Mar. 28, 1854.

CLASS V.—CALORIFICS, *comprising lamps, fire-places, stoves, grates, furnaces for heating buildings, cooking-apparatus, preparation of fuel, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Air-heating pipes, connecting the joints of	Jesse Young	Franklin Furnace, Ohio	Mar. 7, 1854.
Burning fluids, kerosene, A, B, and C. (See Class IV, letter K.)			
Candlesticks, sheet metal	J. W. Smith	Poultney, Vt	July 25, 1854.
Chimney-caps	John Clark	Washington, D. C	Sept. 5, 1854.
Coal-hods	William Nelson Martin	Bristol, R. I	Nov. 7, 1854.
Coal-sifter	Elisha French	Braintree, Mass	July 11, 1854.
Cooking and warming, apparatus for	Daniel Willis	New York, N. Y	July 25, 1854.
Drying cloth	D. W. Kennedy	Staunton, Augusta county, Va	June 27, 1854.
Drying flour	H. Ely, assignor to S. P. Ely	Rochester, N. Y	June 6, 1854.
Drying grain	S. B. Robinson	Oswego, N. Y	June 20, 1854.
Drying thick paper	E. and J. R. Cushman	Amherst, Mass	Aug. 1, 1854.
Dust, excluding, from railroad cars	O. Newton and J. A. Crever	Pittsburg, Pa	Mar. 14, 1854.
Dust, preventing, from entering railroad cars	Daniel S. Darling	Brooklyn, N. Y	Jan. 10, 1854.
Fan-blower	Solomon W. Ruggles, assignor to S. W. Ruggles and A. R. Smith.	Fitchburg, Mass	Aug. 8, 1854.
Fans, exhaust	J. Vaughan Merrick	Philadelphia, Pa	June 13, 1854.
Fire, method of extinguishing, in inaccessible places.	Amasa Stone	Philadelphia, Pa	Dec. 5, 1854.
Fire-places, metallic	John F. Snyder	Culpeper, Va	July 18, 1854.
Furnace, air-heating	Walter Bryent, assignor to John B. Kelsey	Boston, Mass	Oct. 24, 1854.
Furnace grate bars	B. C. Vanduzen, assignor to J. B. Martin and B. C. Vanduzen.	Cincinnati, Ohio	May 30, 1854.
Furnace, hot-air	Peter Sweeney	Buffalo, N. Y	July 11, 1854.
Furnace, hot-air	Nathaniel A. Boynton	New York, N. Y	Aug. 22, 1854.
Furnace, hot-air	Daniel P. Weeks	Malden, Mass	Dec. 12, 1854.
Furnace of hot water, apparatus for regulating the.	Thomas T. Tasker	Philadelphia, Pa	Dec. 5, 1854.
Furnace, soldering	William J. Stevenson	New York, N. Y	Oct. 31, 1854.
Furnaces	John Lee Stevens	Kennington, England	Nov. 21, 1854. Patented in England Oct. 1, 1852.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Furnaces, air-heating	Charles R. Harvey	New York, N. Y	Jan. 24, 1854.
Furnaces for heating buildings	Joseph Leeds	Philadelphia, Pa	Nov. 7, 1854.
Furnaces for zinc, white. (See Class IV, letter Z.)			
Furnaces, hot-air	Thomas W. Chatfield	Utica, N. Y	Mar. 28, 1854.
Furnaces, hot-air	John P. Hayes	Philadelphia, Pa	May 23, 1854.
Furnaces, hot-air	John Carton and Jos. Briggs	Utica, N. Y	Aug. 1, 1854.
Furnaces, hot-air	John E. Grant, assignor to	Charlestown, Mass	Oct. 3, 1854.
	Cyrus Carpenter and A. D. Shaw	Boston	
Furnaces, means for directing the blast in	B. H. Washington	Hannibal, Mo	Nov. 7, 1854.
Furnaces, operating dampers of	Daniel Treadwell, assignor to	Cambridge, Mass	Aug. 22, 1854.
	H. H. and F. H. Stimpson	Boston, Mass	
Furnaces, zinc, white. (See Class IV, letter Z.)			
Gas-burners	John Webster and O. Spencer, assignors to John Webster.	Cleveland, Ohio	Feb. 14, 1854.
Gas-burners	William Mallerd	Brooklyn, N. Y	June 27, 1854.
Gas-burners, regulator for	William Mallerd	Brooklyn, N. Y	June 27, 1854.
Gas-burners, regulator for	Andrew Mayer	Philadelphia, Pa	Sept. 12, 1854.
Gas-heating apparatus	Charles M. Guild	Brooklyn, N. Y	July 11, 1854.
Gas, heating, warming and cooking by	William Boggett and G. B. Pettit	Westminster, England	April 18, 1854. Patented in England Oct. 22, 1851.
Gas-regulators	Basil Dixwell and James A. Dorr	New York, N. Y	April 18, 1854.
Grate-bars	Samuel Vansyckel	Little York, N. J	Oct. 31, 1854.
Grates	George W. Griswold	Carbondale, Pa	July 25, 1854.
Heaters, hydraulic	William H. Churchman	Philadelphia, Pa	May 2, 1854.
Heaters, hydraulic	L. W. Leeds and R. M. Smith	Philadelphia, Pa	May 16, 1854.
Heat, generator and radiator	Gardner Chilson	Boston, Mass	Sept. 26, 1854.
Heating purposes, ordinary and super-heated steam combined for.	Charles E., and John and Samuel Wethered	Baltimore, Md	June 20, 1854.
Heat, method of applying to dilate gases for the purpose of elevating water. (See W, Class XI.)			

Hot water apparatus	John Brown	New York, N. Y	May 30, 1854.
Hot water apparatus, double cylinder boilers for	William Beebe	New York, N. Y	Nov. 14, 1854.
Hot water apparatus, hydrometric regulator for	Joel H. Ross	New York, N. Y	Dec. 12, 1854.
Lamp-caps	William Bell	Boston, Mass	Nov. 14, 1854.
Lamp-fastenings	L. B. Carpenter	Buffalo, N. Y	July 25, 1854.
Lamp-fillers	C. R. Landmann	New York, N. Y	Aug. 29, 1854.
Lamp, locomotive	Irvin A. Williams	Utica, N. Y	Oct 10, 1854.
Lamp, safety	Charles R. Landmann	Newark, N. J	Sept. 26, 1854.
Lamps	Joseph Harris, jr	Boston, Mass	Aug. 15, 1854.
Lamps	Isaac Vanbunshoten	New York, N. Y	Nov. 21, 1854.
Lamps, lard	Ira Smith and J. Stonesifer	Boonsboro, Md	Aug. 8, 1854.
Lamps, lard	Dexter H. Chamberlain, assignor to Wm. R. Meshurul.	Boston, Mass	Aug. 29, 1854.
Lamps, railway	Leroy S. White, assignor to L. S. White	Chicopee, Mass	Sept. 5, 1854.
	Lewis White	Hartford, Conn	
	Lyman White	Springfield, Mass	
	A. G. Stevens	Manchester, N. H	
Lamps, rosin oil	Silas Constant	Brooklyn, N. Y	Jan. 24, 1854.
Lamps, rosin oil	Silas Constant	Brooklyn, N. Y	Aug. 8, 1854.
Lamps, rosin oil	Isaac Pitman	Reading, Mass	Sept. 19, 1854.
Lamps, street, gas	Wm. A. Shaw and George Parker	Boston, Mass	April 11, 1854.
Lamps, torch	Harvey Brewer	East Boston, Mass	Jan. 10, 1854.
Lanterns	Andrew Lanergan	Boston, Mass	July 11, 1854.
Lanterns	Wm. D. Titus	Brooklyn, N. Y	Dec. 5, 1854.
Lanterns, combining foot-stoves and	Francis Arnold	Hartford, Conn	April 11, 1854.
Lanterns, fastening	Charles Monnin and Wm. M. Booth	Buffalo, N. Y	Aug. 1, 1854.
Lanterns, fastening lamps in	Emile Sirrett	Buffalo, N. Y	Oct. 24, 1854.
Lanterns, glass	P. A. Morley, assignor to James Bright	Brooklyn, N. Y	Aug. 29, 1854.
Lanterns, securing glasses in	Hugh Sangster	Buffalo, N. Y	Aug. 22, 1854.
Lanterns, securing lamps to	Wm. Porter, assignor to	Williamsburg, N. Y	Oct. 24, 1854.
	Joseph N. Howe	Boston, Mass	
Lens, lamp, chimney	Silas Constant	Brooklyn, N. Y	June 13, 1854.
Matches. (See Class XXII.)			
Oven, elevated	James C. Keneredy	Albany, N. Y	July 11, 1854.
Oven, for baking	G. S. Blodgett and P. T. Sweet	Burlington, Vt	Dec. 5. 1854.
Ovens	Francis C. Treadwell, jr	New York, N. Y	Aug. 22, 1854.
Ovens, damper for	John P. Sherwood	Fort Edward, N. Y	Oct. 10, 1854.
Radiators	John Gemmil	Mercer county, Pa	Aug. 8, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Range, cooking	D. Donovan, administrator of W. G. Hallman, and D. Donovan, assignor to Henry J. White.	Philadelphia, Pa	June 6, 1854.
Range, hot-air, and side ovens	John H. Cahill	Philadelphia, Pa	Aug. 15, 1854.
Range, oven, cooking	Daniel P. Weeks	Malden, Mass	Dec. 19, 1854.
Register, hot-air	Edward A. Tuttle	Williamsburg, N. Y	Jan. 3, 1854.
Sewers, ventilating	Enoch Thorn	Philadelphia, Pa	June 27, 1854.
Spark arresters	Casimer Abos	New Brunswick, N. J	June 13, 1854.
Spark arresters	G. B. Simonds	New Haven, Conn	June 13, 1854.
	Abel Breaer	Saugatuck, Conn	
Stove regulators	W. Race, assignor to H. C. Silsby and W. Race.	Seneca Falls, N. Y	July 25, 1854.
Stovepipes, thimbles for	D. Wilson, assignor to W. F. Pratt, G. W. Bosworth, and H. M. Bird.	Milford, N. H	July 25, 1854.
Stove, rotary, arrangement of dampers in	William W. Hill	Greenport, Suffolk county, N. Y	June 6, 1854.
Stove, rotary, cooking	Edna A. Hibbard	Winchester, Va	Nov. 28, 1854.
Stove, smoke-consuming	E. A. Hill	Joliet, Ill	Oct. 17, 1854.
Stoves	Dennis G. Littlefield	Lowell, Mass	Jan. 24, 1854.
Stoves	Oron W. Wade	Versailles, N. Y	Oct. 24, 1854.
Stoves	Jordan L. Mott	Mott Haven, N. Y	Nov. 28, 1854.
Stoves, air-heating	Nathaniel A. Boynton	New York, N. Y	Aug. 8, 1854.
Stoves and ranges, cooking	James McGregor, jr	Troy, N. Y	Sept. 12, 1854.
Stoves, cooking	Joseph Leeds	Philadelphia, Pa	Mar. 28, 1854.
Stoves, gas	Andrew Mayer	Philadelphia, Pa	July 11, 1854.
Valve, float, for discharging condensed water	Caleb C. Walworth	Boston, Mass	Jan. 10, 1854.
Valve, steam-engine	Charles Rumley	Rochester, N. Y	Nov. 7, 1854.
Ventilating railroad cars	George Neilson	Boston, Mass	Jan. 24, 1854.
Ventilating railroad cars	George F. Foote	Buffalo, N. Y	July 11, 1854.
Ventilating railroad cars	C. Reed and B. K. Mould	Chicago, Ill	Aug. 8, 1854.
Ventilating ship timbers	J. L. Harley and Samuel Maxwell	Baltimore, Md	Sept. 12, 1854.
Ventilating window for railroad cars	George Neilson	Boston, Mass	May 30, 1854.
Ventilator, railroad car	John Bevan	Jersey City, Hudson county, N. J.	June 13, 1854
Ventilator, ships	Warren Robinson	New Haven, Conn	Feb. 14, 1854.
Ventilator, ship	Willet Thompson	New Haven, Conn	July 11, 1854.
Warming houses by steam	Stephen J. Gold	New Haven, Conn	Oct. 3, 1854.

CLASS VI.—STEAM AND GAS ENGINES, *including boilers and furnaces therefor, and parts thereof.*

Inve tions or discoveries.	Patentees.	Residence.	Date of patent.
Boiler, alarms, steam	Patrick Clark	Rahway, N. J	Dec. 5, 1854.
Boiler, steam	Will E. Bird	Cahawba, Dallas county, Ala	July 18, 1854.
Boiler, steam	Henry Jackson	Fairmount, Ohio	July 25, 1854.
Boiler, steam, furnaces	F. P. Dimpfel	Philadelphia, Pa	Jan. 3, 1854.
Boiler tubes, steam	Richard C. Bristol	China, St. Clair county, Mich	Aug. 1, 1854.
Boilers, setting of steam	D. C. Ambler	New York, N. Y	June 20, 1854.
Boilers, means for preventing the explosion of	Abner W. Jones	New York, N. Y	Aug. 22, 1854.
Boilers, steam, furnace of	Jonathan Amory and William P. Parrott	Boston, Mass	June 27, 1854.
Boilers, steam	Peter Sweeny	Buffalo, N. Y	June 13, 1854.
Boilers, steam	James Wightman	Pittsburg, Pa	June 13, 1854.
Boilers, steam	Thomas Greer	Philadelphia, Pa	July 4, 1854.
Boilers, steam	Daniel B. Martin	Washington, N. J	Nov. 28, 1854.
Boilers, steam	John A. Roebling	Trenton, N. J	Dec. 5, 1854.
Boilers, steam, apparatus for indicating the action of the feed-pump to.	Thomas J. Sloan	New York, N. Y	Jan. 17, 1854.
Boilers, steam, arrangement of fusible plugs or discs for.	William Burnett	Boston, Mass	Mar. 7, 1854.
Boilers, steam, apparatus for regulating the supply of feed-water to.	Amos Jacobs	Ithaca, Tompkins county, N. Y	May 23, 1854.
Boilers, steam, feed-water apparatus for	Benaiah Fitts	Worcester, Mass	Mar. 28, 1854.
Boilers, steam, feed-water apparatus to	Henry C. Sergeant	Cincinnati, Hamilton county, Ohio.	June 14, 1854.
Boilers, steam, feed-water apparatus to	Benjamin F. Bee	Harwich, Mass	Aug. 1, 1854.
Boilers, steam, flue bottom of	Alexander M. Sprague	Mobile, Ala	May 9, 1854.
Boilers, steam, mechanical means for preventing incrustation in.	John McMullen	Baltimore, Md	May 23, 1854.
Boilers, steam, safety apparatus for	Albert H. Judd	St. Louis, Mo	Aug. 15, 1854

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Boilers, steam, regulating the damper of, by the pressure of the steam.	Patrick Clark	Rahway, N. J	Jan. 3, 1854.
Boilers, steam, use of fusible discs in	John Absterdam and William Burnett	Boston, Mass	Feb. 28, 1854.
Boilers, steam, water-level indicator for	Patrick Clark	Rahway, Essex county, N. J	June 6, 1854.
Boilers, steam, water indicators for	Thomas J. Sloan	New York, N. Y	May 16, 1854.
Condensers	Samuel W. Brown	Lowell, Mass	Dec. 19, 1854.
Condensers, surface	William Sewell, assignor to Joseph Barton, reassignor to W. Sewell.	Brooklyn, N. Y	Oct. 31, 1854. Patented in England Jan. 13, 1854.
Cylinders of steam engines, arrangement of means for lubricating the.	John Absterdam	Boston, Mass	Nov. 21, 1854.
Engine, steam, arrangement of the	Wm. M. Ellis	Washington, D. C	Aug. 22, 1854.
Engine, steam, regulators	Anson Merriman	Middletown, Conn	June 20, 1854.
Engines, actuating by bi-sulphate of carbon	Bernard Hughes	Rochester, N. Y	Aug. 22, 1854.
Engines, beam, parallel motion for	John M. Thompson	Taunton, Mass	July 11, 1854.
Engines, locomotive, arrangement of valve motion for.	Caleb Cook	Nashville, N. H	Mar. 7, 1854.
Engines, locomotive, means for adjusting the valves of.	Henry W. Farley	East Boston, Mass	May 2, 1854.
Engines, high-pressure steam	Benjamin Crawford	Pittsburg, Pa	June 20, 1854.
Engines, marine refrigerators for	J. Merrill, and Geo. Patten	Boston, Mass	Aug. 8, 1854.
Engines, oscillating	William Craig	New York, N. Y	Sept. 12, 1854.
Engines, rotary	Ebenezer Barrows	New York, N. Y	Feb. 7, 1854. Patented in England July 3, 1851.
Engines, rotary	Gerard Sickels	Brooklyn, N. Y	Mar. 14, 1854.
Engines, rotary	R. C. Bristol	China, Mich	Aug. 22, 1854.
Engines, rotary	Charles Rumley	Rochester, N. Y	Nov. 7, 1854.
Engines, rotary steam	Benj. H. Wright	Rome, N. Y	Oct. 24, 1854.
Engines, steam	Benj. F. Day	Philadelphia, Pa	June 20, 1854.
Engines, steam	Wm. Black	Alleghany City, Pa	Sept. 19, 1854.
Engines, steam	Henry Tongue	Nashville, Tenn	Oct. 10, 1854.
Engines, steam	Nathan Atherton	Philadelphia, Pa	Oct. 31, 1854.
Engines, steam, adjusting the packing of piston for.	John Crabtree	Philadelphia, Pa	May 9, 1854.
Engines, steam, balancing slide-valves of	Robert Waddell	England	June 6, 1854.
Engines, steam, condensers for	F. G. Smith	Columbia, Maury county, Tenn	July 11, 1854.
Engines, steam, condensers for	H. Waterman	Hudson, N. Y	Dec. 12, 1854.
Engines, steam, cut-off, regulators for	H. A. Luttgens	Paterson, N. J	Dec. 12, 1854.
Engines, steam, regulating the motion of	William C. Hibbard	Boston, Mass	July 4, 1854.
Engines, steam, oil-cups for	David Clark	Philadelphia, Pa	Jan. 10, 1854.
Engines, steam, oil-cups for	George Trott	Pittsburg, Pa	Mar. 28, 1854.
Engines, steam, oscillating	Matthew Cridge, and Samuel Wadsworth	Pittsburg, Pa	Dec. 12, 1854.
Engines, steam, pistons for	Alexander M. Sprague	Mobile, Ala	May 9, 1854.
Engines, steam, slide-valve motion of	Martin V. B. Darling	Providence, R. I	July 11, 1854.
Engine, surface condensers for marine	D. Carpenter	Brooklyn, N. Y	Sept. 12, 1854.
Gauge, steam	Victor Beaumont	New York, N. Y	Oct. 3, 1854.
Gauges, steam	Thomas Stubblefield	Columbus, Ga	July 18, 1854.
Gauges, water, for steam-boilers	William Palmer	New York, N. Y	Jan. 31, 1854.
Heaters, vertical tube, feed-water in	M. W. Baldwin and David Clark	Philadelphia, Pa	Feb. 14, 1854.
Locomotive smoke-stacks, arrangement of			
Locomotive fire-box	Ross and Thomas Winans	Baltimore, Md	May 9, 1854.
Locomotive tenders	Ross and Thomas Winans	Baltimore, Md	May 23, 1854; antedated May 9, 1854.
Locomotives, exhaust-pipes of, tapering nozzles to the.	Frederick Espenchade	Mifflintown, Pa	Mar. 14, 1854.
Locomotives, tanks and cisterns for supplying	Angus W. McDonald	New Creek Depot, Va	Nov. 28, 1854.
Spark-arresters, for heating feed-water, arrangement in.	R. A. Wilder	Schuylkill Haven, Pa	Oct. 31, 1854.
Steam, apparatus for controlling the pressure of	Henry S. Williams	Malta, Morgan county, Ohio	Feb. 14, 1854.
Steam-generators	Alexander B. Latta	Cincinnati, Hamilton county, Ohio	June 6, 1854.
Valve, gear, for locomotive engines	James Freeland	Alleghany, Pa	Nov. 21, 1854.
Valve, steam	Robert Ross	Philadelphia, Pa	Aug. 22, 1854.
Valves and valve-seats of steam-engines	Stephen D. Wilson	Reading, Pa	Jan. 10, 1854.
Valves, block-slide, for steam-engines	Lewis R. Conard	Philadelphia, Pa	July 18, 1854.
Valves, cut-off, for steam-engines, operating	Thomas Ashcroft	Dorchester, Mass	June 13, 1854.
Valves, cut-off, of steam-engines, operating	William Wright	Hartford, Conn	Jan. 3, 1854.
Valves, cut-off, of steam engines, operating	William Lowe	Hartford, Conn	July 11, 1854.
Valves, faucet, steam-engine	Abijah Taylor	Pekin, Ill	Mar. 14, 1854.
Valves, for steam-pumps, operating	Charles A. Wilson	Newport, Campbell county, Ky	June 13, 1854.
Valves, piston, and steam passages in cylindrical steam-chests.	Joseph Marks	Boston, Mass	Jan. 24, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Valves, slide, from steam-engine	John Gleason	Northfield, Vt	Aug. 29, 1854.
Valves, slide, in steam-engines, packing	Daniel B. Martin	Washington, N. J	Nov. 21, 1854.
Valves, slide, for the exhaust steam	Henry Bates	New London, Conn	Nov. 14, 1854.

CLASS VII.—NAVIGATION AND MARITIME IMPLEMENTS, *comprising all vessels for conveyance on water, their construction, rigging, and propulsion, diving-dresses, life-preservers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Anchors or drags, floating	Abel F. Lewis	Shopiere, Rock county, Wis	Aug 22, 1854.
Berth-knee former	Donald Taylor	East Boston, Suffolk county, Mass.	June 6, 1854.
Boats and other vessels, method of unloading, canal.	William Loughridge	Weverton, Frederick county, Md	May 9, 1854.
Boats, canal, arrangement of lever, and catch for tow-line of.	J. W. Cadwell	Rochester, N. Y.	Nov. 14, 1854.
Boats, canal, arrangement of means for freeing from water.	Wm. Loughridge	Weverton, Frederick county, Md.	July 11, 1854.
Boats, canal, method of discharging cargo from	Amos Young	Georgetown, D. C	May 2, 1854.
Boats, life, reversible	Nathan Thompson, jr	Williamsburg, Kings county, N. Y.	April 11, 1854.
Boats, ferry, guards for	Daniel Fitzgerald, Thos. Rogers, and Wm. C. Walker.	New York, N. Y.	Dec. 19, 1854.
Cable, chain, stopper	Oldin Nichols	Lowell, Mass	April 4, 1854.
Cable, chain, stopper	Oldin Nichols	Lowell, Mass	April 4, 1854.
Cable, chain, stopper	Charles Perley	New York, N. Y.	June 13, 1854.
Cables, chain, arrangement of means for working and stopping.	Thomas Brown	London, England	July 25, 1854. Patented in England April 20, 1847.
Capstans, reversible	J. A. H. Ellis and Alex. Gordon	Rochester, N. Y.	June 27, 1854.
Grapple for raising sunken vessels	Joseph T. Martin	New York, N. Y.	July 11, 1854
Grommets for sails, metallic	Eldridge H. Penfield	Middletown, Conn	Mar. 14, 1854.
Grommets, metallic	John Allender	New London, Conn	June 20, 1854.
Life-preservers to vests, mode of attaching	Richard L. Nelson	Ocala, Fla	Nov. 21, 1854.
Life-preserving seats	Nathan Thompson, jr	Williamsburg, N. Y.	Dec. 19, 1854. Patented in England Sept. 18, 1854.
Mast-hoop, machine for manufacturing	E. W. Scott	Lowell, Mass	Oct. 31, 1854.
Oar-locks	William P. Glading	New York, N. Y.	Feb. 21, 1854.
Paddle-wheels	William Henry Muntz	Norton, Bristol county, Mass.	July 4, 1854.
Paddle-wheels	Abraham Van Antwerp	Albany, N. Y	July 25, 1854.
Paddle-wheels	Abner Chapman	Fairfax, Vt	Oct. 3, 1854.
Paddle-wheels, feathering	Samuel and Thomas Champion	Washington, D. C	Jan. 3, 1854.
Paddle-wheels, feathering	Thomas L. Jones, assignor, through Horace Dresser and self, to Jas. B. Jones.	Poughkeepsie, N. Y	Jan. 10, 1854.
Paddle-wheels, feathering	Thomas and Samuel Champion	Washington, D. C	June 6, 1854.
Paddle-wheels, feathering	Fletcher Felter	Perth Amboy, N. J	Nov. 28, 1854.
Paddle-wheels, submerged	William F. Ketchum	Buffalo, N. Y	Aug. 1, 1854.
Parrel and bows	John Dane	Portsmouth, N. H	Sept. 26, 1854.
Propellers	Harry Leach	Boston, Mass	Jan. 31, 1854.
Propellers, attaching, to the driving-shaft	James L. Cathcart	Washington, D. C	April 18, 1854.
Rigging, machinery for worming	Jonathan C. Ginn	South Thomaston, Me	Sept. 5, 1854.
Sails, arrangement for reefing	Horace J. Crandall	East Boston, Mass	Dec. 5, 1854.
Sails, top, extra yard to	Frederick Howes	Yarmouth, Mass	June 20, 1854.
Sails, top, arrangement for reefing and furling from the deck of the vessel.	William H. Foster	Portsmouth, N. H	Sept. 5, 1854.
Ship frames, bent timbers for	William Ballard	New York, N. Y.	June 6, 1854.
Ship timbers, ventilating. (See Class V, letter V.)			
Ship ventilator. (See Class V, letter V.)			
Ships' blocks	Elbridge Webber	Gardiner, Me	Mar. 28, 1854.
Ships' blocks, bushing sheaves for	Weatherill Taylor	Camptown, N. J	Aug. 8, 1854.
Ships' capstan and windlass, arrangement of	Jesse Reed	Marshfield, Mass	June 20, 1854.
Ships, constructing, for safety and escape	Joseph Burch	Macclesfield, Chester county, England.	May 23, 1854.
Ships, construction of	John W. Griffith	New York, N. Y.	Oct. 10, 1854.
Ships' knees	William Ballard	New York, N. Y.	May 2, 1854.
Ships' windlasses. (See Class XII, letter W.)			
Soundings, deep-sea, instrument for taking	Charles F. Brown	Warren, Bristol county, R. I	June 6, 1854.
Steering apparatus	John Stowell	Charlestown, Mass	June 13, 1854.
Steering apparatus	Joseph D. Crowell	Boston, Mass	Dec. 5, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Tables, for ships' cabins	William L. Bass	Cambridgeport, Middlesex county, Mass.	May 16, 1854.
Vessels, apparatus for determining the weight of cargoes in. (See letter W, Class XII.)			
Vessels, apparatus for paying the seams of	James W Stoakes	Milan, Erie county, Ohio	Mar. 7, 1854.
Vessels, arrangement of indicating-tubes for ascertaining the draught of, and for trimming.	John E. Vansant	Louisville, Ky	July 25, 1854.
Vessels, draughting and modelling	Henry C. Deputy	Michigan City, Ind	Aug. 1, 1854.
Vessels, masts of, cap or withe for the	James W. Sikes	Plymouth, N. C	Aug. 1, 1854.
Vessels, mode of raising	Felix Huston	New Orleans, La	July 18, 1854.
Vessels, propulsion of	Henry H. Olds	New Haven, Conn	Dec. 12, 1854.
Yards, trussing, to vessels' masts	Joseph Perkins, assignor to Perkins & Upton.	Salem, Mass	Dec. 12, 8 61.

CLASS VIII.—MATHEMATICAL, PHILOSOPHICAL, AND OPTICAL INSTRUMENTS, *including clocks, chronometers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Clocks, calendar	John Williams, assignor to F. Curtis & Co	Hartford, Conn	Sept. 19, 1854.
Clocks, calendar	William H. Akins, assignee of Akins & Burritt.	Ithaca, N. Y	Sept. 19, 1854.
Clocks, electric	Alexander Hall	Loydsville, Ohio	Sept. 26, 1854.
Clocks, steeple, striking part of	George Deuble	Canton, Ohio	July 25, 1854.
Compasses and callipers	John E. Earle	Leicester, Mass	Aug. 1, 1854.
Counting machines	Paul Stillman	New York, N. Y	Aug. 22, 1854.
Counting machines, and machines for indicating motion.	W. G. Sterling	Bridgeport, Conn	Sept. 19, 1854.
Dynamometers, registering	William B. Leonard	New York, N. Y	Dec. 19, 1854.
Electric magneto machines	Ari Davis	New York, N. Y	Aug. 1, 1854.
Electro-magnetic engines	Charles G. Page	Washington, D. C	Jan. 31, 1854. Patented in England May 3, 1851.
Levels, spirit	Lebbeus Brooks	Great Falls, N. H	Aug. 29, 1854.
Lightning rods	Amos Lyon	Worcester, Mass	July 11, 1854.
Lightning rods for vessels	Robert B. Forbes	Boston, Mass	July 4, 1854.
Lightning rods, insulators for	Timothy U. Webb	Jersey City, N. J	Aug 15, 1854.
Magnetic toy, called the "magical cupid"	James Swaim	Philadelphia, Penn	Jan. 10, 1854.
Numbers, machines for adding	Aaron L. Hatfield	Lewisburg, Penn	Sept. 26, 1854.
Odometers	Julius Thompson	Middleboro', Mass	Oct. 31, 1854.
Odometers	Samuel R. Thorp	Batavia, N. Y	Oct. 31, 1854.
Odometers, railroad	Merritt F. Potter	Charlemont, Franklin co., Mass	June 13, 1854.
Square, scale, level, and bevel	Josiah Shanklin	Parkersburg, Va	Oct. 24, 1854.
Telegraph wires, apparatus for coating	J. Burrows Hyde	New York, N. Y	Aug. 22, 1854.
Telegraph wires, insulating	John M. Batchelder	Cambridge, Mass	June 13, 1854.
Telegraphic keys	John Davis	New Bedford, Mass	Sept. 19, 1854.
Telegraphic register, mode of making battery connexion with an electro-magnetic coil on the travelling carriage of a.	Jno. M. Batchelder and M. G. Farmer	Salem, Mass	Feb. 7, 1854.
Telegraphic wires, compositions for coating, and for other purposes. (See Class IV, letter C.)			
Watch-chain swivel	Nathan F. Mathewson	Providence, R. I	June 20, 1854.
Watch hands, punches and dies for punching. (See Class II, letter P.)			

CLASS IX.—CIVIL ENGINEERING AND ARCHITECTURE, *comprising works on rail and common roads, bridges, canals, wharves, docks, rivers, weirs, dams, and other internal improvements, buildings, roofs, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Battery, sub-marine	Joseph Frey and D. B. Burnham	Battle Creek, Calhoun county, Mich.	July 4, 1854.
Blasting rocks	C. F. Brown	Warren, R. I	July 11, 1854.
Blasting rocks, timber, &c	John Norton	Cork, Ireland	Aug. 8, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Blinds, folding	Mansel Blake, assignor to M. Blake, Jas. B. McAlester, and E. Blake.	Sutton, N. H.	Mar. 14, 1854.
Bridge, draw, railroad, and switch telegraph	William McRea	Philadelphia, Pa.	Oct. 3, 1854.
Bridges	Albert Fink	Baltimore, Md.	May 9, 1854.
Bridges	Samuel and Thomas Champion	Washington, D. C.	July 18, 1854.
Bridges, drop	Jacob D. Woodruff and Joshua H. Butterworth.	Newark, N. J.	Feb. 14, 1854.
Bridges, iron	John Yandell and Joseph H. Johnson	St. Louis, Mo.	Oct. 17, 1854.
Bridges, iron, trusses for	George W. Thayer	Springfield, Mass.	April 11, 1854.
Bridges, travelling	Frederick Field	Adrian, Lenawee county, Mich.	April 25, 1854.
Bridges, tubular	Eden A. Baldwin	Elmira, N. Y.	Aug. 8, 1854.
Buildings, iron	Stephen Colwell	Philadelphia, Pa.	April 11, 1854.
Buildings, iron, mode of constructing	Amos J. Saxton	Brooklyn, N. Y.	Aug. 8, 1854.
Buildings, iron	Bernard J. LaMothe	New York, N. Y.	Oct. 17, 1854.
Buildings, lathing	B F. Gold	New Haven, Conn	Aug. 1, 1854.
Car-windows, railroad	George Spencer	Utica, N. Y.	Aug. 15, 1854.
Cars, railroad	Bernard J. LaMothe	New York, N. Y.	April 4, 1854.
Cars, railroad, apparatus for starting	William Palmer	New York, N. Y.	Oct. 3, 1854.
Chair, machinery, railroad	Benjamin F. Gossin	Covington, Ky.	Oct. 10, 1854.
Chair, railroad, machines	Michael M. Gray	Philadelphia, Pa.	Feb. 28, 1854.
Chairs, for round rails	Patrick S. Devlan	Reading, Pa.	Oct. 24, 1854.
Chairs, railroad, making	John C. Ogden, assignor to Charles S. Ogden.	Philadelphia, Pa.	April 4, 1854.
Cistern-arches, arch-boards for mode of arranging.	Harvey and S. E. Crosby	Gustavus, Trumbull county, Ohio.	July 11, 1854.
Cow-catchers	Thomas B. Smith	Triune, Williamson county, Tenn.	July 11, 1854.
Ditching-plough. (See Class I, letter P.)			
Docks, bilge, supporters for holding vessels u.	Horace J. Crandall	Boston, Mass.	Dec. 19, 1854.
Docks, dry	James E. Simpson	East Boston, Mass.	Dec. 5, 1854.
Docks, dry, and others, method of holding vessels by the keel in.	Jonathan Smith	Neponset village, Mass.	Dec. 19, 1854.
Docks, dry, sectional	Samuel Loveland	Astoria, N. Y.	Mar 7, 1854; antedated September 7, 1853.

Docks, dry, sectional or railway, mode of adjusting vessels upon the keel-blocks of.	Horace J. Crandall	East Boston, Mass.	Nov. 14, 1854.
Doors, trap	Gustavus Runge	Philadelphia, Pa.	July 11, 1854.
Dredging-machines	Charles H. Fondé, and Thomas B. Lyons	Mobile, Ala.	Mar. 21, 1854.
Excavating earth, machines for	John Taggart, assignor to John Taggart and Richard Pitts.	Roxbury, Mass.	July 4, 1854.
Excavating-machine	George D. Stillson	Rochester, N. Y.	Nov. 14, 1854.
Excavating machines, mode of operating	Joel A. H. Ellis and Alex. Gordon	Rochester, N. Y.	July 18, 1854.
Excavators	Elijah Phelps	Hendersonville, Knox county, Ill.	June 6, 1854.
Excavators and ditching plough. (See Plough, Class I.)			
Fence, field	Daniel R. Prindle	East Bethany, Genesee county, N. Y.	April 25, 1854.
Fence-posts, excavator for	Ransom P. Adams	Clinton, Dewitt county, Ill.	May 23, 1854.
Foundations, mode of securing stones in	John P. Avory	Norwich, New London county, Conn.	April 25, 1854.
Gates, canal, mode of closing wickets in	D. N. Kownover, assignor to R. L. Kownover.	Danville, Montour county, Pa.	June 13, 1854
Gates, canal, lock	G. W. Wood and L. O. Webster	Utica, N. Y.	June 13, 1854.
Gates, &c., method of hanging	N. W. Cilley	Nottingham, Rockingham county, N. Y.	May 16, 1854.
Gates, farm	Dewey Phillips	Shaftsbury, Vt	Nov. 7, 1854.
Gates, hanging	Ashley Hotchkin	Schenevus, Otsego county, N. Y.	Mar. 7, 1844.
Gates, method of opening and closing	William G. Phillips	Newport, Del.	Mar. 7, 1854.
Hatches, construction of	Daniel Tallcot	New York, N. Y.	May 9, 1854.
Houses, construction of iron	Charles Mettam	New York, N. Y.	July 11, 1854.
Manure and sand loader. (See Class I.)			
Pavement-washer, hose-hydrant, and hitching post. (See Class XI, letter H.)			
Pavements, foundations for	John B. Wickersham	New York, N. Y.	July 11, 1854.
Pavements, wooden	Samuel Nicholson	Boston, Mass.	Aug. 8, 1854.
Plastering, machines for	Isaac Hussey	Harveysburg, Warren county, Ohio	Mar. 7, 1854.
Piles, mechanism for sawing off, under water	Vincent Palen	Portsmouth, Va.	Oct. 31, 1854.
Rails, adjustable, for replacing cars on the tracks.	Charles Perley	New York, N. Y.	June 13, 1854.
Roofs, forming	William G. Sterling	Bridgeport, Conn	April 25, 1854.
Roofing, metallic, mode of constructing	Henry Outcalt	Wilmington, Ohio	July 11, 1854.
Railroad switches, self-acting	Joseph Wilson	Hartford, Conn	Mar. 7, 1854.
Railroad tracks and wheels, combination of	Henry R. Campbell	Lebanon, N. H.	June 6, 1854.
Railroad frog-guards	Henry W. Farley	Boston, Mass.	April 4, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Sashes, balancing and hoisting apparatus for	Robert Marquis	Xenia, Ohio	Aug. 22, 1854.
Sashes, window, mode of balancing	Alfred T. Clark	Lancaster, Penn	May 23, 1854.
Scoops, sub-marine	Anson Balding	Olney, Richland county, Ill	Mar. 28, 1854.
Scraper and spreader, road	Thomas Penrose	Ellington, Adams county, Ill	June 27, 1854.
Scrapers, road	Samuel H. Dudley	Milton, Conn	June 6, 1854.
Seats for public buildings	Augustus Eliaers	Boston, Mass	Nov. 28, 1854.
Seats for public buildings	Aaron H. Allen	Boston, Mass	Dec. 5, 1854.
Shutters, slat, metallic	John B. Cornel	New York, N. Y	Sept. 12, 1854.
Staging, portable	William P. Goolman & Samuel Morris	Springtown, Ind	Sept. 19, 1854.
Switches, railroad	Samuel P. Kittle	Buffalo, N. Y	Dec. 5, 1854.
Switch-tenders, houses for	Willis Mansfield	New Haven, Conn	Aug. 1, 1854.
Table, turn	Jacob C. Robie	Binghampton, N. Y	Aug. 15, 1854.
Troughs, eaves, suspending	Chauncey D. Woodruff	Toledo, Ohio	Mar. 7, 1854.
Vault covers	Alfred Brady	New York, N. Y	June 6, 1854.
Vault covers, catch for	Joshua K. Ingalls	Williamsburg, N. Y	July 4, 1854.
Vault lights	Thaddeus Hyatt	New York, N. Y	Sept. 19, 1854.
Window-blind holder	E. W. Bullard	Hardwick, Mass	Aug. 29, 1854.
Window blinds, iron slats for, mode of manufacturing.	William E. Ward	Port Chester, N. Y	July 11, 1854.
Window-cord pulleys. (See Class XII, P.)			
Window-sashes, applying springs to	Albert G. Safford	Boston, Mass	Aug. 8, 1854.
Windows	Mark A Heath	Providence, R I	July 25, 1854.
Windows, tightening	Thomas Silver	Philadelphia, Penn	June 13, 1854.

CLASS X.—LAND CONVEYANCE, *comprising carriages, cars, and other vehicles used on roads, and parts thereof.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Axle, carriage	Ely H. Green	Baltimore, Md	June 13, 1854.
Axles, carriage	William H. Saunders	Hastings on Hudson, Westchester county, N. Y.	June 27, 1854.
Axles, railroad car	James E. McConnell	Wolverton, England	Oct. 31, 1854.
Axles, railroad, divided	Samuel L. Denney	Christiana, Pa	Jan. 31, 1854.
Boxes, anti-friction	David A. Morris	Pittsburg, Pa	Mar. 21, 1854.
Brakes, car, arrangement of bumpers for self-acting.	James J. McComb	New Orleans, La	Dec. 12, 1854.
Brakes, car, connecting a series of	Paul Moody	Camden, N. J	Sept. 26, 1854.
Brakes, car, machinery for operating	Joseph Marks, assignor to Wm. Whiting	Dunkirk, Chatauque co., N. Y Roxbury, Mass	Mar. 28, 1854; patented in England Nov. 21, 1853.
Brakes, car, machinery for operating	Joseph Marks and John Howarth, assignors to Wm. Whiting	Salem, Essex county, Mass Roxbury, Mass	Mar. 28, 1854.
Brakes, car, method of engaging and disengaging self-acting.	Geo. T. Leach	Boston, Mass	Nov. 14, 1854.
Brakes, car, railroad	Lucien B. Batcheller	Arlington, Vt	Jan. 24, 1854.
Brakes, carriage	Joseph Sollenberger	Higginsport, Ohio	Mar. 7, 1854.
Brakes, for checking and starting cars	Robert Grant	New York, N. Y	Oct. 10, 1854.
Brakes, for light vehicles	Moses D. Wells	Morgantown, Va	July 11, 1854.
Brakes, radial arms for car	Thomas G. McLaughlin	Philadelphia, Pa	June 20, 1854.
Brakes, railroad car	Benj. F. Reimer	Philadelphia, Pa	June 20, 1854.
Brakes, railroad car	Matthias P. Coons	Brooklyn, N. Y	Aug. 15, 1854.
Brakes, railroad car	Thos. G. McLaughlin	Philadelphia, Pa	Aug. 15, 1854.
Brakes, railroad car	Michael Shimer	Uniontown, Pa	Dec. 5, 1854.
Brakes, railroad car	Marcus P. Norton	Tinmouth, Vt	Nov. 7, 1854.
Buggies	Jas. S. McClelland	Jefferson, Ind	Aug. 8, 1854.
Buggies, joint-bodied	Edwin J. Green	Cedarville, Herkimer county, N. Y.	June 6, 1854.
Car-couplings	George Aulick	Winchester, Va	April 18, 1854.
Car, coupling	Thomas B. Stout	Keyport, N J	Aug. 8, 1854.
Car, coupling, railroad	Joseph Miller	Olean, N. Y	Nov. 14, 1854.
Car, dumping	Alex. M. Petsch	Charleston, S. C	Aug. 1, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Car, dumping	John Kimbel	Zanesville, Ohio	Oct. 3, 1854.
Car, railroad, couplings	David A. Hopkins	Elmira, N. Y	Aug. 1, 1854.
Car seats, railroad	W. B. Thomas and S. Hickok	Buffalo, N. Y	April 25, 1854.
Car seats, railroad	William E. Milligan	New York, N. Y	April 25, 1854.
Car seats, railroad	William Graham and L. McLaren	Philadelphia, Pa	Sept. 26, 1854.
Car seats, railroad	John T. Hammitt	Philadelphia, Pa	Dec. 5, 1854.
Car seats, railroad	Charles P. Bailey	Zanesville, Ohio	Oct. 10, 1854.
Car seats, mode of converting the backs of into beds or lounges.	Henry B. Myer	Buffalo, N. Y	Sept. 19, 1854.
Car trucks, with adjustable axles	A. C. Ketchum	New York, N. Y	May 2, 1854.
Cars, baggage, doors of	Henry L. Clark	Laporte, Ind	Sept. 5, 1854.
Cars, dumping	Charles P. Bailey	Zanesville, Ohio	Jan. 24, 1854.
Cars, dumping, operating	Abram C. Johnson	Meadville, Crawford county, Pa	April 18, 1854.
Cars, earth	R. H. Emerson	Chicago, Ill	April 11, 1854.
Cars, railroad, contrivances for protecting passengers in.	Samuel F. Holbrook	Boston, Mass	Feb. 21, 1854.
Cars, railroad, ticket-box for	David A. Hopkins	Elmira, N. Y	April 18, 1854.
Cars, railroad, running gear of	David G. Smith	Carbondale, Pa	Dec. 5, 1854.
Cars, railroad, spiral springs for	Fowler M. Ray	New York, N. Y	April 18, 1854.
Cars, unloading coal and other	Andrew Patrick	Alleghany county, Md	Aug. 15, 1854.
Carriage-bodies, hanging	B. F. Brown	Dorchester, Mass	Dec. 12, 1854.
Carriage-springs, for light vehicles	Mary Burns, administratrix of Robert Burns, jr., deceased.	New York, N. Y	July 18, 1854. Patented in England June 7, 1853.
Carriage, spring body	Alexander Moffitt	Brownsville, Pa	Aug. 8, 1854.
Carriage tops	Rodney Miller	Middlefield, Ohio	April 4, 1854.
Carriage tops	Solomon T Huntington	Syracuse, N. Y	June 20, 1854.
Carriage tops, lowering, raising, and fastening	Zina S. Ogden, assignor to Lewis C. Ogden	Glen's Falls, N. Y	Jan. 3, 1854.
Carriage tops, mode of raising and letting fall	Joseph R. Winchester	Medina, Orleans county, N. Y	June 20, 1854.
Carriages	James L. Rowley, assignor to J. L. Rowley and R. H Gilson.	Staunton county, Ind	June 13, 1854.
Carriages, coupling for	N. B. Livingston	Portland, Ind	July 25, 1854.
Carriages, coupling for	A. J. Gibson	Clinton, Mass	Sept. 12, 1854.

Carriages, preventing rattling in	William S. Chapman	Cincinnati, Ohio	Aug. 8, 1854.
Cart, self-loading and dumping	Sanford Stone	Kirkersville, Ohio	Aug. 1, 1854.
Case, for holding railway and other tickets	Joseph Edmondson and C. Haworth, executors of T. Edmondson, deceased.	Salford, Lancaster county, England.	May 16, 1854.
Coupling	M. Newman, 2d	Lanesboro', Susquehanna county, Penn.	June 13, 1854.
	N. C. Whitcomb	Lanesboro', Susquehanna county, Penn.	
	G. C. Cole	Hartford, Conn	
Engine locomotive, running-gear of	Septimus Norris	Philadelphia, Penn	Sept. 26, 1854.
Felloe machine. (See Class XIV.)			
Hub-bands for carriages	J. Jenkins & J. R. Cooke	Winstead, Conn	Dec. 12, 1854.
Hubs, metallic	J B. Hayden	Easton, Washington county, N. Y.	Feb. 7, 1854.
Hubs to axles, attaching	Elnathan Sampson	Claremont, Sullivan county, N. H.	Feb. 21, 1854.
Hubs to axles, mode of securing	Cook Darling	Utica, N. Y	Aug. 15, 1854.
Omnibus registers	F. O. Deschamps	Philadelphia, Penn	Feb. 7, 1854.
Omnibus registers	Levi W. Mallory, assignor to Wm. Morris	Philadelphia, Penn	June 20, 1854.
Omnibus registers	William Morris	Philadelphia, Penn	Nov. 14, 1854.
Omnibus step protector	Thomas Coles	New York, N. Y	July 25, 1854.
Snow ploughs for railroads	Abijah Hall and Sylvanus Sturtevant	South Paris, Me	Feb. 28, 1854.
Springs, pneumatic	James F. Heyward	Wilmington, Del	Dec. 12, 1854.
Track clearers for railroads	Edward H. Ashcroft	Boston, Mass	Mar. 28, 1854.
Trucks, railroad car	Abram Snyder	Hawley, Wayne county, Penn	July 18, 1854.
Vehicles	Abram J. Gibson	Clinton, Worcester county, Mass.	July 25, 1854.
Vehicles, mode of attaching thills and poles to	Abram J. Gibson	Clinton, Worcester county, Mass.	Aug. 1, 1854.
Vehicles, mode of attaching whiffle-trees to	Abram J. Gibson	Clinton, Worcester county, Mass.	Aug. 1, 1854.
Wagons, attaching shafts to	Daniel Haight, jr.	Clinton, N. Y	Jan. 24, 1854.
Wagons, dumping	Wm. S. Babcock	Stonington, Conn	Aug. 8, 1854.
Wagons, &c., running-gear of	Isaac Crandall	Cherry Valley, N. Y	Jan. 3, 1854.
Wagons, seats for	Chesley Jarnagin	Clinton, Tenn	Oct. 31, 1854.
Wagons, tail-boards of	F M. Harris	Carroll, Ohio	June 13, 1854.
Wheels, car, fastening the discs and rims of	Abel Breaer	Saugatuck, Fairfield county, Conn.	May 30, 1854.
Wheels, car, with independent flange and tread.	William S. McLean	Pittsburg, Pa	Aug. 1, 1854.
Wheels, car, securing upon axles	Jordan L. Mott	New York, N. Y	June 6, 1854.
Wheels, cast-iron, car	George W. Glass	Alleghany City, Pa	April 25, 1854.
Wheels, cast-iron, car	David Prew	Taunton, Mass	June 13, 1854.
Wheels, cast-iron, car	John Henry	Lynchburg, Va	June 20, 1854.
Wheels, cast-iron, car	Benj. Severson	Philadelphia, Pa	July 4, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Wheels, driving, of locomotives, for ascending inclined planes.	Josephine Morse	Washington, D. C	Sept. 5, 1854.
Wheels, locomotive, counterpoise to cast	Henry A. Chase	Boston, Mass	May 23, 1854.
Wheels, railroad car	Jordan L. Mott	New York, N. Y	Mar. 21, 1854.
Wheels, railroad car	R. A. Wilder	Schuylkill Haven, Pa	Mar. 28, 1854.
Wheels, safety-washer for securing to axles	William Thornley	Philadelphia, Pa	Sept. 19, 1854.
Wheels, wrought-iron, car, making	George B. Harteon	New York, N. Y	July 11, 1854.
Whiffletrees	Francis M. English	Hopkinsville, Christian county, Ky	June 6, 1854.
Whiffletrees	Thomas Hardman and Albert Vose	Pittsfield, Vt	Sept. 26, 1854.
Whiffletree-hooks	M. Newman, N. C. Whitcomb, and G. C. Cole	Lanesborough, Pa / Hartford, Conn	Feb. 21, 1854.

CLASS XI.—HYDRAULICS AND PNEUMATICS, *including water-wheels, windmills, and other implements operated on by air or water, or employed in the raising and delivery of fluids.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Balloons, mooring and managing, arrangement for.	John W. Brewer	Cincinnati, Ohio	July 11, 1854
Cock, stop	O. C. Phelps	Boston, Mass	Mar. 14, 1854
Cocks, stop and waste	William Z. Hatcher	Philadelphia, Penn	Aug. 22, 1854.
Engine, hydrodynamic	E. L. St. John	Buffalo, N. Y	May 2, 1854.
Engines, air	A. S. Lyman	New York, N. Y	Feb. 28, 1854.
Engines, air	Philander Shaw	East Abington, Plymouth county, Mass.	May 2, 1854.
Engines, air	James R. Napier, of Glasgow, Lanark county, and William J. M. Rankine.	Govan, Renfrew county, Scotland.	Sept. 19, 1854. Patented in England June 9, 1853.
Engines, fire	Albin Warth	New York, N. Y	Aug. 1, 1854.
Engines, fire, arrangements of devices for applying power to.	Gottleib Backstein	Philadelphia, Penn	Nov. 28, 1854.
Engines, fire, mode of operating	F. G. Smith	Columbia, Tenn	Sept. 12, 1854.
Faucet	Ezra Ripley	Troy, N. Y	Mar. 14, 1854.
Faucet	R. M. Bouton	West Troy, N. Y	April 18, 1854.
Faucets for measuring liquids	Joshua Cross	New London, Ohio	Mar. 14, 1854.
Faucets for measuring liquids	J. B. Larwill & J. Cross	Bucyrus, Ohio	Mar. 14, 1854.
Filters	John Kedzie	Rochester, N. Y	Jan. 10, 1854.
Fluids, apparatus for distributing	John W. Middleton	Philadelphia, Penn	Sept. 12, 1854.
Heaters, hydraulic. (See Class V.)			
Hydrant cap	Noah W. Speers	Cincinnati, Ohio	June 6, 1854.
Hydrant, hose, and hitching-post, pavement washer.	Charles M. Alberger	Philadelphia, Penn	Aug. 22, 1854.
Hydraulic engine	Augustus C. Carey & Jeremiah Smith	Ipswich, Essex county, Mass	Mar. 21, 1854.
Hydraulic press	Robert Grant	New York, N. Y	Aug. 1, 1854.
Hydraulic ram	Joseph C. Strode	West Chester, Chester county, Penn.	May 23, 1854.
Hydraulic ram	Joseph D. West	New York, N. Y	Aug. 29, 1854.
Hydraulic ram	Ellis Webb	Parkersville, Penn	Dec. 5, 1854.
Hydraulic ram, tidal or current	John W. Middleton	Philadelphia, Penn	Sept. 19, 1854.
Hydraulic rams, method of operating	Clark Polley	May's Landing, Atlantic county, N. J.	Mar. 7, 1854.
Pneumatic springs. (See Class X, letter S.)			
Pump	Jacob Edson	Boston, Mass	May 9, 1854.
Pump	Ira Carter	Champlain, Clinton county, N. Y.	June 27, 1854.
Pump, centrifugal	William D. Andrews	New York, N. Y	Aug. 22, 1854.
Pump, diaphragm	Julius A. Pease	New York, N. Y	Aug. 22, 1854.
Pump, double-acting force	John H. McGowan	Cincinnati, Ohio	June 27, 1844.
Pump, hydro-pneumatic force	Alex. B. Latta	Cincinnati, Ohio	June 27, 1854.
Pump, force, double-acting	D. W. Clark and S. H. Gray	Bridgeport, Conn	Dec. 19, 1854.
Pump, rotary	R. Burdine	Washington, D. C	April 25, 1854.
Pump, rotary	Stephen D. Carpenter	Madison, Wis	Oct. 10, 1854.
Pump, rotary	Joshua Gray	Boston, Mass	Dec. 5, 1854.
Pump, valve	L. A. Miles	Hopkinsville, Warren county, Ohio.	May 23, 1854.
Pumps	Joseph Smart	Northern Liberties, Philadelphia, Pa.	Mar. 28, 1854.
Pumps	Jacob Edson	Boston, Mass	April 4, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Pumps	John Tapley	Frankfort, Me	Sept. 19, 1854.
Pumps, &c., rotary piston or valves for	Joseph Gatley	Rome, N. Y	Sept. 12, 1854.
Pumps, diaphragm	Daniel T. Hitchcock	Warren, Mass	Jan. 17, 1854.
Pumps, mechanism for operating	James A Whipple	Boston, Suffolk county, Mass	June 6, 1854.
Pumps, valves for	Joel R. Bassett, assignor to C. H. Williams	Cincinnati, Ohio	Feb. 14, 1854.
Pumps, valvular arrangement for diaphragm	S. A. Clemens	Springfield, Mass	July 11, 1854.
Syphon, attachment to	Samuel Lenher	Philadelphia Pa	Oct. 31, 1854.
Valve-cock	Benjamin Eakins	Spring Garden, Philadelphia, Pa	April 4, 1854.
Valve-cocks	John Griffiths	Philadelphia, Pa	Feb. 14, 1854.
Valve-cocks, governing the action of	Frederick H. Bartholomew	New York, N. Y	June 20, 1854.
Valves, inclined sliding	Edward H. Tracy	New York, N. Y	Nov. 28, 1854.
Valve puppet for hydraulic rams	Joseph C. Strode	West Chester, Chester county, Pa	Aug. 29, 1854.
Water, elevating, for the purpose of, method of applying heat to dilate gases.	John W. Middleton	Philadelphia, Pa	Sept. 12, 1854.
Water-meter	Marvin Smith	New Haven, Conn	Sept. 19, 1854.
Water-meter	Joseph D. Elliot	Leicester, Mass	Oct. 17, 1854.
Water-meter	S. R. Wilmot	New Haven, Conn	Oct. 31, 1854.
Water-pipes	Jonathan Ball	New York, N. Y	July 11, 1854.
Water-pipes	Richard B Stevenson	Sandusky, Ohio	Oct. 17, 1854.
Water-wheel	G. M. Conner	Charlton, Saratoga county, N. Y	April 18, 1854.
Water-wheel	A. Greenleaf	Kingston, Pa	May 16, 1854.
Water-wheel, reaction	Isaac True	Rochester, Fulton county, Ind	April 25, 1854.
Water-wheels	Lorenzo D. Goodwin	Perueville, N. Y	April 4, 1854.
Water-wheels, gates for	Elijah Roberts	Rochester, N. H	April 4, 1854.
Wheel, water	B. T Hall	Seneca Falls, N. Y	July 25, 1854.
Wheel, water, direct-action	Stephen Hadley, jr	Lyman, N. H	Dec. 19, 1854.
Wheel, water, impact	A. Greenleaf	Kingston, Luzerne county, Pa	July 11, 1854.
Wheels, flutter, applying water to cuniformed buckets of.	David Rankin	Augusta county, Va	July 11, 1854.
Wheels, turbine, mode of manufacturing	Charles H. Bigelow	Lawrence, Essex county, Mass	May 30, 1854.
Wheels, water, improved joint in	Reuben Daniels	Woodstock, Vt	Nov. 7, 1854.
Wheels, water, head-gate for	Hartwell L. Turner	Strykersville, Wyoming co., N. Y.	June 27, 1854.
Wind-mill	Jacob Erdle	West Bloomfield, Ontario co., N.Y.	July 18, 1854.
Wind-mill sails, method of furling and unfurling	T. C. Vice	Rochester, N. Y	Aug. 29, 1854.
Wind-mills, governor for	Daniel Halladay	Ellington, Conn	Aug. 29, 1854.

CLASS XII.—LEVER, SCREW, AND OTHER MECHANICAL POWER, *as applied to pressing, weighing, raising, and moving weights.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Belt clasps for machinery	H. G. Ellsworth	Auburn, N. Y	Mar. 28, 1854.
Blocks, nipper, self-acting	Wm. Waley, assignor to	New London, Conn	May 30, 1854.
	Jonathan Whipple, jr	Hopedale, Mass	
Capstans, reversible. (See Class VII.)			
Derricks	John B. Holmes	Boston, Mass	Feb. 21, 1854.
Jacks, carriage lifting	John Jenkins, assignor to	Monroe, N. Y	Nov. 7, 1854.
	Roe, Horton & Co	Chester, N. Y	
Jacks, lifting	Jeremy W. Bliss	Hartford, Conn	Mar. 21, 1854.
Jacks, lifting	F. B. Smith	Craigsville, Orange county, N. Y.	July 11, 1854.
Jacks, lifting	Robert W. Genung	Blooming Grove, Orange co., N. Y.	July 11, 1854.
Jacks, screw	Francis Davis, assignor to J. M. Reed	Keene, Mass	May 9, 1854.
Lever ratchet	Hiram Baldwin	Nashua, Hillsborough co, N. H.	May 23, 1854.
Lubricating apparatus	Joshua Regester, assignor to Clampitt & Register.	Baltimore, Md	Dec. 5, 1854.
Lubricating compound	George A. Colehamer	Reading, Berks county, Pa	July 25, 1854.
Lubricating material	William Little	Strand, Middlesex co., England	Aug. 1, 1854. Patented in England July 14, 1853.
Lubricator	John Webster	New York, N. Y	April 11, 1854.
Lubricator	Robert M. Wade	Wadesville, Clark county, Va	June 6, 1854.
Oilers for machinery	Dewitt C. Smiley	New York, N Y	April 25, 1854.
Packing-machines, salt	John G. Fulton	Middleport, Ohio	Aug. 8, 1854.
Press, hydraulic. (See Class XI, letter H.)			
Press power, self-acting	Elias Davis	Montpelier, Vt	May 23, 1854.
Presses, cheese	Philander Wilbor	Milan, Ohio	Aug. 22, 1854.
Presses, cotton	Cyrus J. Fay	North Lincoln, Me	Jan. 31, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Presses, cotton	Nathan Chapman	Mystic River, Conn	Aug. 8, 1854.
Presses for making miniature cases. (See Class XVIII—miniature.)			
Presses for moulding glass	William O. Davis	Pittsburg, Pa	Jan. 31, 1854.
Presses, hay	Levi Dederick	Albany, N. Y	June 6, 1854.
Presses, hay and cotton	Levi Dederick	Albany, N. Y	May 16, 1854.
Presses, hay and cotton	Alden Adams	Jerseyville, Ill	Nov. 28, 1854.
Presses, oil or blubber	William P. Chadwick	Edgartown, Dukes county, Mass.	July 11, 1854.
Presses, seal	James Foster, jr., assignor to Platt Evens, jr.	Cincinnati, Ohio	Feb. 21, 1854.
Presses, cheese, self acting	Solomon W. Ruggles, assignor to Ruggles, Smith & Austin.	Fitchburg, Mass	July 4, 1854.
Pulleys, bearings for loose	William Campbell, assignor to William Campbell & E. W. Shippen.	West Philadelphia, Pa	Oct. 24, 1854.
Pulleys to shafts, attaching	Charles Clarene	New York, N. Y	Sept. 5, 1854.
Pulleys, window-cord	J. W. Bliss	Hartford, Conn	Feb. 21, 1854.
Scales, platform	Elnathan Sampson	Windsor, Vt	July 25, 1854.
Scales, platform	J. F. Keeler	Cleveland, Ohio	Sept. 26, 1854.
Weighing and printing butter, machines for	(See Class XVII, letter B.)		
Weight of cargoes in vessels, apparatus for determining the.	Ephraim Morris*	South Bergen, N. J	Sept. 12, 1854.
Windlasses	Henry Richards & and Charles F. Winsor	Boston, Mass	Nov. 28, 1854.
Windlasses, ships'	Daniel L. Winsor	Duxbury, Mass	Dec. 12, 1854.

CLASS XIII.—GRINDING MILLS AND MILL-GEARING, *including grain mills, mechanical movements, and horse-powers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bran-duster	Joseph Johnston	Wilmington, Del	Oct. 24, 1854; antedated April 24, 1854.
Cog-gearing	James A. Bazin, assignor to	Canton, Mass	Aug. 22, 1854.
	A. B. Ely	Boston, Mass	
Crushers, corn	William Beal	Lowell, Mass	May 30, 1854.
Crushers, quartz. (See Class II, letter Q.)			
Crushers, quartz. (See Class II, letter Q.)			
Crushers, quartz. (See Class II, letter Q.)			
Crushers, quartz. (See Class II, letter Q.)			
Crushers, quartz. (See Class II, letter Q.)			
Crushers, quartz. (See Class II, letter Q.)			
Crushing and grinding minerals and other substances, machine for. (See Class II, letter M.)			
Crushing and pulverizing ores, &c., machinery for. (See Class II, letter O.)			
Crushing ores, machine for. (See Class II, letter O.)			
Crushing quartz, machines. (See Class II, letter Q.)			
Flour-bolt	William H. Akins	Ithaca, N. Y	Sept. 5, 1854.
Flour, clutch in machines for packing	Samuel Taggert	Indianapolis, Ind	Dec. 19, 1854.
Flour-sifter and renovator	M. S. Basset	Wilmington, Del	June 20, 1854.
Flouring and bolting	J. Stouffer, Peter Brough, and J. W. Barr	Chambersburg, Pa	July 11, 1854.
Grain, machine for cleaning and drying	Horatio M. Black	Philadelphia, Pa	Aug. 1, 1854.
Grain, method of cleaning and feeding to the mill-stones.	Simeon Shearman	Goshen, Ind	Aug. 1, 1854.
Horse-power hoisting machinery	Abraham Jackson	New York, N. Y	Aug. 1, 1854.
Horse-power, endless chain	G. Westinghouse	Central Bridge, Schoharie county, N. Y.	June 13, 1854.
Horse-power	John A. Pitts	Buffalo, N. Y	July 4, 1854.
Horse-power	William McCord	Sing Sing, N. Y	July 11, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Horse-powers	William Russell Palmer	Elizabeth City, Pasquetunk county, N. C.	July 18, 1854. Patented in England April 11, 1853.
Horse-powers, endless chain, couplings in	Wm. E. Arnold	Rochester, Mass.	May 2, 1854.
Mill bushes	George L. Dulaney	Long Meadow, Va.	Oct. 24, 1854.
Mill, grinding, portable	Lyman Scott	St. Louis, Mo.	May 16, 1854.
Mill-stone, dress	William Finkle	Cold Creek, Fountain county, Ind.	July 4, 1854.
Mill-stone, dress	E. P. Gaines	Mellrose, Texas	July 25, 1854.
Mill-stone, dress	Perry Dickson	Woodcock township, Crawford county, Pa.	Sept. 12, 1854.
Mill-stone, dress, for cleaning grain	Wilson Ager	Rohrsburg, Columbia county, Pa.	Sept. 5, 1854.
Mill-stones, dressing	Thomas W. Trussell	Frederick county, Va.	Nov. 21, 1854.
Mill-stones, machines for dressing	J. G. Shands	St. Louis, Mo.	Mar. 21, 1851.
Mill-stones, machines for dressing	Elliot C. Badger	Warner, N. H.	Sept. 19, 1854.
Mill, wind	James Curtis	Chicago, Cook county, Ill.	May 23, 1854.
Mills	David L. Latourette	St. Louis, Mo.	June 13, 1854.
Mills	William Warwick	Birmingham, Pa.	Oct. 24, 1854.
Mills, cider	Daniel Ziegler	Lewistown, Pa.	July 25, 1854.
Mills, flouring	Edwin and James M. Clark	Lancaster, Pa.	June 6, 1854.
Mills, flouring, cleaning bolts of	Wm. Caun	Black Rock, Erie county, N. Y.	June 6, 1854.
Mills for grinding	Thomas B. Woodward	Kensington, Philadelphia, Pa.	July 11, 1854.
Mills for grinding ores, &c. (See Class II, letter O.)			
Mills for grinding sumac	Peter and W. S. and J. J. Hench	Port Royal, Pa.	Jan. 24, 1854.
Mills, grain	Walter Westrup	Wapping, Middlesex county, England.	June 6, 1854. Patented in England Jan. 24, 1850.
Mills, grain	Henry Mellish	Walpole, N. H.	Aug. 22, 1854.
Mills, grinding	George W. Grader and Benj. F. Cowan	Memphis, Tenn.	Dec. 19, 1854.
Mills, grinding	John C. Reed, assignor to C. P. Buckingham, H. P. Upton, and J. C. Reed.	Mount Vernon, Knox county, Ohio.	June 6, 1854.
Mills, grinding	Edward Harrison	New Haven, Conn.	June 6, 1854.
Mills, grinding, surface in	Charles Ross	Rochester, N. Y.	Oct. 17, 1854.
Mills, hominy	Benj. Bridendolph	Clear Spring, Md.	Aug. 22, 1854.
Mills, grinding	Isaac Straub	Cincinnati, Ohio	June 27, 1854.
Mills, cider	Jesse Bauman	Shepherdstown, Cumberland co., Pa.	June 27, 1854.
Mills, portable grist	Samuel Sheldon	Cincinnati, Ohio	Sept. 12, 1854.
Motion, converting reciprocating into rotary	C. B. Gallagher	San Francisco, Cal.	Nov. 28, 1854.
Motion, producing continuous circular, from reciprocating rectilinear.	Charles S. Harris	Holyoke, Mass.	June 20, 1854.
Sifting and bolting	Mark S. Bassett	Wilmington, Del.	Oct. 24, 1854.
Smut-machines	Lewis Fagin	Cincinnati, Ohio	Mar. 14, 1854.
Smut-machines	Seymour Ketchum	Lancaster, Ohio	Mar. 28, 1854.
Smut-machines	George B. Turner	Cuyahoga Falls, Summit co., Ohio.	May 23, 1854.
Smut-machines	Henry B. James	Mount Holly, N. J.	June 27, 1854.
Smut-machines	Thomas B. Woodward	Kensington, Pa.	Oct. 10, 1854.
Smut machines	John D. Bedwell	Uhricksville, Ohio	Oct. 24, 1854.
Smut-machines	Levi B. Ball	Putman, Ohio	Nov. 14, 1854.
Stamping machines, ore. (See Class II, letter O.)			

CLASS XIV.—LUMBER, *including machines and tools for preparing and manufacturing, such as sawing, planing, mortising, shingle and stave, carpenters' and coopers' implements.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Augers, gimlets, &c.	Washington Spangler, assignor to himself, E. H. Chambers, and Wm. F. Wilson.	Harper's Ferry, Va.	July 11, 1854.
Axes, &c., method of securing helves in	H. N. & J. C. Bill	Willimantic, Conn.	July 25, 1854.
Barrel heads, apparatus for rounding and bevelling.	Joel P. Heacock	Marlboro, Stark county, Ohio.	Mar. 7, 1854.
Barrel machinery	Horace S. Higgins	Graham, Ia.	Nov. 7, 1854.
Barrel, ventilated flour	Thomas Pearsall	Smithboro, Tioga county, N. Y.	June 27, 1854.
Barrels, machine for creasing and bevelling	Archibald H. Crozier	Oswego, N. Y.	July 4, 1854.
Barrels, machinery for making	George W. Livermore	Cambridgeport, Mass.	Mar. 21, 1854.
Bed-pins, machines for making	William McBride	Bristolville, Ohio	Feb. 28, 1854.
Bed-pins, machines for making	Curtis Goddard	Edinburg, Portage county, Ohio.	May 2, 1854.
Blinds, &c., cleaning, machine for	George W. La Baw	Jersey City, N. J.	April 18, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Boards, device for grooving	Geo. C. Fisk	Dansville, N. Y	Aug. 8, 1854.
Borer, hub	William J. Casselman	Vernon, Oneida county, N. Y	May 9, 1854.
Boring and mortising carriage hubs, machines for	R. J. R. Stone	Berlin, Erie county, Ohio	Mar. 7, 1854.
Boring and mortising machine	Henry Allen	Norwich, Conn	April 11, 1854.
Boring machine	Benj. F. Taft	South Groton, Mass	Dec. 12, 1854.
Boring recesses for casters, &c., tool for	Benj. F. Graves, assignor to Wm. C. Knowlton	Boston, Mass	Aug. 22, 1854.
Box machine	Ari Davis	Washington, D. C	April 18, 1854.
Boxes, mode of fitting heads in	Charles Williams	Fallsburg, Va	July 25, 1854.
Callipers	Peasley Seaver	Oxford, Mass	June 27, 1854.
Carving machines, bits for. (See Class II, letter B.)			
Clap-board, joint	William Baker	Utica, Oneida county, N. Y	May 16, 1854.
Crozing machines	Alexander Wilbur	Lancaster, Pa	Mar. 21, 1854.
Cutting ellipses, machines for	William G. Merrell	Auburn, N. Y	Jan. 10, 1854.
Dove-tailing, tool for	Amos P. Hughes	Philadelphia, Pa	Feb. 21, 1854.
Dressing ship-timber, machine for	Jas. E. Crowell, assignor to J. B. Crowell, E. Smith, and Charles T. Stickney.	Salem, Essex county, Mass	Aug. 29, 1854.
Felloe-machine	Heman H. Dean	Adrian, Mich	May 9, 1854.
Felloes, machine for bending	Thomas Cox	Lancaster, Pa	July 4, 1854.
Felloes, machine for dressing	Charles W. Wyatt	Newburg, N. Y	Dec. 12, 1854.
Forms, irregular, apparatus to a machine for cutting.	Charles P. Bailey	Zanesville, Ohio	Dec. 19, 1854.
Forms, irregular, lathe for. (See Lathe.)			
Forms, irregular, machines for cutting	Jonathan Russell	Philadelphia, Pa	Jan. 3, 1854.
Forms, irregular, machines for cutting	O. L. Reynolds	Dover, N. H	Aug. 15, 1854.
Forms, irregular, machines for cutting	Arad Aldrick, assignor to John L. Cooper and Arad Aldrick.	Princeton, Mass	Sept. 26, 1854.
Forms, irregular, machines for turning	Aaron D. Crane	Newark, N. J	Aug. 15, 1854.
Gauge, carpenters'	Halcyon Skinner and William Greenhalgh	West Farms, Westchester county, N. Y.	Aug. 22, 1854.
Gauges, slitting	James Ballard	Ashtabula, Ohio	April 18, 1854.
Hoops, splitting, machines for	John W. Chittenden and William C. Mead	Vevay, Ind	Feb. 28, 1854.

Lath-machine	Hiram Frisbee	Olmstead, Cuyahoga county, Ohio.	May 16, 1854.
Lath-machine	Isaac R. Shank	Buffalo, Putnam county, Va	June 6, 1854.
Laths, machine for cutting	Charles F. Packard	Greenwich, Fairfield county, Conn.	Feb. 21, 1854.
Lathe	Harrison O. Clark	Worcester, Worcester county, Mass.	June 6, 1854.
Lathe-chuck, arrangement for	L. A. Dole	Salem, Ohio	July 25, 1854.
Lathe-dog	David M. Smith	Springfield, Vt	May 16, 1854.
Lathe, for irregular forms	Frank Baker	Pepperill, Middlesex county, Mass.	May 16, 1854.
Lathes, carrier for	Jacob Zook	Harrisburg, Pa	Feb. 28, 1854.
Lathes for turning the interior surface of hollow-ware.	Peter Teal and Charles Tyler, assignors to W. P. Cresson & Co.	Philadelphia, Pa	May 23, 1854. Patented in England April 9, 1853.
Lathes, rotary	George Tugnot	New York, N. Y	Nov. 28, 1854.
Mitre-box	Matthew Spear	Bowdoinham, Lincoln county, Maine.	May 16, 1854.
Mitre box	William Tinsley	Glen's Falls, N. Y	Nov. 28, 1854.
Mitre machine	George W. La Baw	Jersey City, N. J	June 27, 1854.
Mortising chisels	J. W. McGaffey	Philadelphia, Penn	Jan. 10, 1854.
Mortising frames and window blinds, machinery for.	D. M. Cummings	North Enfield, Me	Jan. 10, 1854.
Mortising machine	John E. Brown and S. S. Bartlett	Woonsocket, Providence county, R. I.	Jan. 24, 1854.
Mortising machine	Hiram and Simon H. Plumb	Honesdale, Pa	June 27, 1854.
Mortising machine	B. Holly, assignor to Silsby, Race, and Holly.	Seneca Falls, N. Y	July 25, 1854.
Mortising machine	Wm. H. Morrison and M. W. E. Doran	Indianapolis, Ind	Aug. 1, 1854.
Mortising machine	Hezekiah B. Smith	Lowell, Mass	Jan. 10, 1854.
Mortising sash stiles, machine for	J. B. Smith	Milwaukie, Wis	July 11, 1854.
Plane, bevelling	M. J. Wheeler, G. W. Rogers, H. W. Pierce, and M. B. Tidey.	Dundee, Yates county, N. Y	July 4, 1854.
Plane, multiform moulding	Thomas Worrall, assignor to Mifflin Paul	Mount Holly, N. J	Aug. 29, 1854.
Plane stocks, method of hanging	Moses G. Hubbard	New York, N. Y	Sept. 5, 1854.
Planing lumber "out of wind," machine for	Solomon S. Gray, assignor to S. S. Gray and S. A. Woods.	South Boston, Mass	Aug. 22, 1854.
Planing knife, rotary	Elbridge Webber	Gardiner, Me	May 2, 1854
Planing machine	Daniel Van Fleet	Sandusky City, Ohio	Nov. 28, 1854.
Planing machines	James A. Woodbury	Winchester, Middlesex county, Mass.	Feb. 7, 1854.
Planing machines	John D. Dale	Philadelphia, Penn	Oct. 10, 1854.
Planing machines, device for operating cutter heads of.	Timothy F. Taft	Worcester, Mass	June 6, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Planing machines, presser bar for	H. Snow, assignor to	Lowell, Mass	Nov. 21, 1854.
	James A. Woodbury	Winchester, Mass	
Planing, sawing and, machines	Daniel Close	Harmonsburgh, Penn	Aug. 8, 1854.
Planes, bench, bit fastening for cast-iron	William S. Loughborough	Victor, N. Y	April 4, 1854.
Polishing machine	Henry Volkening	New York, N. Y	Oct. 10, 1854.
Polygonal timber, machine for dressing	Henry Allen	Norwich, New London co., Conn	June 6, 1854.
Rails, hand, machines for cutting	Thomas Rogers	Philadelphia, Penn	Jan. 3, 1854.
Sash, machine for marking out	James Rogers	Poultney, Rutland county, Vt	May 9, 1854.
Saw	Linus Stewart	Washington, D. C	May 16, 1854.
Saw-gates, method of hanging and operating	Michael W. Helton	Bloomington, Ind	Jan. 3, 1854.
Saw-gauge	Orson Westgate	Riceville, Pa	Nov. 14, 1854.
Saw-gummers	J. P. Spafford	Brocket's Bridge, N. Y	Jan. 10, 1854.
Saw-gummers	John Jack	Fayetteville, Ohio	Oct. 10, 1854.
Saw-mill blocks, method of operating	David Russell	Drewersburg, Franklin co., Ind	June 6, 1854.
Saw-mill carriages, mechanism for operating	A. S. T. Copeland	Pittsburg, Pa	July 4, 1854.
Saw-mill carriage, journal-box for	Charles R. Fox	Chicago, Ill	May 9, 1854.
Saw-mill dogs	Titus H. Russell	Taftsville, Windsor county, Vt	Aug. 29, 1854.
Saw-mills	Eleazer W. Johnson	Perth Amboy, N. J	Jan. 31, 1854.
Saw-mills	John Stull	Philadelphia, Pa	Aug. 1, 1854.
Saw-mills, mode of controlling and guiding logs in, without a carriage.	C. B. Normand	Havre, France	Nov. 14, 1854. Patented in France Nov. 5, 1852; in England Oct. 27, 1852.
Saw-mills, ratchet-catch for head-blocks in	George F. Page	Baltimore, Md	Jan. 3, 1854.
Saw-set	William O. Rust	Great Falls, N. H	Aug. 22, 1854.
Saw-sets, forcep	James F. Brodhead, assignor to	Rondout, N. Y	Feb. 28, 1854.
	Thomas Ritch	Napanock, N. Y	
Saw-teeth, method of nibbing	Philos B. Taylor	Springfield, Mass	May 16, 1854.
Sawing bevel surfaces, machine for	Alfred C. Cook	Russelville, Ky	Jan. 3, 1854.
Sawing clapboards, &c., machine for	Dustin F. Mellen	Wentworth, N. H	Aug. 22, 1854.
Sawing, curved and bevel, method of controlling the log for.	C. B. Normand	Havre, France	Nov. 14, 1854. Patented in France Nov. 5, 1852; in England Oct. 27, 1852.

Sawing fire-wood, machine for	John J. Efferenn	Springfield, Ill	Aug. 1, 1854.
Sawing fire-wood, machine for	Archibald Winter	Rondout, N. Y	Sept. 19, 1854.
Sawing light lumber, feed-motion for	John F. Lovecraft	Rochester, N. Y	Dec. 12, 1854.
Sawing logs, machinery for	Oren Stoddard	Busti, N. Y	Jan. 3, 1854.
Sawing lumber, feed-motion for	Nicholas G. Norcross	Lowell, Middlesex county, Mass	Mar. 28, 1854.
Sawing-machine	Charles F. Packard	Greenwich, Conn	July 11, 1854.
Sawing-machine	Benjamin Fulghum	Richmond, Ind	Sept. 19, 1854.
Sawing-machine	John I. Squier	St. Louis, Mo	Oct. 17, 1854.
Sawing-machine, circular	Stephen Waterman	Williamsburg, N. Y	April 18, 1854.
Sawing-machine, method of operating guide-rollers of feed-clamps in.	Loren J. Wicks	New York, N. Y	Sept. 19, 1854.
Sawing thin boards, &c., machine for	John Myers and R. G. Eunson	New York, N. Y	May 23, 1854.
Saws, apparatus for tempering and flattening	William Clemson	Boston, Mass	Oct. 31, 1854.
Saws, belt	David A. Cameron	Butler, Butler county, Pa	Mar. 21, 1854.
Saws, circular, adjustable bearings for	Ann G. V. McKinstry, administratix of Wm. McKinstry, deceased.	Washington, D. C	July 11, 1854.
Saws, circular, form for and mode of operating	James Slater	Macon, Ga	Nov. 7, 1854.
Saws, cross-cut, method of grinding	Richard Fanning	Clarksfield, Huron county, Ohio	Aug. 29, 1854.
Saws, for mills, method of hanging	C. B. Normand	Havre, France	Nov. 14, 1854.
Saws, method of operating	Frederick T. Andrews	Georgetown, D. C	Feb. 21, 1854.
Saws, mill, apparatus for filing	John Sheffield	Pultneyville, N. Y	June 6, 1854.
Saws, mill, device for adjusting	Thomas M. Chapman	Old Town, Me	Nov. 14, 1854.
Saws, mode of banding pulleys for	D. H. Chamberlain, assignor to Chamberlain and Hunt.	Boston, Mass.	Jan. 3, 1854.
Saws, mode of driving and straining	James and John Fishwick	Lexington, Ky	July 25, 1854.
Saws, wood	R. and A. F. Andrews	Avon, Conn	Jan. 24, 1854.
Saws, wood, machine for manufacturing frames of	Thomas Batchelder	Candia, N. H	Oct. 3, 1854.
Shingle-machine	John A Bradshaw	Lowell, Mass	Oct. 10, 1854.
Shingle-machine	Elijah Morgan	Morgantown, Va	Oct. 10, 1854.
Shingle-machine	Harry H. Evarts, assignor to himself and A. J. Brown.	Chicago, Ill	Oct. 31, 1854.
Shingle-machine	William Stoddard	Lowell, Mass	Nov. 14, 1854.
Shingle-machine	Adoniram Kendall	Cleveland, Ohio	Nov. 21, 1854.
Shingle-machine	John J. Speed, jr., and John A. Bailey	Detroit, Mich	Dec. 19, 1854.
Shingle-machine, rotary	William Stoddard	Lowell, Mass	May 16, 1854.
Shingle-machine, construction of	Henry C. Smith	Cleveland, Ohio	Mar. 28, 1854.
Shingles, method of sawing	Charles J Conrad	Lower Augusta Township, Pa	Sept. 19, 1854.
Slivers, machine for reducing wood to	Jonathan and Geo. W. Prescott	Boston, Mass	May 9, 1854.
Slotting-machine	Parley Williams, 2d	Barre, Worcester county, Mass	May 2, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Sockets, for bench hooks	Joseph Sawyer	South Royalton, Mass	Feb. 28, 1854.
Spoke-machines	Newall North	Stow Township, Summit co., Ohio	Sept. 12, 1854.
Spoke-machines, device for holding pieces in	J. Starkes and L. Perrigo	Groton, Tompkins county, N. Y.	June 13, 1854.
Spokes, machine for dressing	Ansel Merrell, assignor to John M. Irvine and Ansel Merrell.	New Bedford, Mass	Feb. 7, 1854.
Spokes, machine for dressing	R. P. Benton	Rochester, N. Y	Mar. 21, 1854.
Squares, carpenters', machine for graduating	N. Millington and D. J. George	Shaftsbury, Vt	Aug. 8, 1854.
Stave-machine	Carmi Hobson	Hannibal, Marion county, Mo	May 30, 1854.
Stave-machine	J. B. Dudrey	Athens, Athens county, Ohio	Aug. 29, 1854.
Stave-machine	J. B. Dudrey	Athens, Athens county, Ohio	Aug. 29, 1854.
Staves, jointing, machines for	Alexander Wilbur	Lancaster, Pa	Mar. 21, 1854.
Staves, machines for crozing the ends of	George W. Livermore	Cambridgeport, Mass	April 4, 1854. Patented in England Aug. 31, 1853.
Staves, machines for jointing	E. Valentine and A. Bradway	Monson, Hampden county, Mass	Mar. 28, 1854.
Staves, mode of sawing bolts for	Barnet McKeage	Accatink, Va	Nov. 7, 1854.
Tenoning, &c., blind slats, machines for	Thomas G. Stagg	Jersey City, N. J	Mar. 28, 1854.
Tenoning spokes, method of	R. L. Sibbett	Shippensburg, Pa	Aug. 29, 1854.
Tenons, machine for cutting, on blind slats	Erastus W. Roff	Newark, N. J	Nov. 7 1854.
Tenons, machine for cutting	Charles P. S. Wardwell	Lake Village, N. H	Aug. 29, 1854.
Tenons, round, device in machines for cutting	Thomas R. and George Bailey	Lockport, N. Y	July 25, 1854.
Tonguing and grooving tapering boards, device for.	John Absterdam and Wm. B. Merrill, assignors to J. A. Woodbury and William B. Merrill	Boston, Mass Winchester, Mass	Mar. 23, 1854.
Tonguing and grooving lumber, certain devices for.	Nicholas G. Norcross	Lowell, Mass	May 2, 1854.
Turning casks, &c., from solid pieces, method of.	James P. Osborne	Staunton, N. J	June 20, 1854.
Turning hubs, &c., method of	Smith Beers	Naugatuck, New Haven county, Conn.	June 6, 1854.
Turning hubs, tool-handles, &c., machine for	Samuel Carpenter	Flushing, N. Y	Oct. 10, 1854.
Turning-lathe	Garret Meldrum	West Philadelphia, Pa	April 18, 1854.
Turning-lathes	Edward Bancroft and William Sellers	Philadelphia, Pa	Feb. 7, 1854.
Turning-lathes	Albin Warth	New York, N. Y	Oct. 10, 1854.
Turning-lathes, tool-rest for	George A. Rollins	Nashua, N. H	Feb. 28, 1854.
Turning-lathes, tail-stocks for	L. B. Tyng	Lowell, Mass	Mar. 7, 1854.
Turning-lathes, tool-rest for	M. H. Merriam and W. W. Nichols, assignors to W. W. Nichols & Co.	Boston, Mass	Aug 22, 1854.
Turning prismatic forms, machine for	Milton Roberts, assignor to Roberts and Pierce.	Belfast, Me	Dec. 19, 1854.
Veneering, press for	L. A. and J W. Brown	Hartford, Conn	Jan. 10, 1854.
Veneer, machine for scraping and toothing	Allen Goodman and Lyman Wheeler	Dana, Worcester county, Mass	Feb. 14, 1854.
Veneer polisher	Edwin Allen	South Windham, Conn	June 20, 1854.
Veneers, machine for cutting	Carmi Hart	Bridgeport, Conn	April 4, 1854.
Wash-boards, machines for nailing	James B. Holmes	Cincinnati, Ohio	Jan. 3, 1854.
Wedge-machine	G. C Jones and P. King	Whitefield, Kennebeck county, Me.	April 25, 1854.
Window-blinds, machine for making	Moses C. Stiles and T. S. Lewis	Hollis, Me	Jan. 24, 1854.

Class XV.—Stone and clay manufactures, *including machines for pottery, glass-making, brick-making, dressing and preparing stone, cements, and other building materials.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Brick-machines	Seaman C. Ripley	New York, N. Y	Mar. 7, 1854.
Brick-machines	Thomas E. Seay	Columbia, Fluvanna county, Va	April 11, 1854.
Brick-machines	Stephen Ustick	Philadelphia, Pa	April 18, 1854; antedated Nov. 15, 1853.
Brick-machines	Francis H. Smith	Baltimore, Md	Oct. 3, 1854.
Brick-machines	Patrick S. Devlan	Reading, Pa	Oct. 3, 1854.
Brick-machines	Zachariah M Paul	Alexandria, La	Oct. 3, 1854.
Brick-making	John C. Fr. Soloman	Washington, D. C	April 25, 1854.
Brick-moulds, hand	Clark Alvord	Syracuse, N. Y	Nov. 21, 1854.
Brick-presses	Collins B. Baker	Troy, N. Y	Aug. 1, 1854.
Brick-presses	Isaac Gregg	Pittsburg, Pa	Aug. 1, 1854.
Brick presses	Josee Johnson	Fort Smith, Ark	Aug. 8. 1854.
Brick-presses	Alexander H. Brown	Georgetown, D. C	Sept. 5, 1854.
Brick-presses	E. D. Williams and T. Tyrell	Wilmington, Del	Oct. 17, 1854.
Bricks, &c., from slag. (See Class II, letter S.)			
Bricks, machines for making	John McMurtry	Lexington, Ky	Aug. 8. 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bricks, machines for making	R. D. Bartlett	Bangor, Me	Aug. 8, 1854.
Bricks, manufacture of	L. E. Ransom	Havana, Ohio	Oct. 31, 1854.
Bricks, mode of moulding	Nathan Johnson	Noblesville, Hamilton county, Ind.	June 20, 1854.
Drill, rock	Edwin G. Dunham	Portland, Conn	Oct. 10, 1854.
Glass furnaces	Frederick Schaum	Baltimore, Md	April 25, 1854.
Glass furnaces	Jacob Green	Philadelphia, Pa	Nov. 7, 1854.
Glass furnaces	A. K. Hay	Winslow, N. J	Nov. 7, 1854.
Glass moulds	William Brooke	Jersey City, N. J	Aug. 15, 1854.
Kilns, brick	John Speight	Baltimore, Md	July 4, 1854.
Kilns, brick and lime, controlling draught in	Joseph Leeds	Philadelphia, Pa	July 4, 1854.
Kilns, brick and pottery	Joseph Baron de Palm	Augsburg, Bavaria, Europe	June 6, 1854; patented in England July 13, 1852.
Kilns, lime	Robert Neisch	New York, N. Y	Aug. 15, 1854.
Kilns, lime	Clark D. Page	Rochester, N. Y	Feb. 7, 1854.
Marble and other substances, process of imitating. (See Class IV, letter P.)			
Pipe-couplings, moulding clay	Joseph Putnam	Salem, Mass	May 16, 1854.
Stone, applying colors to. (See Class IV, 8.)			
Stone, drilling, machines for	Simon Pettes	New York, N. Y	Mar. 14, 1854.
Stone, marble, &c., machines for carving	Elias A. Swan, assignee of	New York city	July 11, 1854.
	William J. Casselman	Vernon, Onedia county, N. Y.	
Stone and marble, machines for sawing	Albert H. Tingley, assignor to himself, Edmund W., and Henry F. Tingley.	Providence, R. I	July 18, 1854.
Stone and marble saws	William Watson	New York, N. Y	Aug. 1, 1854.
Stone and metals, machines for planing	Josiah M. Smith	New York, N. Y	July 11, 1854.
Stone, carving, machinery for	Edwin Allen	South Windham, Conn	Nov. 14, 1854.
Stone, dressing, machines for	Elbridge G. Hastings	Brooklyn, N. Y	Mar. 14, 1854.
Stone-dressing machines	Charles T. Porter	New York, N. Y	Aug. 8, 1854.
Stone-dressing machines	John P. Avery, assignor to Joseph B. Bromley	Norwich, Conn	Nov. 7, 1854.
Stone-drilling machines	Ferdinand Davison	Petersburg, Va	Nov. 7, 1854.
Stone, machines for drilling	William C. Wright	Boston, Mass	Mar. 7, 1854.
Stone, machines for dressing	William H. Robertson	Hartford, Conn	Oct. 3, 1854.
Stone, machinery for polishing	Albert Broughton	Malone, N. Y	Nov. 7, 1854. Antedated October 24, 1854.
Stone-picking machine	John T. Foster	Jersey City, N. J	Feb. 21, 1854.
Stone-saws	G. W. Cherry	New York, N. Y	Aug. 1, 1854.
Stone-saws, circular	Richard Deering, sr.	Louisville, Ky	Oct. 3, 1854.
Tubes, cement or earthen, moulds for	B. S. Pierce and C. M. Pierce	New Bedford, Mass	Aug. 1, 1854.

Class XVI.—Leather, *including tanning and dressing, manufacture of boots, shoes, saddlery, harness, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bits, bridle	Ebenezer N. Price	Salem, Mass	June 13, 1854.
Boot counters, machines for cutting and skiving.	Varaness Snell	North Bridgewater, Plymouth county, Mass.	April 25, 1854.
Boot and shoe soles of gutta percha or India rubber, manufacture of.	E. C. Hyatt and C. Meyer	Milltown, N. J	Jan. 17, 1854.
Boot and shoe soles, machine for cutting	Luther and Potter G. Ross	Worcester, Mass	Aug. 8, 1854.
Boot and shoe soles, machines for cutting	John Thompson and	Marblehead, Mass	Aug. 8, 1854. Antedated February 8, 1854.
	A. S. Moore	Lynn, Mass	
Boot-crimping machines	Grey Utley	Chapel Hill, N. C	Dec. 19, 1854.
Boot-soles, machines for cutting out	Luther Hill, assignor to Luther Hill and Lorenzo Stratton.	Stoneham, Mass	June 20, 1854.
Boots and shoes	Nathaniel Colver	Detroit, Mich	Sept. 12, 1854.
Boots and shoes, machines for pegging	Halvor Halvorson	Hartford, Conn	Jan. 10, 1854.
Boots and shoes, machines for pegging	John J. Greenough	New York, N. Y	Jan. 17, 1854.
Boots and shoes, machines for pegging	John Standish, assignor to John Standish and H. A. Miller.	Cuyahoga Falls, Summit county, Ohio.	Feb. 14, 1854.
Boots and shoes, machines for pegging	Leander Lackey	Sutton, Worcester county, Mass.	May 16, 1854.
Boots and shoes, machines for pegging	A. C. Gallahue	New York, N. Y	July 11, 1854.
Boots and shoes, machines for pegging	George J. Wardwell, assignor to G. J. Wardwell and Elmer Townsend.	Andover, Me	July 18, 1854.
Boots and shoes, machines for pegging	John A. Bradshaw	Lowell, Mass	Aug. 15, 1854.
Boots and shoes, machines for pegging	William Kidder, assignor to W. Kidder and N. Hunt.	Newburyport, Mass	Aug. 15, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Boots, shoes, &c, instrument for trimming welts of.	Lyman Clark, assignor to Clark and Sawyer	South Royalton, Mass	June 13, 1854.
Brushes, painters'	John S. Martin	Boston, Mass	June 20, 1854.
Buckles	William W. Smith	Marshall, Calhoun county, Mich	July 8, 1854.
Buckles, manufacture of	Sheldon S. Hartshorn	Orange, Conn	Nov. 7, 1854.
Cans for holding liquids	Lyman Jennings	Erving, Mass	Oct. 10, 1854.
Collars, horse, blocks for	Lewis S. Davis	New Paris, Ohio	Feb. 7, 1854.
Collars, horse, stuffing	John W. Howell	New Paris, Preble county, Ohio	Feb. 14, 1854.
Cutters, heel	Alfred D. Kelley	Rochester, Strafford county, N. H.	June 27, 1854; antedated Mar. 20, 1854.
Goods, elastic	Edward Brown	Rindge, N. H	Sept. 26, 1854.
Hame fastenings	Edward Turner	Baltimore, Md	Aug. 8, 1854.
Harness, from horses, apparatus for detaching.	Samuel Hunt	Baltimore, Md	July 11, 1854.
Harness, saddles	Robert M. Selleck	New York, N. Y	Nov. 7, 1854.
Hose, machinery for punching rivet-holes in	John R. Hague	Pittsburg, Penn	July 4, 1854.
Lasting, instruments	Thomas Daugherty	Erie, Erie county, Penn	Aug. 1, 1854.
Lasts, shoe	Thomas Daugherty	Erie, Erie county, Penn	Mar. 21, 1854.
Leather banding for machinery, manufacturing	George Miller	Providence, R. I	Nov. 7, 1854.
Leather, machines for polishing	Philip P. Tapley	Lynn, Mass	Jan. 3, 1854.
Leather-splitting machines	Joseph F. Flanders and Jeremiah A. Marden	Newburyport, Essex county, Mass.	Aug. 29, 1854.
Leather-splitting machines	Elisha Pratt, assignor to Elisha Pratt and H. P Upton.	Salem, Mass	Dec. 19, 1854.
Riving machine	A. Kendall	Cleveland, Ohio	Sept. 5, 1854.
Saddle trees	George B. Ambler	Trumbull, Fairfield county, Conn	Feb. 14, 1854.
Saddle trees	William E. Jones	United States army, U. S. A	June 13, 1854.
Saddle trees, fastening skirts to	Julius C. Dickey	Sandy Hill, Washington county, N. Y.	Aug. 29, 1854.
Saddle trees, harness	Robert Spencer	New York, N. Y	Aug. 22, 1854.
Saddles, harness	Robert Spencer	New York, N. Y	Aug. 22, 1854.
Shoe horns	Louis Schwingouber	New York, N. Y	Aug. 1, 1854
Shoes, &c., machines for stretching	Alfred Burwell	Rochester, N. Y	July 11, 1854.
Shoemakers' edge planes	D. W. Horton	Petersburgh, Ind	Oct. 17, 1854.
Tanning	Roswell Enos	Woodstock, Ill	July 18, 1854.
Tanning apparatus, construction of	Nathaniel Dodge	Orford, N. H	June 13, 1854.
Tanning, composition for	George Reynolds	Bangor, Maine	Dec. 19, 1854.

CLASS XVII.—HOUSEHOLD FURNITURE, *machines and implements for domestic purposes, including washing-machines, bread and cracker-machines, feather-dressing, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Apples, machines for paring	John D. Seagrave	Milford, Worcester county, Mass.	April 18, 1854.
Bath, shower	D. P. Baldwin	San Francisco, Cal	May 16, 1854.
Bed bottoms	Benjamin R. Hundley	Lynchburg, Ohio	June 13, 1854.
Bed bottoms	Tyler Howe	Cambridgeport, Mass	June 13, 1854.
Bed bottoms, spring	William H. Meriwether	New Braunfels, Texas	Aug. 8, 1854.
Bed, spring, bottoms	Wendell Wright	New York, N. Y	Dec. 19, 1854.
Bedstead fastenings	William H. Price	Philadelphia, Pa	Jan 3, 1854.
Bedstead fastenings	Eastman R. Ball	Kalamazoo, Mich	April 4, 1854.
Bedstead fastenings	R. H. St. John	Columbus, Ohio	July 11, 1854.
Bedstead fastenings	John Drayton	Buffalo, N. Y	Sept. 26, 1854.
Bedstead, invalid	C. D. Van Allen	New York, N. Y	April 25, 1854.
Bedsteads	John H. Barth	Indianapolis, Ind	Jan. 10, 1854.
Bedsteads	Simon Willard	Cincinnati, Ohio	Aug. 1, 1853.
Bedsteads, chair, portable folding	George H. Cottam	Hampstead Road, Middlesex co., England.	April 25, 1854. Patented in England Oct. 5, 1852.
Bedsteads, crib, &c., sofas	Thos. W. Currier	Lawrence, Essex county, Mass	July 4, 1854.
Bedsteads for invalids	J. T. Forbes	Coburg, Canada West	Aug. 29, 1854.
Bedsteads, portable	Simon Willard	Cincinnati, Ohio	July 25, 1854.
Bedsteads, sofa	Charles F. Martine	Boston, Mass	June 6, 1854.
Bedsteads, sofa	Stanislas Millet	New York, N. Y	Aug. 8, 1854.
Breast cups	E. Waters	Troy, N. Y	Aug. 29, 1854.
Bristles, machines for cleaning and assorting	George E. Burt, assignor to George E. Burt and David C. Butterfield.	Westford, Mass	Feb. 7, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Britannia tea and coffee pots	Robert W. Andrews	Staffordville, Conn	Mar. 7, 1854.
Brooms, manufacture of	William B. Walker	Bennington, N. H	Aug. 1, 1854.
Brushes, manufacture of	Mathew Stewart	Philadelphia, Pa	Dec. 5, 1854.
Bureaus, portable	Levi Heywood, J. L. Ross, and Jas. K. Otis	Boston, Mass	Aug. 22, 1854.
Butter, machine for weighing and printing	Wm. S. Reinert	Spring Garden, Phila. county, Pa	May 9, 1854.
Butter workers	Ezekiel Gore	Bennington, Vt	July 25, 1854.
Butter workers	Elihu Ring	Mechlenburg, N. Y	July 25, 1854.
Cans, preserve, sealing	Henry C. Nicholson and James Spratt	Cincinnati, Ohio	Jan. 3, 1854.
Carpets, securing to floors	Enoch Jackman	Portland, Conn	Dec. 12, 1854.
Casters, furniture	Le Roy S White	Chicopee, Hampden county, Mass	Jan. 31, 1854.
Casters, furniture	L. S. White, assignor to	Chicopee, Mass	Aug. 8, 1854.
	B. Lathrop and P. B. Tyler	Springfield, Mass	
Casters, furniture, rollers of	P. B. Tyler and Benjamin Lathrop	Springfield, Mass	Aug. 8, 1854.
Chair, cane	Rufus Porter	Washington, D. C	July 11, 1854.
Chair frames	Moses E. Halsey	New York, N. Y	Sept. 26, 1854.
Chairs, portable, head-rest for	C. P. Bailey	Zanesville, Ohio	Mar. 28, 1854.
Clothes, apparatus for drying	Stephen Woodward, assignor to S. Woodward, Joseph P. Nelson, and A. C. Carroll.	Sutton, N. H	Nov. 21, 1854.
Clothes-clamp	William H. Towers	Philadelphia, Pa	Nov. 21, 1854.
Clothes-horse, towel stand or	John Cram	Boston, Mass	Nov. 28, 1854.
Clothes-lines, spring clasps for	E. S. Haskins	Boston, Mass	Mar. 14, 1854.
Clothes-pins, machine for slitting	John B. Smith	Sunapee, Sullivan county, N. H	Feb. 21, 1854.
Coffee-mills	Charles H. Beatty	Wheeling, Va	June 27, 1854.
Coffee-pots	James Macgregor, jr	Troy, N. Y	April 11, 1854.
Crackers, machines for moulding	Phineas Emmons	New York, N. Y	Aug. 1, 1854.
Curtain fixtures	Don Carlos Smart	Cambridgeport, Mass	Sept. 12, 1854.
Curtain fixtures	Silas S. Putnam	Boston, Mass	Oct. 3, 1854.
Curtains, &c., window, spring rollers for	Benjamin Bray	Salem, Mass	Sept. 5, 1854.
Curtains, musquito	Benjamin B Webster	Boston, Mass	Oct. 3, 1854.
Fans, revolving, for apartments	Louis Stein	New York, N. Y	Dec. 19, 1854.
Freezers, ice cream	Thomas M. Powell	Baltimore, Md	Sept. 5, 1854.

Graters, nutmeg	William Bradley	Lynn, Mass	July 25, 1854.
Hat shapers	Adolphe and Felix Brown	New York, N. Y	July 4, 1854.
Iron, smoothing, rotary	J. W. Brown, assignor to	Hartford, Conn	Mar. 21, 1854.
	Samuel M. Folsom	Charlestown, Mass	
Irons, smoothing, heaters for	James J. Johnston	Alleghany City, Pa	Jan. 10, 1854.
Irons, smoothing, self-heating	John Johnston	Alleghany City, Penn	Jan. 10, 1854.
Irons, smoothing, self-heating	Charles A. Read	Waterloo, Seneca county, N. Y	May 16, 1854.
Irons, smoothing, self-heating	Peter S. Howes	Boston, Mass	May 16, 1854.
Irons, smoothing, self-heating	William Wickersham	Boston, Mass	Aug. 8, 1854.
Liquids, vessels for holding	James H. Stimpson, executor of Jas. Stimpson, deceased.	Baltimore, Md	Oct. 17, 1854; antedated April 17, 1854.
Meat, mincing, machine for	Abraham McInturff	Liberty, Va	Jan. 17, 1854.
Milk strainer	Joel Gleason	Geneva, N. Y	July 4, 1854.
Oyster-knife	Philos Blake	New Haven, Conn	April 18, 1854.
Oysters, &c., cooking	Lawson P. Keach	Baltimore, Md	April 18, 1854.
Oysters, opening, machine for	Wm. H. Towers	Philadelphia, Penn	April 18, 1854.
Palliasses, apparatus for making	James Pigot	Brooklyn, N. Y	May 23, 1854.
Pans, sauce	Henry Farson David	Ipava, Ill	Nov. 21, 1854.
Potato-washing machine	J. H. Fairchild and Sylvanus Richardson	Jericho, Chittenden county, Vt	April 18, 1854.
Sausage stuffers	John J. Weeks	Buckram, N. Y	Sept. 19, 1854.
Stands, reading and writing	Enoch Hidden	New York, N. Y	July 4, 1854.
Table and chair combined	Stephen Hedges	New York, N. Y	April 4, 1854.
Tables	Charles Rowland	Belleville, Ill	Sept. 5, 1854.
Tables, reading	Charles Folson	Cambridge, Mass	July 25, 1854.
Tea-pots, casting the spouts of	Tiebe and Muhle, assignors to Tiebe, Muhle & Homan.	Cincinnati, Ohio	Dec. 12, 1854.
Wash-boards	Philip H. Keck	Morgantown, Va	July 4, 1854.
Wash-boards	Jos. Hyde	New York, N. Y	Aug. 1, 1854.
Washing machines	William Cummingham	Holliday's Cove, Va	Jan. 24, 1854.
Washing machines	H. C. Stevenson	Georgetown, Ky	July 18, 1854.
Washing machine	William Biddle	Lafayette, Ind	Aug. 29, 1854.
Washing machines	Joel Wisner	Aurora, N. Y	Sept. 26, 1854.
Washing machines	Moses D. Wells	Morgantown, Va	Sept. 26, 1854.
Washing machines	William Wheeler	Acton, Mass	Nov. 28, 1854.
Wash-stands	W. H. Miller	Braudenburgh, Ky	Dec. 5, 1854.

Classified list of patents issued—Continued.

CLASS XVIII.—ARTS, POLITE, FINE, AND ORNAMENTAL, *including music, painting, sculpture, engraving, books, paper, printing, binding, jewelry, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Accordeons	Anthony Faas	Philadelphia, Pa	June 13, 1854.
Bank notes, table to hold, when cut	Frank G. Johnson	Brooklyn, N. Y	Feb. 28, 1854.
Board, paste, machinery for making	Orin W. Fiske	Dedham, Mass	July 11, 1854.
Boards, book-binders', drying	Jas. H. Longbotham	Brooklyn, N. Y	Jan. 3, 1854.
Book cover, machine for making	Loring Danforth	Buffalo, N. Y	May 23, 1854.
Books, apparatus for turning the leaves of	Claude Desbeaux	Paris, France	Jan. 3, 1854.
Books, apparatus for turning the leaves of	H. C. Brigham, of New London, and Jas. M. Stewart.	Norwich, Conn	Sept. 12, 1854.
Books, blank, machinery for paging	J. L. Burdick	New York, N. Y	Feb. 14, 1854.
Books, machine for paging	Edward Town	Jersey City, N. J	Jan. 31, 1854.
Books, machine for paging	H. S. Taylor	Springfield, Mass	May 16, 1854.
Books, machine for paging	Henry Hochstrasser	Philadelphia, Pa	Sept. 26, 1854.
Books, machine for rounding the backs of	Leonard F. Markham	Cambridge, Mass	Dec. 5, 1854.
Bracelet, clasp	John Mansure, assignor to Farr & Thompson	Philadelphia, Pa	May 23, 1854.
Daguerreotype cases, &c., apparatus for the manufacture of.	Henry T. Anthony and Frank Phœbus	New York, N. Y	May 23, 1843.
Daguerreotype cases, manufacture of	Samuel Peck	New Haven, Conn	Oct. 3, 1854.
Daguerreotype plate holder	Philander H. Benedict	Syracuse, N. Y	Jan. 31, 1854.
Daguerreotype plate holder	Reuben Knecht	Easton, Northampton county, Pa	Feb. 7, 1854.
Daguerreotype plate holder	Joseph Hill	Skaneateles, N. Y	Aug. 22, 1854.
Daguerreotype plates, apparatus for polishing	Benjamin F. Upton	Bath, Maine	Sept. 19, 1854.
Daguerreotype plates, apparatus for cleaning and buffing.	Thomas Longking	Brooklyn, N. Y	Jan. 31, 1854.
Daguerreotype, cameras for taking stereoscope or other.	Silas A. Holmes	Brooklyn, N. Y	May 30, 1854.
Daguerreotypes for stereoscopes, taking	Albert S. Southworth and Josiah J. Hawes	Boston, Mass	July 11, 1854.
Ear-rings, fastening for	George E. Higgins	Syracuse, N. Y	May 16, 1854.
File or holder, document	Henry E. Woodbury	Washington, D. C	Aug. 8, 1854.
Guitars	Wm. B. Tilton	New York, N. Y	Jan. 3, 1854.
Guitars	Wm. H. Towers	Philadelphia, Pa	May 16, 1854.
Gilding or plating fibrous substances	A. Hock	Paris, France	Mar. 14, 1854, patented in France Dec. 15, 1852.
Inkstands, the construction of	Robert T. Fry	Spring Garden, Philadelphia, Pa	July 4, 1854.
Melodeons	Orange N. Frary	Ansonia, Conn	Aug. 8, 1854.
Miniature cases, presses for making	Henry T. Anthony	New York, N. Y	Jan. 31, 1854.
Monuments, mode of fixing likenesses in	William Boyd	Garretsville, Ohio	Jan. 31, 1854.
Musical instrument, reed, construction of	F. A. Gleason	Rome, N. Y	June 20, 1854.
Musical instruments, reed boxes for	Mervin T. Lundfear	Manchester, Hartford co., Conn	May 2, 1854.
Musical instrument, wind, valve for	C. N. Eisenbrandt	Baltimore, Md	July 4, 1854.
Musical stringed instruments	Geo. L. Wild	Baltimore, Md	Sept. 5, 1854.
Organs	William Sumner	Worcester, Mass	Feb. 28, 1854.
Paging-machine	George Hodgkinson	Cincinnati, Ohio	Nov. 14, 1854.
Painting window blinds, &c., apparatus for	Samuel T. Field	Worcester, Mass	April 18, 1854.
Paper wetting	William Overend	Cincinnati, Ohio	Jan. 24, 1854.
Papering walls	Henry F. Baker	Centreville, Ind	Nov. 21, 1854.
Pen	W. R. Glover	Glasgow, Ky	Aug. 1, 1854.
Pen and pencil-case	Jacob J. Hatcher	Philadelphia, Pa	July 11, 1854.
Pen and pencil-case	Jacob J. Lownds	New York, N. Y	Oct. 3, 1854.
Pen and pencil case	John Mabie	English Neighborhood, Bergen county, N. J.	Oct. 3, 1854.
Pen and pencil-case	John Richardson	New York, N. Y	Oct. 17, 1854.
Pen and pencil-case	John Richardson	New York, N. Y	Oct. 31, 1854.
Pen and pencil case, sliding	John H. Runch	New York, N. Y	Oct. 24, 1854.
Pen and pencil-cases	John Richardson	New York, N. Y	Oct. 24, 1854.
Pen-holder	Phineas Myer	New York, N. Y	Oct. 24, 1854.
Pencils for drawing-machines, arrangement of	Mighill Nutting	Portland, Maine	Nov. 21, 1854.
Pens, fountain	William Cleveland	Orange, N. J	Jan. 31, 1854.
Photographic pictures, composition for making	Jas. A. Cutting	Boston, Mass	July 11, 1854.
Photographic pictures on glass	James A. Cutting	Boston, Mass	July 11, 1854.
Photographic pictures, the preparation of collodion for.	James A. Cutting	Boston, Mass	July 4, 1854.
Photographic plate vice	C. W. Stimpson	Cleveland, Ohio	Jan. 17, 1854.
Piano forte actions	Alexander Hall	Lloydstown, Belmont county, Ohio	April 11, 1854.
Piano forte actions	Elon A. Lee	Roxbury, Norfolk county, Mass	May 23, 1854.
Piano forte actions	Daniel H. Shirley	Boston, Mass	Nov. 28, 1854.
Piano forte, iron frame upright	Stephen P. Brooks	Boston, Mass	April 11, 1854.
Piano forte stools	Levi Van Hoesen, assignor to New Haven Iron Railing Company.	New Haven, Conn	Oct. 3, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Piano fortes	Alexander Hall	Lloydsville, Ohio	Jan. 24, 1854.
Piano fortes, attachment to	Spencer B. Driggs	Detroit, Mich	Jan. 24, 1854.
Piano fortes, key for tuning	Abraham Bassford	New York, N. Y.	Oct. 31, 1854.
Piano fortes, swell mute, attachment to	Albert G. Corliss	Portland, Me	April 11, 1854.
Polygraph	Nathan Ames	Saugus, Mass	Dec. 12, 1854.
Polygraphs	Nathan Ames	Saugus, Mass	Dec. 12, 1854.
Press, copying	Calvin Adams	Pittsburg, Penn	Jan. 24, 1854.
Press for printing in colors	A. M. & G. H. Babcock	Westerly, R. I.	Oct. 31, 1854.
Press, hand	B. Franklin Day	Philadelphia, Penn	Aug. 15, 1854.
Press, printing	Ervin B. Tripp	Concord, N. H.	Oct. 3, 1854.
Printers' forms, locking up	E. H. Sprague	Zanesville, Ohio	June 13, 1854.
Printers' frisket	Andrew Overend	Philadelphia, Penn	June 13, 1854.
Printing blocks, construction of	Benjamin Underwood	Brooklyn, N. Y	June 31, 1854.
Printing blocks, method of constructing moulds for making.	James Berry	Roxbury, Mass	Mar. 14, 1854.
Printing blocks, method of making	Thomas Crossley	Boston, Mass	July 18, 1854.
Printing blocks, method of constructing	Leon Jarosson	Jersey City, N. J	Nov. 14, 1854.
Printing cylinders, method of operating the doctors of.	James Baxendale, assignor to J. Baxendale & J. Ferguson.	Fall River, Mass	Mar. 28, 1854.
Printing long-napped fabrics, process for	William A. White	Roxbury, Mass	Aug. 15, 1854.
Printing paper, machine for damping	Andrew Overend	Philadelphia, Penn	Mar. 14, 1854.
Printing, polychromatic, method of forming plates for.	John Donlevy	New York, N. Y	Jan. 3, 1854.
Printing press	George P. Gordon	New York, N. Y	June 13, 1854.
Printing presses	Stephen P. Ruggles	Boston, Mass	Feb 28, 1854.
Printing presses, apparatus for feeding paper to	W. Kuhlerschmidt and W. Hauff	New York, N. Y	April 25, 1854.
Printing presses, attaching blankets to cylinders for.	Wm. H. Street	New York, N. Y	May 16, 1854.
Printing-press, hand	Henry Underhill	Canandaigua, Ontario co., N. Y.	Mar. 23, 1854.
Printing presses, machine for feeding paper to	Bradford A. Rugg and Ezra H. Benjamin	Oak Hill, Green county, N. Y.	Sept. 5, 1854.
Printing-presses, machines for feeding paper to	William F. Collier, assignor to Wm. F. Collier and Joseph Boyden.	Worcester, Mass.	June 27 1854.

Printing-presses, machines for feeding sheets of paper to.	Henry Clark	New Orleans, La	April 25, 1854.
Printing-presses, mode of operating the feed-tables of.	George Little	Utica, Onedia county, N. Y	April 25, 1854.
Printing-presses, nippers for	Charles W. Hawkes	Boston, Mass	Mar. 21, 1854.
Printing woollen and other goods, machine for	Thomas Crossley	Boston, Mass	July 18, 1854.
Printing upon glass, process of engraving or	M. D. & L. W. Whipple, assignors to Lyman W. Whipple and Robert B. Fitts.	Somerville, Middlesex co., Mass.	June 27, 1854.
Print subscribers' names, &c., on newspapers, machines to.	Edward P. Day	New York, N. Y	June 6, 1854.
Printing railway and other tickets, machine for.	Jos. Edmonson and Caleb Haworth, executors of Thomas Edmonson, deceased.	Salford, Lancaster co., England	May 23, 1854. Patented in England March 19, 1850.
Ruling-machine	John Collman	Silver Creek, Ill	Jan. 3, 1854.
Ruling paper, machines for	John & Wm. McAdams	Boston, Mass	Feb. 7, 1854.
Ruling paper, mode of setting and holding pens for.	J. V. Collins, assignor to	Charlestown, Mass. / Harrisburg, Pa.	June 20, 1854.
	W. O. Hickok	Burlington, N. J	June 20, 1854.
Slate-frames	Edmund Morris	New York, N. Y	Oct. 24, 1854.
Stereotype composition, gutta percha	Julius Herriet, assignor to John Gaylord Wells, of Hartford, Conn.	Spring Garden, Philadelphia, Pa.	Mar. 28, 1854.
Stereotype pans	Richard D. Mott	Beallaville, Ohio	Aug. 22, 1854.
Tuning-forks	Joseph C. Jinkins	New York, N. Y	Nov. 14, 1854.
Type, casting	George Bruce	New York, N. Y	Jan. 3, 1854.
Type, casting, machines for	Charles Muller	Brooklyn, N. Y	May 16, 1854.
Type composing, machinery for	William H. Mitchel	New York, N. Y	Mar. 21, 1854.
Type, machines for rubbing	Daniel Moore, assignor to Geo. S. Cameron	New York, N. Y	Mar. 21, 1854.
Types, machines for distributing	Victor Beaumont	Wilmington, N. C	May 30, 1854.
Typograph	Robert S. Thomas	New London, Conn	May 2, 1854.
Violins	Sewall Short		

Classified list of patents issued—Continued.

CLASS XIX.—FIRE-ARMS AND IMPLEMENTS OF WAR, *and parts thereof, including the manufacture of shot and gunpowder.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bombs, shells, or grenades	Elliot T. Miller	Boston, Mass.	Nov. 7, 1854.
Bullet moulds	William M. Storm	New York, N. Y.	April 25, 1854.
Cannon, breech-loading	William E. Osborn	Milton, N. Y.	Sept. 12, 1854.
Cartridges	Horace Smith and Daniel B. Wesson	Norwich, Conn.	Aug. 8, 1854.
Cartridges for breech-loading fire-arms	Daniel Moore	Williamsburg, N. Y.	Oct. 31, 1854.
Fire-arms	Thomas Cook, assignor to Starkie Livesey	New York, N. Y.	Feb. 14, 1854.
Fire-arms	Horace Smith and Daniel B. Wesson	Norwich, Conn.	Feb. 14, 1854.
Fire-arms	Charles Bu-s	Marlboro', Cheshire county, N. H.	April 25, 1854.
Fire-arms	Jeremiah Peck, assignor to J. Peck and C. F. Grilley.	New Haven, Conn.	May 16, 1854.
Fire-arms	Eden A Baldwin 2d, administrator of E. Baldwin, deceased.	Shelburne Falls, Mass.	July 11, 1854.
Fire-arms	Eli Whitney	Whitneyville, Conn.	Aug. 1, 1854.
Fire-arms	Isaac W. Brown	West Springfield, Mass.	Aug. 8, 1854.
Fire-arms	Joseph C. Day	Hackettstown, N. J.	Aug. 8, 1854.
Fire-arms	Daniel Knight	Salem, Ind.	Aug. 8, 1854.
Fire-arms	William A. Sweet	Pompey, N. Y.	Aug. 15, 1854.
Fire-arms	W. H. Morrison	Indianapolis, Ind.	Sept. 19, 1854.
Fire-arms	Fordyce Beals	New Haven, Conn.	Sept. 26, 1854.
Fire-arms	John Hollingsworth and Ralph S. Mershon	Zanesville, Ohio	Oct. 3, 1854.
Fire-arms	Gustav F. Palmié and P. H. Palmié	Berlin, Prussia	Oct. 24, 1854.
Fire-arms	John C Howe	Milwaukie, Wis.	Oct. 31, 1854.
Fire-arms	Wendell Wright	New York, N. Y.	Nov. 7, 1854.
Fire-arms, breech-loading	J Durrell Greene	Cambridge, Mass.	Jan. 3, 1854.
Fire-arms, breech-loading	Henry W. Adams	New York, N. Y.	Sept. 19, 1854.
Fire-arms, breech-loading	Abner N. Newton	Richmond, Ind.	Sept. 19, 1854.
Fire-arms, breech-loading	Francis Maton	New York, N. Y.	Nov. 14, 1854.
Fire-arms, breech-loading	A. D. Perry	Newark, N. J.	Nov. 28, 1854. Patented in England June 3, 1854.
Fire-arms, breech-loading	Abner N. Newton	Richmond, Wayne county, Ind.	June 27, 1854.
Fire-arms, chargers for	William M. Storm	New York, N. Y.	May 2, 1854.
Fire-arms, chargers for	T. H. Peavey	South Montville, Waldo co., Me.	June 27, 1854.
Fire-arms, breech-loading	J. D. Greene	Cambridge, Mass.	June 27, 1854. ented England May 12, 854.
Fire-arms, machine for boring the chambers in the cylinders of.	E. K. Root	Hartford, Conn.	Nov. 28, 1854.
Fire-arms, primer for	Abner N. Newton	Richmond, Ind.	May 23, 1854.
Fire-arms, revolving	Josiah Ells	Pittsburg, Pa.	April 25, 1854.
Fire-arms, revolving breech	Josiah Ells	Pittsburg, Pa.	Aug. 1, 1854.
Flask, powder, for breech-loading guns	Daniel Moore	Williamsburg, N. Y.	Oct. 31, 1854.
Locks, gun	James Hults	Berlin township, Delaware county, Ohio.	May 16, 1854.
Shot pouches	John M. Hathaway	New York, N. Y.	Aug. 1, 1854.

CLASS XX.—SURGICAL AND MEDICAL INSTRUMENTS, *including trusses, dental instruments, bathing apparatus, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Amputating apparatus	George W. Griswold	Carbondale, Pa.	Jan. 17, 1854.
Chairs, dental	A. M. Asay	Philadelphia, Pa.	Feb. 7, 1854.
Chairs for exercising	Joshua Stevens	Chicopee Falls, Hampden county, Mass.	Aug. 29, 1854.
Forceps, surgical	Joseph G. Loomis, Mary Ann Loomis, executrix of and assignor to W. A. Gardiner.	Philadelphia, Pa.	Nov. 21, 1854.
Inhaling apparatus	Samuel H. T. Tilghman	Snow Hill, Md.	Nov. 21, 1854.
Legs, artificial	David B. Marks	New York, N. Y.	Mar. 7, 1854.
Obstetrical supporters	Westel S. Daniels	Panama, Chautauque co., N. Y.	Mar. 14, 1854.
Pump, breast	Orwell H. Needham	New York, N. Y.	June 20, 1854.
Pumps, saliva	F. Davison	Liberty, Va.	Jan. 17, 1854.
Pestle with the mortar, arrangement of	Platt C. Ingersoll	Elmira, N. Y.	May 9, 1854.
Splints, surgical	Smith A. Skinner	Brownington, Vt.	May 16, 1854.
Supporters, catamenial	Alfred A Starr	New York, N. Y.	Aug. 22, 1854.
Syringes, enema	Morris Mattson	Boston, Mass.	April 4, 1854.
Syringe, eye-bath	Simeon Towle	Corfu, Genesee county, N. Y.	April 25, 1854.
Tape-worm operation	Alpheus Myers, M. D.	Logansport, Ind.	Nov. 14, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Teeth, artificial, plates for	Mahlon Loomis	Cambridgeport, Middlesex county, Mass.	May 2, 1854.
Teeth, artificial, palate for	Lorenze Simonds	Boston, Mass	Sept. 12, 1854.
Tonsil instruments	Ira Warren	Boston, Mass	Jan. 17, 1854.
Trap, tape-worm	Alpheus Myers, M D	Logansport, Ind	Nov. 14, 1854.
Trusses	Lewis B. White	Moscow, N Y	Jan. 17, 1854.
Trusses	Seymour N. Marsh	New York, N. Y	Sept. 12, 1854.
Tube, inhaling	Daniel Minthorn	New York, N. Y	June 27, 1854.

CLASS XXI.—WEARING APPAREL, ARTICLES FOR THE TOILETTE, &c., *including instruments for manufacturing.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bonnet-frames, moulds for pressing	Nathaniel Spence	New York, N. Y	Nov. 28, 1854. Antedated Nov. 10, 1854.
Bonnet-frames, wire, mode of constructing	Henry Weed	Philadelphia, Pa	June 27, 1854.
Bonnet-fronts, moulds for pressing	Whitten E. Kidd	New York, N. Y	Nov. 28, 1854.
Button-hole cutters	Thos. W. Brown, assignor to Wm. W. Mead	Boston, Mass	May 23, 1854.
Buttons, metallic, ornamenting	Hiram W. Hayden	Waterbury, Conn	July 11, 1854.
Buttons, wooden, manufacture of	L. L. and A. L. Platt	Newton, Fairfield county, Conn	June 27, 1854.
Carpet bags	Frederick J. Thring	New York, N. Y	Jan. 31, 1854.
Cloth, machine for cutting out	John Harraday	New York, N. Y	May 30, 1854. Patented in England Jan. 20, 1854.
Eyelet-machine	Hymen L. Lipman	Philadelphia, Pa	June 6, 1854.
Eyelet-machine	Hymen L. Lipman	Philadelphia, Pa	July 11, 1854.
Eyelet-machine	Hymen L. Lipman	Philadelphia, Pa	July 25, 1854.
Garments, cutting, apparatus for laying off the scye in.	Peter Spilman	Richmond, Va	July 18, 1854.
Garments, fastenings for	Thomas J. Harris, jr	New York, N. Y	Oct. 3, 1854.
Garments, fastenings for	Richard Oliver	New York, N. Y	Oct. 10, 1854.
Hat-shapers	Adolph and Phelix Brown	New York, N. Y	July 11, 1854.
Hats, felt	J. W. Whittal and William W. Pendleton	Greenwich, Conn	Aug. 1, 1854.
Hats, finishing palm-leaf. (See Class III.)			
Hooks and eyes	J. H. Fairchild	Jericho, Chittenden county, Vt	May 30, 1854.
Pins, diaper	J. Rabbeth	East Hartford, Conn	July 11, 1854.
Shirt-collars	Walter Hunt	New York, N. Y	July 25, 1854.
Suspender ends, manufacturing	Julius Hotchkiss	Waterbury, Conn	July 27, 1854.
Tailors' measure	Warren and Chas. F. Lillibridge	Zanesville, Ohio	Oct. 31, 1854.
Tailors' measures	Moses T. Rowland	Pittston Ferry, Luzerne county, Pa.	April 18, 1854.
Tailors' measuring instruments	John M. Krider	Newtown, Stephensburg, Va.	Oct. 31, 1854.
Tailors' shears	Joseph Phares	Cincinnati, Ohio	Sept. 12, 1854.
Toilet glass, joint for	Henry Wayne	Cincinnati, Ohio	Oct. 17, 1854.
Umbrella-covers, hemming and cording	Sherburn C. Blodgett	Philadelphia, Pa	Jan. 3, 1854. Antedated July 3, 1853.
Umbrellas, folding	H. Richardson, S. Morris, jr., and B. C. Perry	Litchfield, Conn	Aug. 22, 1854.

CLASS XXII.—*Miscellaneous.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Anglers' combined float and sinker	J. W. Hoard	Providence, R. I	Dec. 12, 1854.
Bells, alarm, magnetic	Augustus Eckert	Trenton, Ohio	Oct. 10, 1854.
Bells, horse	Jason Barton	Middle Haddam, Middlesex county, Mass.	Feb. 14, 1854.
Bells, horse, mode of attaching to straps	Jason Barton	Middle Haddam, Middlesex county, Mass.	Feb. 21, 1854.
Bells, mode of hanging	Jerome B. Young	Harper's Ferry, Va	July 4, 1854.
Bells, mode of ringing by steam	George B. Snow	Buffalo, N. Y	July 11, 1854.
Bottles	R. Bocklen and H. T. Brown	Jersey City, N. J	July 25, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bottles	William Clark	New York, N. Y	July 25, 1854.
Bottles, closing the mouths of, air-tight	Robert Arthur	Washington, D. C	Aug. 15, 1854.
Bottles, corking, apparatus for	John Matthews, assignee of	New York, N. Y	July 11, 1854.
	Thomas W. Gillett	New Haven, Conn	
Bottles, machines for washing	A. R. Rauch	Bethlehem, North Hampton county, Pa.	June 6, 1854.
Bottle stoppers	Thomas Kendall	San Francisco, Cal	Nov. 7, 1854.
Burglar's alarm	D. E. McDougall	Springfield, Mass	June 20, 1854.
Bottles, mineral water, stopping	Alphonse Quantin	Philadelphia, Pa	July 25, 1854.
Burglar's alarm	Ephraim Brown	Lowell, Mass	Oct. 31, 1854.
Burglar's alarm	Junius Foster	Green Point, N. Y	Oct. 31, 1854.
Clasps	Charles T. P. Ware, assignor to D. C. Morehead.	New York, N. Y	Jan. 17, 1854.
Coffins	John McF. Lyeth	Baltimore, Md	June 27, 1854.
Coffins	Philo Washburn, Harrison G. O. White, and George A. Copeland.	Taunton, Mass	June 27, 1854.
Coffins	John Good	Philadelphia, Pa	Dec. 12, 1854.
Dock-holders, for horses	Elbridge H. Penfield	Middletown, Conn	Dec. 12, 1854.
Docks, of horses, machine for holding	Seymour Tomlinson	Pleasant Valley, Dutchess county, N. Y.	July 18, 1854.
File or bill-holder	Thomas W. Brown	Boston, Mass	April 25, 1854.
Fire-escape	George W. Keller	Philadelphia, Pa	April 18, 1854.
Fire-escape, portable ladder or	Thomas Armitage	Philadelphia, Penn	April 18, 1854.
Fish-hooks	Henry Sigler	Houston, Texas	April 11, 1854.
Fish-hooks, and artificial baits, attachment for.	Julio T. Buell	White Hall, Washington county, N. Y.	April 11, 1854.
Fishing rods and floats	Charles De Saxe, assignor to Thomas H. Bate.	New York, N. Y	April 18, 1854.
Fly trap	David and Samuel K. Flanders	Parishville, St. Lawrence county, N. Y.	April 18, 1854.
Fountain, soda-water	James R. Nichols	Haverhill, Mass	July 25, 1854.
Grindstone frame	J. L. Lord	Chester, Conn	Aug. 15, 1854.
Hones	Isaac Babbitt	Roxbury, Norfolk county, Mass.	May 23, 1854. Patented in England March 30, 1854.
Horn, &c., machines for splitting	Emerson Prescott	Leominster, Mass	Oct. 10, 1854.
Landing net, for anglers	Charles De Saxe, assignor to Thomas H. Bate.	New York, N. Y	April 18, 1854.
Mail bag labels	Solomon Andrews	Perth Amboy, N. J	July 25, 1854.
Matches, friction, machines for making	(See Class IV.)		
Matches, machine for matting the ends of blocks in making.	Henry E. Pierce	Claremont, Mass	Jan. 10, 1854.
Rat traps	Hiram Stafford	Mount Pulaski, Logan county, Ill.	April 11, 1854.
Rat traps	Jose Toll	Locust Grove, Addams county, Ohio.	April 11, 1854.
Ratan machine	Sylvanus Sawyer	Fitchburg, Mass	Dec. 12, 1854.
Ratan, machine for splitting	Joseph Sawyer	South Royalton, Worcester county, Mass.	Mar. 7, 1854.
Ratans, machines for splitting	Addison M. Sawyer	Templeton, Worcester county, Mass.	Mar. 7, 1854.
Sealing cans, apparatus for	Joel Green	Cincinnati, Ohio	July 11, 1854.
Sealing, hermetical	James Spratt	Cincinnati, Ohio	July 18, 1854.
Sewing birds	Julius E. Merriman	Meriden, Conn	Feb. 7, 1854.
Sewing pin	Thaddeus Fowler	Waterbury, Conn	Oct. 10, 1854.
Slate frame	Edmund Morris	Burlington, N. J	Nov. 7, 1854.
Staples to walls, mode of securing	J. L. Mott	Mott Haven, Westchester county, N. Y.	July 25, 1854.
Streets, machine for cleaning and watering	Ross Deegan	New York, N. Y	June 6, 1854.
Tobacco, cutting	Ebenezer Murdock	Albany, N. Y	July 18, 1854.
Tobacco, machine for drying	Tyler W. Lafetra	New York, N. Y	April 4, 1854.
Tops, whistling	W. E. Woodbridge, assignor to Charles Humphry.	Perth Amboy, N. J	June 27, 1854.
Trap for animals	Oliver Pier	Harmony, Chautauque county, N. York.	June 27, 1854.
Trap for animals	Robert S. Craig	Cincinnati, Ohio	Nov. 7, 1854.
Vermin, method of destroying	G. W. French and William Wagstaff	Cambridge, Mass	Dec. 12, 1854.
Water-closet	Frederick H. Bartholomew	New York, N. Y	Feb. 14, 1854.
Water-closet	Daniel Ryan and Jno. Flanagan	New York, N. Y	Mar. 7, 1854.
Whips, knife die for cutting leather straps for	Charles Baeder	New York, N. Y	Oct. 3, 1854.

Classified list of patents issued—Continued.

EXTENSIONS FOR 1854.

Inventions or discoveries.	Patentees.	Residence.	Date of extension.	Date of patent.
Books, trimming, machine for cutting paper and	Frederick J. Austin	New York, N. Y.	Dec. 7, 1854	June 16, 1841; antedated Dec. 16, 1840; reis'd June 22, 1852.
Caldron, combined, and furnace for the use of agriculturists and others, mode of constructing a.	Jordan L. Mott	Mott Haven, N. Y.	Nov. 20, 1854	Dec. 1, 1840.
Clocks, improvements in the method of constructing	Aaron D. Crane	Newark, N. J.	Dec. 15, 1854	Feb. 10, 1841; antedated Dec. 22, 1840.
Cloth, machine for reducing worn-out cloths and silks of various kinds to the fibrous state, so as to be capable of being manufactured into.	Reuben Daniels	Woodstock, Vt.	Sep. 29, 1854	Oct. 10, 1840.
Cloth of wool, hair, or other suitable substance, machine for forming a web of, without spinning or weaving. (Extended by special act of Congress for fourteen years from and after March 28, 1854.)	John Arnold and Geo. G. Bishop.	Norwalk, Conn	Mar. 28, 1854	Oct. 20, 1836.
Cloth of wool, hair, or other suitable substance, machine for forming a web of, without spinning or weaving. (Extended by special act of Congress for fourteen years from and after March 28, 1854.)	John Arnold	Norwalk, Conn.	Mar. 28, 1854	July 15, 1829.
Corks, machine for cutting	William Dalrymple, executor of Sam'l Sawyer, deceased.	Boston, Mass.	June 9, 1854	June 10, 1840.
Corn, machines for husking and shelling	Samuel S. Allen	Salem, N. J.	Jan. 14, 1854	Jan. 15, 1840.
Cotton gin	Fones McCarthy	New Orange Spring, Fla.	June 28, 1854	July 3, 1840; re-issued April 18, 1854.
Cotton-ginning, machine for, and for cleaning wool from burs and other foreign matter.	Milton D. Whipple	Somerville, Mass.	Oct. 24, 1854	Oct. 28, 1840.
Crushing hard substances, machine for	James Rowe	Tampa Bay, Fla.	Mar. 28, 1854	April 24, 1840.
Electro-magnetism, mode of communicating information by application of.	S. F. B. Morse	Poughkeepsie, N. Y.	June 19, 1854	June 20, 1840; re-issued Jan. 15, 1846; reis'd June 13, 1848.
Engines, steam, mode of regulating the waste steam in locomotive.	Ross Winans	Baltimore, Md	Nov. 20, 1854	Nov. 26, 1840.
Lathes, chuck for, expanding and contracting or universal	Simon Fairman	West Stafford, Conn.	July 17, 1854	July 18, 1840.
Life-preserver	Ralph Bulkley	New York, N. Y	May 6, 1854	May 8, 1840.
Maps, mode of coloring	Lucius Stebbens	Hartford, Conn.	Feb. 15, 1854	Mar. 12, 1840.
Mill for breaking and grinding bark	R. Montgomery and L. W. Harris	Sangerfield, N. Y.	Aug. 10, 1854	Aug. 12, 1840.
Padlocks for mail-bags and other uses, called the clam-shell padlock, manner of constructing.	Solomon Andrews	Perth Amboy, N. J.	Nov. 15, 1854	Dec. 5, 1840.
Paper, machine for boiling and washing rags for manufacturing.	Chas. Spafford, administrator of George Spafford, deceased.	Windham, Conn	Aug. 25, 1854	Sept. 2, 1840; re-issued June 11, 1850.
Puddle-balls or other masses of iron in the manufacture of iron, machine for rolling.	Henry Burden	Troy, N. Y.	Dec. 9, 1854	Dec. 10, 1840.
Shuttles for weaving cloth	James Baldwin	Nashua, N. H.	Jan. 14, 1854	Jan. 31, 1840.
Spark-arresters	David Matthew	Philadelphia, Pa	Dec. 27, 1854	Dec. 31, 1840.

DISCLAIMERS ENTERED DURING THE YEAR 1854.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Disclaimers entered.
Boilers for culinary purposes	James R. Stafford, assignor to Goodrich, Seavey & Co.	Cleveland, Ohio	June 12, 1847	July 13, 1854.
Electro-magnetism, mode of communicating information by signals by application of.	S. F. B. Morse, assignor to A. Vail	Poughkeepsie, N. Y.	June 20, 1840; re-issued Jan. 15, 1846; re-issued June 13, 1848.	June 19, 1854.
Electro-magnetism, mode of communicating information by signals by application of.	S. F. B. Morse, assignor to trustees of the New York, Albany, & Buffalo Magnetic Telegraph Company.	Poughkeepsie, N. Y.	June 20, 1840; re-issued Jan. 15, 1846; re-issued June 13, 1848.	June 20, 1854.
Looms, power	William Crompton, assignor to M. A. Furbush & George Crompton.	Worcester, Mass.	Nov. 25, 1837; extended & re-issued Sept. 13, 1853.	Feb. 1, 1854.
Sewing-machines	T. C. Thompson	Ithaca, N. Y.	Mar. 29, 1853	Feb. 16, 1854.
Sewing-machine	Grover, Baker & Co.	Boston, Mass.	June 22, 1852	Dec. 29, 1854.
Signals, electro-magnetism	S. F. B. Morse, assignor to the New York & New England Union Telegraph Company.	New York, N. Y.	June 20, 1840; re-issued Jan. 15, 1846; re-issued June 13, 1848.	Mar. 17, 1854.
Starch, manufacture of	Samuel Blatchford, administrator of Orlando Jones.	New York, N. Y.	Mar. 12, 1841; pat'd in England April 30, 1840	April 6, 1854.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Disclaimers entered.
Telegraph, electro-magnetic	S. F. B Morse, assignor to Maine Telegraph Company	New York, N. Y. Portland, Me	June 20, 1840; re-issued Jan. 15, 1846; re-issued June 13, 1848.	April 20, 1854.
Telegraph, magnetic	Samuel F. B. Morse	Poughkeepsie, N. Y.	June 20, 1840; re-issued Jan. 15, 1846; re-issued June 13, 1848.	May 23, 1854.
Telegraph, magnetic	Samuel F. B. Morse, assignor to Magnetic Telegraph Company.	New York, N. Y.	June 20, 1840; re-issued Jan. 15, 1846; re-issued June 13, 1848.	June 14, 1854.

ADDITIONAL IMPROVEMENTS GRANTED DURING THE YEAR 1854.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Improvements added.
Bog-cutters	Edmund L. Freeman	Belleville, N. Y	June 21, 1853	Jan. 3, 1854.
Gates, apparatus for opening and closing	Samuel G. Dugdale	Richmond, Ind	Oct. 11, 1853; re-issued Jan. 31, 1854.	Mar. 7, 1854.
Harness saddle-tree	Thomas Mardock & William C. Kellar	Cincinnati, Ohio	Oct. 12, 1852	Aug. 1, 1854.
Looms	Samuel & James Eccles	Philadelphia, Penn	Aug. 3, 1852	July 18, 1854.
Mills, grinding	Oldin Nichols	Lowell, Mass	Oct. 12, 1852	May 30, 1854.
Musical instruments, reed, the construction of	F. A. Gleason	Rome, N. Y.	June 20, 1854	Nov. 14, 1854.
Ploughs	David Swartz	Tom's Brook, Shenandoah county, Va.	June 22, 1852	Feb. 28, 1854.
Smut-machines	Jacob Benner	Liberty, Tioga county, Penn	Sept. 11, 1847	Feb. 14, 1854.
Washers, safety, for securing wheels to axles	William Thornley	Philadelphia, Penn.	Sept. 19, 1854	Oct. 31, 1854.
Whiffle-tree hooks	Martin Newman, 2d	Lanesborough, Penn	Feb. 21, 1854	Oct 31, 1854.
	N. C. Whitcomb	Lanesborough, Penn		
	G. C. Cole	Hartford, Conn		
Whips, raw-hide, machine for polishing	Charles Baeder	New York, N. Y.	May 21, 1850	Oct. 17, 1854.

REISSUES DURING THE YEAR 1854.

Inventions or discoveries.	Patentees.	Residence.	Date of reissue.	Date of patent.
Boots and shoes, machines for pegging	John J. Greenough	New York, N. Y.	July 4, 1854	Jan. 17, 1854.
Boots, cutting	Daniel Lynahon	Buffalo, N. Y	May 9, 1854	Oct. 18, 1853.
Cut, nail, from muntz metal	Samuel L Crocker	Taunton, Mass	Aug. 1, 1854	April 17, 1849.
Caloriferes	Samuel Whitmarsh	Northampton, Mass.	Oct. 10, 1854	Aug. 17, 1852.
Fire arms	Horace Smith and Daniel B. Wesson	Norwich, Conn.	Oct. 10, 1854	Feb. 14, 1854.
Gates, opening and closing, apparatus for	Samuel G. Dugdale	Richmond, Ind	Jan. 31, 1854	Oct. 11, 1853.
Gin, cotton	Fones McCarthy	Putman county, Fla	April 18, 1854	July 3, 1840.
Gold-amalgamator	William Ball	Chicopee, Mass	Aug. 8, 1854	Sept. 9, 1851.
Grain-dryers	Henry G. Bulkley	Kalamazoo, Mich.	June 27, 1854	Mar. 2, 1852.
Havesters	Nelson Platt, assignor to W. H. Seymour and D. S. Morgan	Ottawa, Ill Brockport, N. Y.	May 23, 1854	June 12, 1849.
Harvesters, grass	William F. Ketchum	Buffalo, N. Y.	Feb. 28, 1854	Feb. 10, 1852.
Horse-powers, portable	John A. Taplin	Fishkill, N. Y.	Jan. 24, 1854	Dec. 30, 1841.
Lock, bank	A. C. Harig and D. C. Stoy	Louisville, Ky.	Aug. 22, 1854	July 25, 1854.
Locks, gun	James Hults	Alum Creek, Delaware county, Ohio.	July 4, 1854	May 16, 1854.
Looms, for weaving figured fabrics	Cornelius W. Blanchard	Holyoke, Mass.	Jan. 3, 1854	Aug. 3, 1852.
Mills, for grinding	Elisha S. Snyder	Charlestown, Va	June 20, 1854	Feb. 10, 1846.
Pavements, sub-strata for	Horace P. Russ	New York, N. Y.	Mar. 28, 1854	Mar. 14, 1848.
Planter, seed	Charles Randall	Palmyra, Ga.	July 25, 1854	Nov. 2, 1852.
Planters, seed	M. and S. Pennock	Kennett's Square, Chester county, Pa.	Dec. 9, 1854	Mar. 12, 1841; reissued Oct. 30, 1849.
Pumps, for elevating water mixed with mineral substances.	Wm. Ball	Chicopee, Mass	Sept. 12, 1854	Dec. 23, 1851.
Rake to harvesting machines	Sylvanus Miller	Urbana, Ohio	Nov. 21, 1854	July 15, 1851.
Rakes to grain-harvesters	Jearum Atkins	Chicago, Ill	Oct. 31, 1854	Dec. 21, 1852.
Roving, variegated process of manufacturing	Jonas Holmes and Ephraim French	Lee, Berkshire county, Mass.	Feb. 28, 1854	May 18, 1852.
Safes, fire and burglar-proof	F. C. Goffin, assignor to A. B. Ely	New York, N. Y.	April 25, 1854	Feb. 14, 1854.
Sewing-machines	Charles Morey and Joseph B. Johnson, assignors to J. M. Singer and Edward Clark.	New York, N. Y.	June 27, 1854	Feb. 6, 1849.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of reissue.	Date of patent.
Sewing-machines	Charles R. Fox	Chicago, Ill	July 18, 1854	May 9, 1854.
Sewing-machines	Isaac M. Singer	New York, N. Y	Oct. 3, 1854	Aug. 12, 1851.
Shingle-machine	Enoch R Morrison	Troy, Pa	Mar. 7, 1854	Nov. 24, 1853.
Slags of furnaces, utilizing	William H. Smith	Philadelphia, Pa	Jan. 3, 1854	Dec. 7, 1852.
Smut machines	Jehu Hollingsworth	Zanesville, Ohio	Oct. 10, 1854	April 22, 1851.
Stuffing-boxes	Thos. W Allen and Charles W. Noyes	Greenbush, N. Y	Jan. 10, 1854	Nov. 6, 1847.
Valves for governors	Junius and Alfred Judson, assignors to Junius Judson.	Rochester, N. Y	Jan. 10, 1854	Nov. 5, 1850.
Wheels, flutter, method of applying water to compound buckets of.	David Rankin	Augusta county, Va	Sept. 26, 1854	July 11, 1854.
Winnowing-machines	Samuel Canby	Elicott's Mills, Md	Nov. 14, 1854	Dec. 28, 1852.

DESIGNS.

Designs.	Patentees.	Residence.	Date of patent.
Brackets	Isaac De Zouche	Troy, N. Y	Oct. 31, 1854.
Clock-case front	Charles Chinnock	New York, N. Y	May 16, 1854.
Clock-case fronts	Charles Chinnock	New York, N. Y	Oct. 17, 1854.
Clock-case fronts	Charles Chinnock	New York, N. Y	Oct. 17, 1854.
Clock-case fronts	Charles Chinnock	New York, N. Y	Oct. 17, 1854.
Clock-case fronts, for cast metal	Charles Chinnock	New York, N. Y	May 23, 1854.
Clock-cases, for the fronts of	Nicholas Muller	New York, N. Y	Aug. 29, 1854.
Clock-cases, for the fronts of cast metal	Charles Chinnock	New York, N. Y	May 23, 1854.
Clock-cases, fronts of	William B. Lorton	New York, N. Y	April 25, 1854.
Coffee-pot, design for tea or	William Hattersley and Charles Dickenson	Newark, N. J	July 4, 1854.
Fences, wire	Mathias Lachennaier	Philadelphia, Pa	Nov. 21, 1854.
Foot-stool or ottoman, frame of a, No. 1	Charles Zenner, assignor to Greenwood & Co.	Cincinnati, Ohio	Jan. 3, 1854.
Do do No. 2	Charles Zenner, assignor to Greenwood & Co.	Cincinnati, Ohio	Jan. 3, 1854.
Franklin fire-places	Nathaniel S. Prince, assignor to Franklin, Muzzy & Co., and Allen Lambard.	Boston, Mass	Oct. 31, 1854; antedated Sept. 10, 1854.
Guitars	William B. Tilton	New York, N. Y	Feb. 21, 1854.
Hair-brushes, frames and handles of	Hugh Rock, assignor to H. Rock and F. McLaughlin.	Boston, Mass	May 2, 1854.
Oven-doors	J. F. Allen and J. Stewart, assignors to Cresson, Stewart & Peterson.	Philadelphia, Pa	May 23, 1854.
Piano-fortes, cast-iron legs of	Frederick Starr	Rochester, N. Y	Feb. 28, 1854.
Piano-fortes, cast iron pedal lyre for	Frederick Starr	Rochester, N. Y	Feb. 28, 1854.
Ranges, cooking, portable	G. Smith, H. Brown, and J. H. Reed, assignors to Abbot & Lawrence.	Philadelphia, Pa	May 23, 1854.
Ranges, portable	J. F. Allen and J. Stewart, assignors to Cresson, Stuart & Peterson.	Philadelphia, Pa	May 23, 1854.
Ranges, summer, doors of, gas ovens, or	S. W. Gibbs, assignor to North, Chase & North.	Albany, N. Y / Philadelphia, Pa	May 9, 1854.
Shovel-and-tongs stand	Chas. Zennor, assignor to M. Greenwood & Co.	Cincinnati, Ohio	Jan. 24, 1854.
Shovel-and-tongs stand	Chas. Zennor, assignor to M. Greenwood & Co.	Cincinnati, Ohio	Jan. 24, 1854.
Stove, cannon	Wm. Resor, assignee of Wm. & R. P. Resor & Co.	Cincinnati, Ohio	Jan. 31, 1854.
Stove, cooking	C. Harris and P. W. Zoiner	Cincinnati, Ohio	Jan. 24, 1854.
Stove, cooking	C. Harris and P. W. Zoiner, assignors to Alex. Bradley.	Pittsburg, Penn	Jan. 31, 1854.
Stove, cooking	Peter Seibert, assignor to Alex Bradley	Pittsburg, Penn	Jan. 31, 1854.
Stove, cooking	W. P. Gray, assignor to Cox, Hager & Cox	Philadelphia, Penn	Oct. 17, 1854.
Stove, cooking	Harrison Eaton, assignor to Jas. Hartshorn and Winslow Ames.	Nashua, N. H	July 11, 1854; antedated June 20, 1854.
Stove, cooking	John C. Smith, assignor to Warnick & Leibrandt.	Philadelphia, Penn	July 11, 1854.
Stove, cooking, or summer range	John Abendroth	Port Chester, Westchester, N. Y.	May 2, 1854.
Stove, dining-room	C. Harris & P. W. Zoiner	Cincinnati, Ohio	Jan. 24, 1854.
Stove, hall	William Resor, assignor to Wm. & R. P. Resor & Co.	Cincinnati, Ohio	Jan. 3, 1854.
Stove, laundry	Wm. Resor	Cincinnati, Ohio	Jan. 17, 1854.
Stove, parlor	N. S. Vedder, assignor to A. T. Dunham & Co.	Troy, N. Y	Feb. 14, 1854.

Classified list of patents issued—Continued.

Designs.	Patentees.	Residence.	Date of patent.
Stove-plates	Jno. Burgess, assignor to Geer & Co	Troy, N. Y	April 25, 1854.
Stove, radiator	Sam'l H. Sailor and John C. Smith, assignors to Warnick & Leibrandt.	Philadelphia, Penn	July 11, 1854.
Stoves	Horace W. Robbins	Baltimore, Md	Nov. 28, 1854.
Stoves	Jno. F. Allen and Jos. Stewart, assignors to North, Chase & North.	Philadelphia, Penn	Mar. 21, 1854.
Stoves, air-tight	G. Smith and Henry Brown	Philadelphia, Penn	April 25, 1854.
Stoves, &c., panel ornament for	Isaac De Zouche, assignor to	Troy, N. Y. / New York, N. Y.	Mar. 14, 1854.
	Louis Potter		
Stoves, bar-room	W. P. Cresson & Co., assignees of Jacob Beesley.	Philadelphia, Penn	Nov. 7, 1854; antedated May 7, 1854.
Stoves, box	Jos. Stewart, assignor to Cresson, Stuart & Peterson.	Baltimore, Md	Dec. 5, 1854.
Stoves, coal	C. Harris and P. W. Zoiner	Cincinnati, Ohio	Feb. 21, 1854.
Stoves, coal	Samuel D. Vose	Albany, N. Y	Mar. 28, 1854.
Stoves, cooking (1)	Samuel D. Vose	Albany, N. Y	Feb. 14, 1854; antedated Dec. 30, 1853.
Stoves, cooking (2)	Samuel D. Vose	Albany, N. Y	Feb. 14, 1854; antedated Dec. 30, 1853.
Stoves, cooking (3)	Samuel D. Vose	Albany, N. Y	Feb. 14, 1854; antedated Dec. 30, 1853.
Stoves, parlor (4)	Samuel D. Vose	Albany, N. Y	Feb. 14, 1854; antedated Dec. 30, 1853.
Stoves, cooking	Samuel D. Vose	Albany, N. Y	Mar. 28, 1854.
Stoves, cooking	Wm. T. Coggeshall	Fall River, Mass	April 18, 1854.
Stoves, cooking	N. P. Richardson	Portland, Cumberland county, Me	May 2, 1854.
Stoves, cooking	Jacob Beesley and E. J. Delany, assignors to Cresson, Stuart & Peterson.	Philadelphia, Penn	May 23, 1854.
Stoves, cooking	Apollos Richmond, assignor to A. C. Barstow & Co.	Providence, R. I	June 13, 1854.
Stoves, cooking	William M. Snow	Providence, R I	Aug. 8, 1854.
Stoves, cooking	Francis Heller and Elias Young	Cincinnati, Ohio	Aug. 15, 1854
Stoves, cooking	S. H. Sailor, assignor to J. G. Abbott and A. Lawrence.	Philadelphia, Pa	Aug. 8, 1854.
Stoves, cooking	Amos Paul	New Market, Rockingham county, N. H.	Aug. 29, 1854.
Stoves, cooking	Nathaniel P. Richardson	Portland, Me	Dec. 12, 1854.
Stoves, cooking, door and panel of	M. C. Burleigh	Great Falls, Strafford county, N. H.	April 25, 1854.
Stoves, "egg stove"	W. P. Cresson & Co., assignees of David Stuart.	Philadelphia, Pa	Nov. 7, 1854; antedated May 7, 1854.
Stoves, Franklin	William Resor	Cincinnati, Ohio	Oct. 3, 1854.
Stoves, Franklin	William Resor	Cincinnati, Ohio	Oct. 17, 1854.
Stoves, Franklin	J. F. Allen and Joseph Stewart, assignors to J. G. Abbott and A. Lawrence.	Philadelphia, Pa	Aug. 8, 1854.
Stoves, parlor	Jacob Beesley and E. J. Delaney, assignors to Cresson, Stuart, and Peterson.	Philadelphia, Pa	May 23, 1854.
Traps, mole	Henry Fry, assignor to Samuel Maxwell	Cincinnati, Ohio	Sept. 12, 1854.
Well-curbs	William Benjamin Douglass	Middletown, Conn	July 11, 1854.

ALPHABETICAL LIST OF PATENTEES FOR THE YEAR 1854.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11592	Abbe, Robert M	Hog-pens	Aug. 29, 1854.	I.
	Abbott & Lawrence, assignees. (See Allen & Stewart, assignors.)			
	Abbott & Lawrence, assignees. (See S. H. Sailor, assignor.)			
	Abbott & Lawrence. (See Smith *et al.*, assignors)			
644	Abendroth, John	Stove, cooking, or summer range	May 2, 1854	Design.
11057	Abos, Casimir	Spark-arresters	June 13, 1854	V.
11958	Absterdam, John	Cylinders of steam-engines, arrangement of means for lubricating the.	Nov. 21, 1854	VI.
10573	Absterdam, John, and William Burnett	Boilers, steam, use of fusible disks in	Feb. 28, 1854	VI.
10703	Absterdam, John, and William B. Merrill, assignors to J. A. Woodbury and William B. Merrill.	Tonguing and grooving tapering boards, device for	Mar. 28, 1854	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11986	Adams, Alden	Presses, hay and cotton	Nov. 28, 1854	XII.
10438	Adams, Calvin	Press, copying	Jan 24, 1854	XVIII.
11685	Adams, Henry W	Fire-arms, breech-loading	Sept. 19, 1854	XIX.
10851	Adams, John W	Cotton	May, 2, 1854	III.
10952	Adams, Ransom P	Fence-posts, excavator for	May 23, 1854	IX.
11405	Adler, Elkan	Matches, machinery for making	Aug. 1, 1854	IV.
11636	Ager, Wilson	Mill-stone dress for cleaning grain	Sept. 5, 1854	XIII.
11637	Akins, William H	Flour-bolt	Sept. 5, 1854	XIII.
11711	Akins, William H., and J. C. Burritt, assignors to W. H Akins.	Clocks, calendar	Sept. 19, 1854	VIII.
10728	Akins, William H., assignor to Samuel J. Parker	Sewing-machines, cops for	April 4, 1854	III.
11563	Alburger, Charles M	Hydrant, hose, and hitching post, pavement washer	Aug. 22, 1854	XI.
11738	Aldrick, Arad, assignor to John L. Cooper and Arad Aldrick	Forms, irregular, machines for cutting	Sept. 26, 1854	XIV.
664	Allan, J. F., and Jos. Stewart, assignors to J. G. Abbott and A. Lawrence.	Stoves, Franklin	Aug. 8, 1854	Design.
654	Allan, J. F., and Jos. Stewart, assignors to Cresson, Stuart, and Peterson.	Ranges, portable	May 23, 1854	Design.
655	Allan, J F., and Jos. Stewart, assignors to Cresson, Stuart, and Peterson.	Oven-doors	May 23, 1854	Design.
636	Allan, J. F., and Jos. Stewart, assignors to North, Chase, and North.	Stoves	Mar. 21, 1854	Design.
12017	Allen, Aaron H	Seats for public buildings	Dec. 5, 1854	IX.
11922	Allen, Edwin	Stone, carving, machinery for	Nov. 14, 1854	XV.
11107	Allen, Edwin	Veneer-polisher	June 20, 1854	XIV.
11006	Allen, Henry	Polygonal timber, machine for dressing	June 6, 1854	XIV.
10768	Allen, Henry	Boring and mortising machine	April 11, 1854	XIV.
	Allen, Samuel S	Corn, machines for husking and shelling	Jan 15, 1840; extended January 14, 1854.	Extension.
	Allen, Stillman, & Co., assignees. (See Bullock, Smith W., assignor.)			

254	Allen, Thomas W., and Charles W. Noyes	Stuffing-boxes	Nov. 6, 1847; re-issued January 10, 1854.	Re-issue.
10853	Allender, John	Tool-holders, operating catches in	May 2, 1854	II.
11108	Allender, John	Grommets, metallic	June 20, 1854	VII.
11959	Alvord, Clark	Brick-moulds, hand	Nov. 21, 1854	XV.
11110	Ambler, D C	Boilers, setting of steam	June 20, 1854	VI.
11109	Ambler, D. C	Quartz-crushers	June 20, 1854	II.
11884	Ambler, Daniel C	Sewing-machines	Nov. 7, 1854	III.
10530	Ambler, George B	Saddle-trees	Feb. 14, 1854	XVI.
10675	Ament, C. V	Eggs, hens', in the nest, devices for preserving	Mar. 21, 1854	I.
12048	Ames, Nathan	Polygraph	Dec. 12, 1854	XVIII.
12049	Ames, Nathan	Polygraphs	Dec. 12, 1854	XVIII.
	Ames & Hartshorn, assignees. (See Eaton, Harrison, assignor.)			
11150	Amory, Jonathan, and William F. Parrott	Boilers, in the furnace of steam	June 27, 1854	VI.
11452	Anderson, William	Harrow	Aug. 1, 1854	I.
10538	Andrews, Frederick T	Saws, method of operating	Feb. 21, 1854	XIV.
12084	Andrews, John, assignor to J. Andrews, N. A. Richardson, and Gardner Symmes.	Planters, seed	Dec. 12, 1854	I.
10439	Andrews, R. & A. F	Saws, wood	Jan. 24, 1854	XIV.
10616	Andrews, Robert W	Britannia tea and coffee pots	Mar. 7, 1854	XVII.
10720	Andrews, Solomon	Forging and punching-machines, drop and die	April 4, 1854	II.
11348	Andrews, Solomon	Mail-bag labels	July 25, 1854	XXII.
	Andrews, Solomon	Padlocks for mail-bags and other uses, called the clam-shell padlock, manner of constructing.	Dec. 5, 1840; extended Nov. 15, 1854.	Extension.
11544	Andrews, William D	Pump, centrifugal	Aug. 22, 1854	XI.
10465	Anthony, Henry T	Presses for making miniature-cases	Jan. 31, 1854	XVIII.
10953	Anthony, Henry T. and Frank Phœbus	Daguerreotype cases, &c., apparatus for the manufacture of.	May 23, 1854	XVIII.
10664	Appleton, Charles F	Dyeing, processes for	Mar. 21, 1854	IV.
10677	Appleton, Charles F	Dyeing apparatus	Mar. 21, 1854; in England Jan. 7, 1854.	IV.
10978	Appleton, Charles F	Dyeing processes	May 30, 1854	IV.
10797	Armitage, Thomas	Fire-escape, portable ladder or	April 18, 1854	XXII.
10769	Arnold, Francis	Lanterns, combining foot-stoves, &c	April 11, 1854	V.
	Arnold, John	Cloth, of wool, hair, or other suitable substance, machine for forming a web of, without spinning or weaving	July 15, 1829; extended March 28, 1854.	Extension.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Arnold, John, and George J. Bishop	Cloth, of wool, hair, or other suitable substance, machine for forming a web of, without spinning or weaving.	Oct. 20, 1836; extended March 28, 1854.	Extension.
10852	Arnold, William E.	Horse-powers, endless chain, couplings in	May 2, 1854	XIII.
11513	Arthur, Robert	Bottles, &c., closing the mouths of, air-tight	Aug. 15, 1854	XXII.
10490	Asay, A. M.	Chairs, dental	Feb. 7, 1854	XX.
10715	Ashcroft, Edward H.	Track-cleaners for railroads	Mar. 28, 1854	X.
11055	Ashcroft, Thomas	Valves, cut-off, for steam-engines, operating	June 13, 1854	VI.
	Asphalte Mining and Kerosene Gas Company. (See Gesner, assignor, A. B. C.)			
11851	Atherton, Nathan	Engines, steam	Oct. 31, 1854	VI.
282	Atkins, Jearum	Rakes for grain-harvesters	Dec 12, 1852; reissued Oct. 31, 1854.	Reissue.
11714	Aubin, N.	Gas-generators	Sept. 26, 1854	IV.
	Augustus, John J, D. F. Mellen, and Samuel A. Eaton. (See Mellen, Dustin F., *et al.*)			
10787	Aulick, George	Car-couplings	April 18, 1854	X.
	Austin, Frederick J.	Books, trimming, machine for cutting paper and	June 16, 1841; antedated Dec. 16, 1840—reissued June 22, 1852—extended Dec. 7, 1854.	Extension.
	Austin, Smith & Ruggles, assignees. (See S. W. Ruggles, assignor.)			
10819	Avery, John P.	Foundations, mode of securing stones in	April 25, 1854	IX.
11921	Avery, John P., assignor to Joseph B. Bromley	Stone-dressing machine	Nov. 7, 1854	XV.
10880	Avery, Otis	Sewing machines	May 9, 1854	III.
10954	Babbitt, Isaac	Hones	May 23, 1854; in England March 30, 1854.	XXII.
11853	Babcock, A. M. and G. H.	Press for printing in colors	Oct. 31, 1854	XVIII.
11466	Babcock, William S.	Wagons, dumping	Aug. 8, 1854	X.
11987	Bachstein, Gottleib	Engines, fire, arrangement of device for applying power to.	Nov. 28, 1854	XI.

10562	Bachelor, S. B.	Scythe fastenings	Feb. 28, 1854	I.
	Backmeister & Wallace. (See Wallace & E. Backmeister, administratrix.)			
11686	Badger, Elliot C.	Mill-stones, machines for dressing	Sept. 19, 1854	XIII.
114	Baeder, Charles	Whips, raw hide, machines for polishing	May 21, 1850; additional improvement Oct. 17, 1854.	Add'l imp't.
11854	Baeder, Charles	Whips, knife-die for cutting leather straps for	Oct. 31, 1854	XXII.
10441	Bailey, Charles P.	Cars, dumping	Jan. 24, 1854	X.
10698	Bailey, C. P.	Chairs, portable, head-rest for	Mar. 28, 1854	XVII.
11772	Bailey, Charles P.	Car seats, railroad	Oct. 10, 1854	X.
12088	Bailey, Charles P.	Forms, apparatus to a machine for cutting irregular	Dec. 19, 1854	XIV.
	Bailey, John A. (See Speed, John J, jr.)			
11349	Bailey, Thomas R. and George	Tenons, round, device in machines for cutting	July 25, 1854	XIV.
11408	Baker, Collins B.	Brick presses	Aug. 1, 1854	XV.
10922	Baker, Frank	Lathe for irregular forms	May 16, 1854	XIV.
	Baker, Grover & Co. (See Grover, Baker & Co.)			
11821	Baker, Henry F.	Ploughs	Oct. 24, 1854	I.
11960	Baker, Henry F.	Papering walls	Nov. 21, 1854	XVIII.
10903	Baker, William	Clap board joint	May 16, 1854	XIV.
10699	Balding, Anson	Scoops, submarine	Mar. 28, 1854	IX.
10919	Baldwin, D. P.	Bath, shower	May 16, 1854	XVII.
11283	Baldwin, Eden A, (2d,) administrator of Eden Baldwin, deceased.	Fire-arms	July 11, 1854	XIX.
11467	Baldwin, Eden A.	Bridges, tubular	Aug. 8, 1854	IX.
10955	Baldwin, Hiram	Lever, ratchet	May 23, 1854	XII.
	Baldwin, James	Shuttles for weaving cloth	Jan. 31, 1840; extended Jan. 14, 1854.	Extension.
10514	Baldwin, M. W., and David Clark	Heaters, vertical tube feed-water, in locomotive smoke-stacks, arrangement of	Feb. 14, 1854	VI.
10731	Ball, Eastman R.	Bedstead fastenings	April 4, 1854	XVII.
11264	Ball, Jonathan	Water-pipes	July 11, 1854	XI.
11923	Ball, Levi B.	Smut-machines	Nov. 14, 1854	XIII.
11983	Ball, Thomas C., assignor to Nathaniel Lamson	Scythe fastening	Nov. 21, 1854	I.
274	Ball, William	Gold amalgamator	Sept. 9, 1851; reissued Aug. 8, 1854.	Reissue.
276	Ball, William	Pumps for elevating water mixed with mineral substances.	Dec. 23, 1851; reissued Sept. 12, 1854.	Reissue.
10754	Ball, William	Ores, &c., mills for grinding	April 11, 1854	II.
10799	Ballard, James	Gauges, slitting	April 18, 1854	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10854	Ballard, William	Ships' knees	May 2, 1854	VII.
11007	Ballard, William	Ship-frames, bent timbers for	June 6, 1854	VII.
10491	Bancroft, Edward, and Wm. Sellers	Turning-lathes	Feb. 7, 1854	XIV.
11924	Bancroft, William	Cultivators	Nov. 14, 1854	I.
10629	Bard, Edwin M	Ploughs, mould boards of	Mar. 14, 1854	I.
11855	Barker, Joseph	Winnowers, grain	Oct. 31, 1854	I.
11114	Barlow, Thos H	Nail, cut, machines	June 20, 1854	II.
	Barnes, H., and H. Halvorson. (See Halvorson, H., assignor.)			
11804	Barnes, Joseph T	Looms, power	Oct. 17, 1854	III.
11805	Barnum, Daniel	Hat-bodies, machinery for forming	Oct. 17, 1854	III.
	Barr, J. W., *et al.* (See Stouffer, *et al.*)			
10489	Barrows, Ebenezer	Engines, rotary	Feb. 7, 1854; in England, July 3, 1851.	VI.
10980	Barsanter, John H	Knitting-machines	May 30, 1854	III.
	Barstow, A. C & Co., assignees. (See Richmond, Apollos, assignor.)			
10418	Barth, John H	Bedsteads	Jan. 10, 1854	XVII.
10531	Bartholomew, Frederick H	Water-closets	Feb. 14, 1854	XXII.
11113	Bartholomew, Frederick H	Valve-cocks, governing the action of	June 20, 1854	XI.
	Bartlett, Benjamin F. (See Alonzo S. Woodward.)			
10631	Bartlett, Russell D	Shovel-handles, machines for making	Mar. 14, 1854	II.
11288	Bartlett, Russell D	Shovel-handles, machine for making the heads of	July 11, 1854	II.
11465	Bartlett, Russell D	Bricks, machines for making	Aug. 8, 1854	XV.
	Bartlett, S. S., and Jno. E. Brown. (See Brown & Bartlett.)			
10532	Barton, Jason	Bells, horse	Feb. 14, 1854	XXII.
10539	Barton, Jason	Bells, horse, mode of attaching to straps	Feb. 21, 1854	XXII.
10908	Bass, Wm L	Tables for ships' cabins	May 16, 1854	VII.
10537	Bassett, Joel R., assignor to C. H. Williams	Pumps, valves for	Feb. 14, 1854	XI.
11115	Bassett, Mark S	Flour sifter and renovator	June 20, 1854	XIII.
11822	Bassett, Mark S	Sifting and bolting	Oct. 24, 1854	XIII.
11862	Bassford, Abraham	Piano fortes, key for tuning	Oct. 31, 1854	XVIII.
10496	Batchelder, John M., and M. G. Farmer	Telegraphic register, mode of making battery connexion with an electro-magnetic coil on the travelling carriage of a	Feb. 7, 1854	VIII.
11058	Batchelder, John M	Telegraphic wires, insulating	June 13, 1854	VIII.
11744	Batchelder, Thomas	Saws, wood, machines for manufacturing frames of	Oct. 3, 1854	XIV.
10440	Batcheller, Lucien B	Brakes, car, railroad	Jan. 24, 1854	X.
	Bate, Thomas H. (See De Saxe, assignor.)			
	Bate, Thomas H. (See De Saxe, assignor.)			
11925	Bates, Henry	Valves, slide, for the exhaust steam	Nov. 14, 1854	VI.
10425	Bates, Perry G	Hinge, spiral, or worm-joint	Jan. 17, 1854	II.
11407	Bauersfeld, Charles F	Bits for carving-machines	Aug. 1, 1854	II.
11151	Bauman, Jesse	Mills, cider	June 27, 1854	XIII.
10719	Baxendale, James, assignor to J. Baxendale and J. Ferguson.	Printing-cylinders, method of operating the doctors of	Mar. 28, 1854	XVIII.
11593	Bazemore, William T	Cultivators	Aug. 29, 1854	I.
11512	Bazin, James A., assignor to A. B. Ely	Braiding machines	Aug. 8, 1854	III.
11585	Bazin, James A., assignor to A. B. Ely	Cog-gearing	Aug. 22, 1854	XIII.
10823	Bazin, Stephen, and James A	Rope, machinery for laying	April 25, 1854	III.
11543	Beach, Henry H	Winnowers	Aug. 15, 1854	I.
10956	Beach, John	Cheese hoops	May 23, 1854	I.
	Beach, N. E. (See Thomas J. W. Robertson.)			
10979	Beal, William	Crushers, corn	May 30, 1854	XIII.
11715	Beals, Fordyce	Fire-arms	Sept. 26, 1854	XIX.
11152	Beatty, Charles H	Coffee-mills	June 27, 1854	XVII.
10656	Beaumont, Victor	Types, machine for distributing	Mar. 21, 1854	XVIII.
11743	Beaumont, Victor	Gauge, steam	Oct. 3, 1854	VI.
11823	Bedwell, John D	Smut-machines	Oct. 24, 1854	XIII.
11926	Beebe, William	Hot water apparatus, double cylinder boilers for	Nov. 14, 1854	V.
11433	Bee, Benjamin F	Boilers, steam, feed-water apparatus to	Aug. 1, 1854	VI.
11016	Beers, Smith	Turning hubs, &c., method of	June 6, 1854	XIV.
652	Beesley, Jacob, and E. J. Delaney, assignors to Cresson, Stuart, & Peterson.	Stoves, cooking	May 23, 1854	Design.
653	Beesley, Jacob, and E. J. Delaney, assignors to Cresson, Stuart, & Peterson.	Stoves, parlor	May 23, 1854	Design.
677	Beesley, Jacob, assignor to W. P. Cresson & Co	Stoves, bar-room	Nov. 7, 1854; antedated May 7, 1854.	Design.
11927	Bell, Martin, and E. B. Isett	Furnaces for making iron direct from the ore	Nov. 14, 1854	II.
10581	Bell, Solyman	Harvesters	Feb. 28, 1854	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11928	Bell, William	Lamp-caps	Nov. 14, 1854	V.
10466	Benedict, Philander H.	Daguerreotype plate-holder	Jan. 31, 1854	XVIII.
108	Benner, Jacob	Smut-machines	Sept. 11, 1847; additional improvem't, Feb. 14, 1854.	Add'l imp't.
10662	Benton, R P	Spokes, machine for dressing	Mar. 21, 1854	XIV.
10630	Berry, James	Printing-blocks, method of constructing moulds for making.	Mar. 14, 1854	XVIII.
11101	Bevan, John	Ventilator, railroad car	June 13, 1854	V.
11594	Biddle, William	Washing-machines	Aug. 29, 1854	XVII.
11803	Bigelow, E. B.	Loom for weaving cut-pile fabrics	Oct. 17, 1854; in England, December 31, 1851.	III.
10981	Bigelow, Charles H	Wheels, turbine, mode of manufacturing	May 30, 1854	XI.
11 50	Bill, H N. and J. C	Axes, &c., method of securing helves in	July 25, 1854	XIV.
10632	Billings, Charles W	Planters, seed	Mar. 14, 1854	I.
	Bird, H. M., *et al.* (See D. Wilson, assignor)			
11316	Bird, Will E	Boiler, steam	July 18, 1854	VI.
	Bishop, George G., and John Arnold. (See Arnold & Bishop)			
11458	Black, Horatio M.	Grain, machine for cleaning and drying	Aug. 1, 1854	XIII.
11687	Black, William	Engines, steam	Sept. 19, 1854	VI.
10648	Blake, Mansell, assignor to M. Blake, J. B McAlester, and E. Blake.	Blinds, folding	Mar. 14, 1854	IX.
10798	Blake, Philos	Oyster-knife	April 18, 1854	XVII.
253	Blanchard, Cornelius W.	Looms for weaving figured fabrics	Aug. 3, 1852; reissued January 3, 1854.	Reissue.
10497	Blanchard, Thomas	Plough handles and other articles, machines for polishing.	Feb. 7, 1854	I.
	Blatchford, Samuel, administrator. (See Orlando Jones.)			
10540	Bliss, J. W.	Pulleys, window-cord	Feb. 21, 1854	XII.
10663	Bliss, Jeremy W	Jacks, lifting	Mar. 21, 1854	XII.
12018	Blodgett, G. S., and P. T. Sweet	Ovens, for baking	Dec. 5, 1854	V.
10386	Blodget, Sherburn C	Umbrella covers, hemming and cording	Jan. 3, 1854; antedated July 3, 1853.	XXI.
11111	Blondin, Gabriel	Paints, process for treating	June 20, 1854	IV.
11112	Blondin, Gabriel	Paint, composition	June 20, 1854	IV.
11353	Boekten, R., and H. T. Brown	Bottles	July 25, 1854	XXII.
10793	Boggett, Wm., and G. B. Pettit	Gas, heating, warming, and cooking by	April 18, 1854; in England Oct. 22, 1851.	V.
11116	Bonc. Joseph	Winnowers, grain	June 20, 1854	I.
12050	Bonelli, Gaetan	Looms, operating, by electricity	Dec. 12, 1854; in France Aug 15, 1853.	III.
11468	Bonney, William	Process of imitating marble and other substances	Aug. 8, 1854	IV.
10732	Booth, Solomon G	Metal, sheet, machines for corrugating	April 4, 1854	II.
	Booth, W. M., and Chas. Monnin. (See Monnin & Booth.)			
	Bosworth, G. W., *et al.* (See D. Wilson, assignor.)			
10467	Boughton, Enos	Cultivators	Jan. 31, 1854	I.
10830	Bouton, R. M	Faucet	April 18, 1854	XI.
11824	Bowen, Archibald	Separator, straw and grain	Oct. 24, 1854	I.
	Bouker, Jno. P., jr. (See Daniel Harris, assignor.)			
11825	Boyack, Robert	Hemp and flax, machinery for softening	Oct. 24, 1854	III.
10468	Boyd, William	Monuments, mode of fixing likenesses in	Jan. 31, 1854	XVIII.
	Boyden, Joshua, and W. F. Collier. (See W. F. Collier, assignor.)			
11318	Boynton, Leander W	Flocks for felting, machines for preparing	July 18, 1854	III.
11659	Boynton, Leander W	Wool, machines for cleaning	Sept. 12, 1854	III.
11773	Boynton, Leander W	Hat bodies, machinery for making	Oct. 10, 1854	III.
11469	Boynton, Nathaniel A	Stoves, air-heating	Aug. 8, 1854	V.
11545	Boynton, Nathaniel A	Furnace, hot-air	Aug. 22, 1854	V.
12014	Boynton, Osgood G., assignor to Nehemiah Hunt.			
	Bradley, Alexander. (See Harris & Zoiner.)			
	Bradley, Alexander. (See Peter Seibert.)			
11531	Bradley, William	Graters, nutmeg	July 25, 1854	XVII.
11514	Bradshaw, John A.	Boots and shoes, machines for pegging	Aug. 15, 1854	XVI.
11774	Bradshaw, John A	Shingle-machine	Oct. 10, 1854	XIV.
	Bradway, A., and E. Valentine. (See Valentine & Bradway.)			
11018	Brady, Alfred	Vault-covers	June 6, 1854	IX.
11638	Bray, Benjamin	Curtains, &c., window, spring-rollers for	Sept. 5, 1854	XVII.
10983	Breaer, Abel	Wheels, car, fastening the disk and rims of	May 30, 1854	X.

Alphabetical List of Patentees—Continued.

No	Name of patentee.	Invention or discovery.	Date.	Class.
	Breaer, Abel, and G. B. Simonds. (See Simonds & Breaer.)			
11885	Brennan, John B	Locks	Nov. 7, 1854	II.
10419	Brewer, Harvey	Lamps, torch	Jan. 10, 1854	V.
11248	Brewer, John W	Balloons, mooring and managing, arrangement for	July 1, 1854	XI.
11547	Bridendolph, Benjamin	Mills, hominy	Aug. 22, 1854	XIII.
11660	Bridgham, H. C., and James H. Stewart	Books, apparatus for turning the leaves of	Sept. 12, 1854	XVIII.
	Brierly, Thomas, and James H. Jennings. (See James H. Jennings.)			
	Briggs, Joseph, and John Carton. (See Carton & Briggs.)			
11717	Briggs, Schuyler, and John G. Talbot	Yoke, neck	Sept. 26, 1854	I.
	Bright, James, assignee. (See A. P. Morley.)			
11409	Bristol, Richard C	Boiler tubes, steam	Aug. 1, 1854	VI.
11546	Bristol, Richard C	Engines, rotary	Aug. 22, 1854	VI.
10587	Brodhead, James F., assignor to Thomas Ritch	Saw-sets, forcep	Feb. 28, 1854	XIV.
	Bromley, Joseph B., assignee of John P. Avery.			
11515	Brooke, William	Glass moulds	Aug. 15, 1854	XV.
11596	Brooks, Lebbeus	Levels, spirit	Aug. 29, 1854	VIII.
10770	Brooks, Stephen P	Piano-forte, iron frame, upright	April 11, 1854	XVIII.
	Brough, Peter, *et al.* (See Stouffer, *et al.*)			
11886	Broughton, Albert	Stone, machinery for polishing	Nov. 7, 1854; antedated October 24, 1854.	XV.
11302	Brown, Adolphe & Felix	Hat-shapers	July 4, 1854	XVII.
11658	Brown, Alexander H	Brick presses	Sept. 5, 1854	XV.
12051	Brown, B. F	Carriage bodies, hanging	Dec. 12, 1854	X.
11249	Brown, Collins B	Harvester rakes	July 11, 1854	I.
11001	Brown, Charles F	Soundings, deep-sea, instruments for taking	June 6, 1854	VII.
11250	Brown, Charles F	Blasting rocks	July 11, 1854	IX.
	Brown, Daniel B. (See Edward Seymour, assignor.)			
11191	Brown, David, assignor to J. F. Clark and D. Brown.	Metal castings, machines for moulding for	June 27, 1854	II

10943	Brown, Edward, assignor to "The Scovill Manufacturing Company."	Hinges, machines for making	May 16, 1854	II.
11716	Brown, Edward	Goods, elastic	Sept. 26, 1854	XVI.
11352	Brown, Edward W	Looms	July 25, 1854	III.
11856	Brown, Ephraim	Burglars' alarm	Oct. 31, 1854	XXII.
	Brown, H., *et al.* (See Smith, Brown, and Read.)			
	Brown, Henry, and G. Smith. (See Smith & Brown.)			
	Brown, H. T., and R. Boeklen. (See Boeklen & Brown.)			
11470	Brown, Isaac W	Fire-arms	Aug. 8, 1854	XIX.
11317	Brown, Israel F	Gin, cotton, ribs	July 18, 1854	III.
10686	Brown, J. M., assignor to Samuel M. Folsom	Iron, smoothing, rotary	Mar. 21, 1854	XVII.
10982	Brown, John	Hot-water apparatus	May 30, 1854	V.
10464	Brown, John E., and S. S. Bartlett	Mortising machine	Jan. 24, 1854	XIV.
11929	Brown, Job	Cultivators	Nov. 14, 1854	I.
10400	Brown, L. A. and J. W	Veneering, press for	Jan. 10, 1854	XIV.
11826	Brown, Samuel W	Cotton, machinery for cleaning	Oct. 24, 1854	III.
12089	Brown, Samuel W	Condensers	Dec. 19, 1854	VI.
11404	Brown, Thomas	Cables, chain, arrangement of means for working and stoppering.	July 25, 1854; in England April 20, 1847.	VII.
10820	Brown, Thomas W	File or bill holder	April 25, 1854	XXII.
10972	Brown, Thomas W., assignor to Wm. W. Mead	Button-hole cutters	May 23, 1854	XXI.
11595	Bruce, Gardner A	Harvesters, maize	Aug. 29, 1854	I.
11955	Bruce, George	Type, casting	Nov. 14, 1854	XVIII.
11487	Bryent, Walter, assignor to John B. Kelsey	Furnace, air-heating	Oct. 24, 1854	V.
	Buckingham, C. P., and others. (See Jno. C. Reed, assignor.)			
10771	Buell, Julio T	Fish-hooks and artificial flies, attachment for	April 11, 1854	XXII.
10658	Bulkley, Ralph	Fires, compounds for extinguishing	Mar. 21, 1854	IV.
	Bulkley, Ralph	Life-preserver	May 8, 1840; extended May 6, 1854.	Extension.
267	Bulkley, Henry G	Grain dryers	Mar. 2, 1852; re-issued June 27, 1854.	Re-issue.
11907	Bulkley, Henry G.	Evaporators, salt, construction of	July 4, 1854	IV.
11597	Bullard, E. W	Window-blind holder	Aug. 29, 1854	IX.
10570	Bullock, Smith W., assignor to Stillman, Allen, & Co.	Quartz crushers	Feb. 28, 1854	II.
11464	Bullock, William, assignor to Burton G. Morse	Planter, seed	Aug. 1, 1854	I.
11206	Bundy, Galusha J	Potato diggers	July 4, 1854	I.
10945	Burch, Joseph	Ships, constructing, for safety and escape	May 23, 1854	VII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Burden, Henry	Puddle balls or other masses of iron in the manufacture of iron, machinery for rolling.	Dec. 10, 1840; extended Dec. 9, 1854.	Extension.
10533	Burdick, J. L	Books, blank, machinery for paging	Feb. 14, 1854	XVIII.
10822	Burdine, R	Pump, rotary	April 25, 1854	XI.
11319	Burgess, Hugh	Iron, coating with brass or copper	July 18, 1854; in England, Feb. 17, 1854.	II.
	Burgess, Hugh, and Charles Watt. (See Watt & Burgess.)			
643	Burgess, John, assignor to Geer & Co	Stove plates	April 25, 1854	Design.
640	Burleigh, M. C	Stoves, cooking, doors and panels of	April 25, 1854	Design.
	Burnett, Wm., and John Absterdam. (See Absterdam & Burnett.)			
10589	Burnett, Wm	Boilers, steam, arrangement of fusible plugs or disks for.	Mar. 7, 1854	VI.
	Burnham, D. B., and Joseph Frey. (See Frey & Burnham.)			
11688	Burnham, James S	Harvesters, maize	Sept. 19, 1854	I.
11345	Burns, Mary, administratrix of Robert Burns, jr., deceased.	Carriage springs for light vehicles	July 18, 1854; in England, June 7, 1853.	X.
10654	Burrage, Jonathan, assignor to J. Burrage and F. W. Newton.	Varnishes, processes for making	Mar. 14, 1854	IV.
	Burritt, J. C., and W. H. Akins, assignors to W. H. Akins. (See Akins & Burritt.)			
10442	Burt, Enoch	Looms, fancy check	Jan. 24, 1854	III.
10498	Burt, George C., assignor to George C. Burt and David C. Butterfield.	Bristles, machines for cleaning and assorting	Feb. 7, 1854	XVII.
10915	Burt, Henry, assignor to Newark Patent Hosiery Co.	Knitting-machines	May 16, 1854	III.
11238	Burt, Henry, assignor to Newark Patent Hosiery Co.	Knitting-machines	July 3, 1854	III.
11301	Burwell, Alfred	Shoes, &c., machinery for stretching	July 11, 1854	XVI.
10821	Buss, Charles	Fire-arms	April 25, 1854	XIX.
11240	Butterfield, Wm., assignor to W. Butterfield and Edgar M. Stevens.	Sewing-machines	July 4, 1854	III.

	Butterworth, Joshua H., and Jacob D. Woodruff. (See Woodruff & Butterworth.)			
11957	Cadwell, J. W	Boats, canal, arrangement of lever and catch for tow-lines of.	Nov. 14, 1854	VII.
11516	Cahill, John H	Range, hot-air, and side ovens	Aug. 15, 1854	V.
10678	Cameron, David A	Saws, belt	Mar. 21, 1854	XIV.
	Cameron, George S. (See Daniel Moore, assignor.)			
11003	Campbell, Henry R	Railroad tracks and wheels, combination of	June 6, 1854	IX.
10401	Campbell, Leonard	Gins, cotton	Jan. 10, 1854	III.
11848	Campbell, William, assignor to W. Campbell and E. W. Shippen.	Pulleys, bearings for loose	Oct. 24, 1854	XII.
283	Canby, Samuel	Winnowing-machines	Dec. 28, 1852; reissued Nov. 14, 1854.	Reissue.
10665	Cary, Augustus C., and Jeremiah Smith	Hydraulic engine	Mar. 21, 1854	XI.
11413	Carhart, Jeremiah	Metal of unequal thickness, method of uniting plates of.	Aug. 1, 1854	II.
	Carpenter, Cyrus. (See John E Grant, assignor.)			
11661	Carpenter, D	Engines, surface-condensers for marine	Sept. 12, 1854	VI.
11775	Carpenter, Jesse	Rope and cordage, spinning	Oct. 10, 1854	III.
11354	Carpenter, L. B	Lamp-fastenings	July 25, 1854	V.
11777	Carpenter, Samuel	Turning hubs, tool-handles, &c., machine for	Oct. 10, 1854	XIV.
11776	Carpenter, Stephen D	Pump, rotary	Oct. 10, 1854	XI.
10667	Carpenter, Thomas	Hullers, clover, concaves of	Mar. 21, 1854	I.
	Carroll, A. C., *et al.* (See Stephen Woodward, assignor.)			
11192	Carter, Ira	Pump	June 27, 1854	XI.
10775	Carter, Thomas	Planters, seed	April 11, 1854	I.
11414	Carton, John, and Joseph Briggs	Furnaces, hot-air	Aug. 1, 1854	V
10513	Caryl, A. H	Flax, picking and cleaning	Feb. 14, 1854	III.
10882	Casselman, William J	Borer, hub	May 9, 1854	XIV.
11286	Casselman, William J., assignor to E. A. Swan	Stone, &c., marble, machines for carving	July 11, 1854	XV.
10790	Catheart, James L	Propellers, attaching, to the driving shaft	April 18, 1854	VII.
11039	Cann, William	Mills, flouring, cleaning bolts of	June 6, 1854	XIII.
11412	Cayce, William	Locks, door	Aug. 1, 1854	II.
11199	Chadwick, William P	Presses, oil or blubber	July 11, 1854	XII.
10374	Chamberlain, Dexter H., assignor to Chamberlain & Hunt.	Saws, mode of banding pulleys for	Jan. 3, 1854	XIV.
10499	Chamberlain, Dexter H	Bit or drill-stocks	Feb. 7, 1854	II.
10500	Chamberlain, Dexter H	Tool-holders	Feb. 7, 1854	II.
11666	Chamberlain, Dexter H	Screw-wrenches	Mar. 21, 1854	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11633	Chamberlain, Dexter H, assignor to William R. Meshural.	Lamps, lard	Aug. 29, 1854	V.
	Chamberlain, George. (See Arad Woodworth.)			
	Chambers, E. H., and William F. Wilson. (See Washington Spangler, assignor.)			
10359	Champion, Samuel and Thomas	Paddle-wheels, feathering	Jan. 3, 1854	VII.
11322	Champion, Samuel and Thomas	Bridges	July 18, 1854	IX.
11031	Champion, Samuel and Thomas	Paddle-wheels, feathering	June 6, 1854	VII.
11356	Chapin, Thomas F	Plough	July 25, 1854	I.
11741	Chapman, Abner	Paddle-wheels	Oct. 3, 1854	VII.
11472	Chapman, Nathan	Presses, cotton	Aug. 8, 1854	XII.
11930	Chapman, Thomas M	Saws, mill, device for adjusting	Nov. 14, 1854	XIV.
11471	Chapman, William S	Carriages, preventing rattling in	Aug. 8, 1854	X.
	Chase *et al.* (See Allan and Stewart, assignors.)			
	Chase *et al.* (See Gibbs, assignor.)			
10958	Chase, Henry A	Wheels, locomotive, counterpoise to cast	May 23, 1854	X.
10700	Chatfield, Thomas W	Furnaces, hot-air	Mar. 28, 1854	V.
11410	Cherry, G. W	Stone saws	Aug. 1, 1854	XVI.
10515	Chichester, Lewis S	Wool, machine for cleaning	Feb. 14, 1854	III.
10772	Chichester, Lewis S	Flax and hemp, dressing	April 11, 1854	III.
11355	Chichester, Lewis S	Gins, cotton	July 25, 1854	III.
11059	Childs, Samuel	Distilling fatty bodies, stills for	June 13, 1854	IV.
11718	Chilson, Gardner	Heat generator and radiator	Sept. 26, 1854	V.
648	Chinnock, Charles	Clock-case fronts	May 16, 1854	Design.
650	Chinnock, Charles	Clock-case fronts, cast metal	May 23, 1854	Design.
651	Chinnock, Charles	Clock-cases, fronts of cast metal	May 23, 1854	Design.
670	Chinnock, Charles	Clock-case fronts	Oct. 17, 1854	Design.
671	Chinnock, Charles	Clock-case fronts	Oct. 17, 1854	Design.
672	Chinnock, Charles	Clock-case fronts	Oct. 17, 1854	Design.
10563	Chittenden, John W., and William C. Mead	Hoops, splitting, machines for	Feb. 28, 1854	XIV.
12090	Chubb, Thos. J	Metal-separators	Dec. 19, 1854	II.
10855	Churchman, W. H	Heaters, hydraulic	May 2, 1854	V.

10928	Cilley, N. W	Gates, &c., method of hanging	May 16, 1854	IX.
11639	Clarenl, Chas	Pulleys to shafts, attaching	Sept. 5, 1854	XII.
10957	Clark, Alfred T	Sashes, window, mode of balancing	May 23, 1854	IX.
10399	Clark, David	Engines, steam, oil-cups for	Jan. 10, 1854	VI.
	Clark, David, and M. W. Baldwin. (See Baldwin & Clark.)			
12092	Clark, D. W., and S. H. Gray	Pumps, force, double-acting	Dec. 19, 1854	XI.
11015	Clark, Edwin, and James M	Mills, flouring	June 6, 1854	XIII.
11037	Clark, Harrison O	Lathe	June 6, 1854	XIV.
10824	Clark, Henry	Printing-presses, machines for feeding sheets of paper to.	April 25, 1854	XVIII.
11656	Clark, Henry L	Cars, baggage, doors of	Sept. 5, 1854	X.
	Clark, J. F., and D. Brown. (See D. Brown, assignor.)			
11358	Clark, John	Spring and spring-catch for closing doors, arrangement of.	July 25, 1854	II.
11640	Clark, John	Chimney caps	Sept. 5, 1854	V.
11078	Clark, Lyman, assignor to L. Clark and Joseph Sawyer.	Boots, shoes, &c., instrument for trimming welts of	June 13, 1854	XVI.
10387	Clark, Patrick	Boilers, steam, regulating the damper of, by the pressure of the steam.	Jan. 3, 1854	VI.
11030	Clark, Patrick	Boilers, steam, water-level indicator for	June 6, 1854	VI.
12019	Clark, Patrick	Boiler alarms, steam	Dec. 5, 1854	VI.
	Clark, Edward, and J. M. Singer. (See Morey & Johnson.)			
11357	Clark, Wm	Bottles	July 25, 1854	XXII.
12091	Clarke, Major B	Gin, cleaning seed-cotton and feeding it to the	Dec. 19, 1854	III.
	Clampitt & Regester. (See Joshua Regester, assignor.)			
	Clayton, Eli, and George Yates. (See Yates & Clayton.)			
10623	Clegg, Thomas, assignor to Thomas Clegg and Nathaniel Stevens.)	Looms, wire heddle-eyes for	Mar. 7, 1854	III.
11285	Clegg, Thomas, assignor to Clegg & Stevens	Heddle-eyes, wire, machines for making	July 11, 1854	III.
11300	Clemens, S. A	Pumps, valvular, arrangement for diaphragm	July 11, 1854	XI.
11857	Clemson, Wm	Saws, apparatus for tempering and flattening	Oct. 31, 1854	XIV.
10469	Cleveland, William	Pens, fountain	Jan. 31, 1854	XVIII.
11473	Close, Daniel	Planing and sawing machine	Aug. 8, 1854	XIV.
11434	Coats, G. W., and J. Russell	Card teeth, machines for sticking	Aug. 1, 1854	III.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11988	Cochran, J. W.	Quartz-crusher	Nov. 28, 1854; in England, Nov. 21, 1853.	II.
11208	Coes, Aury G.	Screw-wrenches	July 4, 1854	II.
9879	Coggeshall, William T.	Stoves, cooking	April 18, 1854	Design.
	Cole, *et al.* (See Newman, *et al.*)			
	Cole, *et al.* (See Newman, *et al.*)			
	Cole, *et al.* (See Newman, *et al.*)			
11359	Colehamer, George A.	Lubricating compound	July 25, 1854	XII.
11360	Coles, Thomas	Omnibus-step protector	July 25, 1854	X.
11188	Collier, Wm. F., assignor to W. F. Collier and Jos. Boyden.	Printing presses, machines for feeding paper to	June 27, 1854	XVIII.
11146	Collins, S. V., assignor to W. O. Hickok	Ruling paper, mode of setting and holding pens for	June 20, 1854	XVIII.
10361	Collman, John	Ruling machine	Jan. 3, 1854	XVIII.
10388	Collyer, Robert H.	Quartz pulverizer	Jan. 3, 1854	II.
11034	Collyer, Robert H.	Gold amalgamators	June 6, 1854	II.
10565	Colver, Lewis W.	Planters, seed	Feb. 28, 1854	I.
11662	Colver, Nathaniel	Boots and shoes	Sept. 12, 1854	XVI.
10756	Colwell, Stephen	Buildings, iron	April 11, 1854	IX.
11320	Conard, Lewis R.	Valves, block, slide, for steam-engines	July 18, 1854	VI.
10564	Conger, John P.	Salt kilns	Feb 28, 1854	IV.
10541	Connelly, E. G.	Sash-bolt, curved	Feb. 21, 1854	II.
10791	Conner, G. M.	Water-wheel	April 18, 1854	XI.
11689	Conrad, Charles J.	Shingles, method of sawing	Sept. 19, 1854	XIV.
10443	Constant, Silas	Lamps, rosin oil	Jan. 24, 1854	V.
11060	Constant, Silas	Lens lamp chimney	June 13, 1854	V.
11474	Constant, Silas	Lamps, rosin oil	Aug. 8, 1854	V.
10691	Cook, A. J.	Harvesters, discharge apparatus of	Mar. 28, 1854	I.
10358	Cook, Alfred C.	Sawing bevel surfaces, machine for	Jan. 3, 1854	XIV.
10591	Cook, Caleb	Engines, locomotive, arrangement of valve-motion for	Mar. 7, 1854	VI.
10520	Cook, Thomas, assignor to Starkie & Livesay	Fire-arms	Feb. 14, 1854	XIX.
	Cooke, J. R. (See J. Jenkins.)			
10875	Coon, Simeon	Sewing-machines	May 9, 1854	III.

10781	Coons, Matthias P.	Fences, iron	April 18, 1854	II.
11012	Coons, Matthias P.	Fences, wire, rivet clamp for	June 6, 1814	II.
11517	Coons, Matthias P.	Brakes, railroad car	Aug. 15, 1854	X.
11931	Coons, Matthias P.	Fence, multigrade iron	Nov. 14, 1854	II.
10595	Cooper, George W.	Planters, cotton-seed	Mar. 7, 1854	I.
	Cooper, John L. (See Arad Aldrick, assignor.)			
11210	Copeland, A. S. T.	Saw-mill carriages, mechanism for operating	July 4, 1854	XIV.
	Copeland, George A., *et al.* (See Philo Washburn, *et al.*)			
11719	Copeland, George	Loom-harness, clasps for	Sept. 26, 1854	III.
10773	Corliss, Albert G.	Piano-fortes, swell-mute attachments to	April 11, 1854	XVIII.
11663	Cornell, John B.	Shutters, slat, metallic	Sept. 12, 1854	IX.
11720	Corwin, Joseph A.	Knitting-machines	Sept. 26, 1854	III.
10825	Cottam, George H.	Bedsteads, chair, portable folding	April 25, 1854	XVII.
11050	Coutaret, Dominique E.	Acid, sulphuric, manufacture of	June 13, 1854	IV.
	Cowan, Benjamin F. (See George W. Grader.)			
	Cowles, Edward P., and H. A. Harvey, administrators of Thomas W. Harvey, assignors to the Harvey Steel & Iron Company. (See Thomas W. Harvey.)			
	Cox, Hagar & Cox. (See Wm. P. Gray, assignor.)			
11209	Cox, Thomas	Felloes, machine for bending	July 4, 1854	XIV.
10856	Crabtree, John	Engines, steam, adjusting the packing of pistons for	May 2, 1854	VI.
11887	Craig, Robert S.	Traps for animals	Nov. 7, 1854	XXII.
11664	Craig, William	Engines, oscillating	Sept. 12, 1854	VI.
11989	Cram, John	Clothes-horse, towel-stand, or	Nov. 28, 1854	XVII.
	Crandall, Asa, and Nathan Smith. (See Smith & Crandall.)			
11932	Crandall, Horace J.	Docks, dry, sectional, or railway, mode of adjusting the keel-blocks of.	Nov. 14, 1854	IX.
12020	Crandall, Horace J.	Sails, top, arrangement for reefing	Dec. 5, 1854	VII.
12093	Crandall, Horace J.	Docks, bilge supporters for holding vessels in	Dec. 19, 1854	IX.
10360	Crandall, Isaac	Wagons, &c., running-gear of	Jan. 3, 1854	X.
11518	Crane, Aaron D.	Forms, irregular, machines for turning	Aug. 15, 1854	XIV.
	Crane, Aaron D.	Clocks, improvements in the method of constructing.	Feb. 10, 1841; antedated Dec. 22, 1840; extended Dec. 15, 1854.	Extension.
11990	Crawford, A. B.	Clover hullers	Nov. 28, 1854	I.
11117	Crawford, Benjamin	Engines, high-pressure steam	June 20, 1854	VI.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11742	Cresson, Chas. M.	Gas retorts, form of	Oct. 3, 1854	IV.
	Cresson, W. P., & Co. (See Beesley, Jacob.)			
	Cresson, W. P., & Co. (See Stuart, David.)			
	Cresson, *et al.* (See Allan & Stuart, assignors.)			
	Cresson, *et al.* (See Allan & Stuart, assignors.)			
	Cresson, *et al.* (See Beesley & Delaney, assignors.)			
	Cresson, *et al.* (See Beesley & Delaney, assignors.)			
	Cresson, *et al.* (See Joseph Stuart, assignor.)			
	Cresson & Co. (See Teal & Tyler, assignors.)			
	Crever, J. A., and O. Newton. (See Newton & Crever.)			
12052	Cridge, Matthew, and Samuel Wadsworth	Engines, steam, oscillating	Dec. 12, 1854	VI.
273	Crocker, Samuel L.	Cut-nails from Muntz metal	April 17, 1849; reissued August 1, 1854.	Reissue.
11933	Crompton, George	Looms for weaving figured fabrics	Nov. 14, 1854	III.
11956	Crompton, George, and M. A. Furbush	Looms, rollers for pattern chains	Nov. 14, 1854	III.
	Crompton, William, assignor to Furbush & Crompton	Looms, power	Nov. 25, 1837; extended & reissued Sept. 13, 1853; disclaimer entered Feb 1, 1854.	Disclaimer.
10501	Crook, John J.	Tin foils or sheets	Feb. 7, 1854	II.
11265	Crosby, Harvey & S. E.	Cistern arches, arch boards for, mode of arranging	July 11, 1854	IX.
10878	Crosby, Heman, jr.	Sewing-machines	May 9, 1854	III.
	Cross, J., and J. B. Larwell. (See Larwell & Cross.)			
10633	Cross, Joshua	Faucets for measuring liquids	Mar. 14, 1854	XI.
11153	Cross, S. Oscar	Grape-frame	June 27, 1854	I.
11038	Crossley, Thomas	Weaving cut-pile fabrics	June 6, 1854	III.
11118	Crossley, Thomas	Printing woolen and other goods, machine for	July 18, 1854	XVIII.
11321	Crossley, Thomas	Printing-blocks, method of making	July 18, 1854	XVIII.
11564	Crossley, Thomas	Carpets, two-ply, manufacturing	Aug. 22, 1854	III.
11634	Crowell, James E., assignor to J. E. Crowell, E. Smith, and C. T. Stickney.	Dressing ship timber, machine for	Aug. 29, 1854	XIV.

12021	Crowell, Joseph D.	Steering apparatus	Dec. 5, 1854	VII.
11211	Crozier, Archibald H.	Barrels, machine for creasing and bevelling	July 4, 1854	XIV.
11247	Crozier, C. W.	Camphor-wash mixtures	July 11, 1854	IV.
12053	Cumberland, William W.	Metal, machines for bending	Dec. 12, 1854	II.
10403	Cummings, D. M.	Mortising frames and window blinds, machinery for	Jan. 10, 1854	XIV.
11519	Cummings, D. M.	Rakes	Aug. 15, 1854	I.
	Cunningham, James V., and James J. Johnston.—(See Johnston & Cunningham.)			
10444	Cunningham, William	Washing-machines	Jan. 24, 1854	XVII.
	Curtis, F. & Co. (See John Williams, assignor.)			
10959	Curtis, James	Mill, wind	May 23, 1854	XIII.
11212	Currier, Thomas W.	Bedsteads, cribs, and sofas	July 4, 1854	XVII.
11411	Cushman, E. and J. R.	Drying thick paper	Aug. 1, 1854	V.
10476	Cutler, T. O.	Quartz-crushers	Jan. 31, 1854	II.
12054	Cutler, T. O.	Mineral and other substances, machines for crushing and grinding.	Dec. 12, 1854; in England, January 23, 1854.	II.
11213	Cutting, James A.	Photographic pictures, the preparation of collodion for.	July 4, 1854	XVIII.
11266	Cutting, James A.	Photographic pictures, compositions for making	July 11, 1854	XVIII.
11267	Cutting, James A.	Photographic pictures on glass	July 11, 1854	XVIII.
11475	Cutting, Lewis	Speeders, stop-motion for	Aug. 8, 1854	III.
10324	Daboll, Charles M., assignor to C. M. and A. P. Daboll.	Brace-stocks, catch for holding the bit in	May 16, 1854	II.
11778	Dale, John D.	Planing-machines	Oct. 10, 1854	XIV.
	Dalrymple, W., executor of Samuel Sawyer, deceased. (See Samuel Sawyer.)			
11193	Dalson, A. F.	Evaporators, milk and other	June 27, 1854	IV.
11721	Dame, John	Parrel and bows	Sept. 26, 1854	VII.
10833	Damerel, William	Locks, door, extension bit guard-key for	May 9, 1854	II.
10926	Dana, Charles H.	Potato-diggers	May 16, 1854	I.
11361	Dana, Charles H.	Cultivator	July 25, 1854	I.
11641	Dana, Charles H.	Planters, seed	Sept. 5, 1854	I.
12055	Danforth, Charles	Cotton, throstles for spinning	Dec. 12, 1854	III.
10961	Danforth, Loring	Book-covers, machines for making	May 23, 1854	XVIII.
	Daniels, Reuben	Cloth, machine for reducing worn out cloths and silks of various kinds to the fibrous state, so as to be capable of being manufactured into.	Oct. 10, 1840; extended September 29, 1854.	Extension.
11888	Daniels, Reuben	Wheels, water, improved joint in	Nov. 7, 1854	XI.
10649	Daniels, Westel S.	Obstetrical supporters	Mar. 14, 1854	XX.
11521	Darling, Cook	Hubs to axles, mode of securing	Aug. 15, 1854	X.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10402	Darling, Daniel S	Dust, preventing, from entering railroad cars	Jan. 10, 1854	V.
11246	Darling, Martin V. B	Engines, steam, slide-valve motion of	July 11, 1854	VI.
12045	Darracott, Franklin, assignor to Geo. Darracott	Gas, dry, meters	Dec. 5, 1854	IV.
11462	Daser, Louis	Planters, seed	Sept. 5, 1854	I.
10679	Daugherty, Thomas	Lasts, shoe	Mar. 21, 1854	XVI.
11453	Daugherty, Thomas	Lasting instruments	Aug. 1, 1854	XVI.
11961	David, Henry Farson	Pans, sauce	Nov. 21, 1854	XVII.
10788	Davis, Ari	Box-machine	April 18, 1854	XIV.
11415	Davis, Ari	Electric, magneto, machines	Aug. 1, 1854	VIII.
10960	Davis, Elias	Press power, self-acting	May 23, 1854	XII.
10902	Davis, Francis, assignor to J. M. Reed	Jacks, screw	May 9, 1854	XII.
11690	Davis, John	Telegraphic keys	Sept. 19, 1854	VIII.
11476	Davis, Joseph H	Pigments, manufacturing, from iron ore	Aug. 8, 1854	IV.
10502	Davis, Lewis S	Collars, horse, blocks for	Feb. 7, 1854	XVI.
10566	Davis, Robert W	Churns	Feb. 28 1854	I.
	Davis, Thomas T., and others. (See Sam'l B. Howd.)			
11032	Davis, Waitman	Planters, seed	June 6, 1854	I.
10470	Davis, William O	Presses for moulding glass	Jan. 31, 1854	XII.
10426	Davison, F	Pumps, saliva	Jan. 17, 1854	XX.
11889	Davison, Ferdinand	Stone-drilling machines	Nov. 7, 1854	XV.
11119	Day, Benjamin F	Engines, steam	June 20, 1854	VI.
11520	Day, B. Franklin	Press, hand	Aug. 15, 1854	XVIII.
11022	Day, Edward P	Print subscribers' names, &c., on newspapers, machine to	June 6, 1854	XVIII.
11477	Day, Joseph C	Fire-arms	Aug. 8, 1854	XIX.
10884	Dean, Heman H	Felloe machine	May 9, 1854	XIV.
	Dean, Horace C. (See Alonzo S. Woodward)			
10920	Dederick, Levi	Presses, hay and cotton	May 16, 1854	XII.
11043	Dederick, Levi	Presses, hay	June 6, 1854	XII.
11014	Deegan, Ross	Streets, machine for cleaning and watering	June 6, 1854	XXII.
11746	Deering, Richard, sr	Stone-saws, circular	Oct. 3, 1854	XV.
	Delaney, E. J, and J. Beesley. (See Beesley and Delaney, assignors.)			
	Delaney, E. J., and J. Beesley. (See Beesley and Delaney, assignors.)			
10471	Denney, Samuel L	Axles, railroad, divided	Jan. 31, 1854	X.
11214	Dennis, Dexter	Hats, finishing palm-leaf	July 4, 1854	III.
10415	Dennis, John H	Beehives	Jan. 24, 1854	I.
11522	Dennison, Aaron L	Punches and dies for punching watch-hands	Aug. 15, 1854	II.
11416	Deputy, H. C	Vessels, draughting and modelling	Aug. 1, 1854	VII.
10381	Desbeaux, Claude	Books, apparatus for turning leaves of	Jan. 3, 1854	XVIII.
10503	Deschamps, F. O	Omnibus registers	Feb. 7, 1854	X.
11362	Deuble, George	Clocks, steeple, striking part of	July 25, 1854	VIII.
11745	Devlan, Patrick S	Brick-machines	Oct. 3, 1854	XV.
11827	Devlan, Patrick S	Chairs for round rails	Oct. 24, 1854	IX.
10794	De Saxe, Charles, assignor to Thomas H. Bate	Fishing-rods and floats	April 18, 1854	XXII.
10795	De Saxe, Charles, assignor to Thomas H. Bate	Landing-net for anglers	April 18, 1854	XXII.
635	De Zouche, Isaac, assignor to Louis Potter	Stoves, &c, panel ornament for	Mar. 14, 1854	Design.
675	De Zouche, Isaac	Brackets	Oct. 31, 1854	Design.
11593	Dickey, Julius C	Saddle trees, fastening skirts to	Aug. 29, 1854	XVI.
	Dickinson, Charles, and William Hattersley. (See Hattersley and Dickinson.)			
11363	Dickinson, Charles W	Dies, finishing, in machines for making rings from sheet-metal.	July 25, 1854	II.
10487	Dickinson, Isaac L	Churns	Jan. 31, 1854	I.
11665	Dickson, Perry	Millstone dress	Sept. 12, 1854	XIII.
10362	Dillehay William S	Straw-cutters	Jan. 3, 1854	I.
10361	Dimpfel, F. P	Boiler, steam, furnaces	Jan. 3, 1854	VI.
10786	Dixwell, Basil, and J. A. Dorr	Gas regulators	April 18, 1854	V.
	Dodd, B., *et al.* (See William Lyon, assignor.)			
11061	Dodge, Nathaniel	Tanning apparatus, construction of	June 13, 1854	XVI.
11154	Dodge, Thomas H	Gas and liquid regulators	June 27, 1854	IV.
11361	Dole, L. A	Lathe-chuck, arrangement for	July 25, 1854	XIV.
10363	Donlevy, John	Printing, polychromatic, method of forming plates for	Jan. 3, 1854	XVIII.
11048	Donovan, D, administrator of W. G. Hallman and D. Donovan, assignors to Henry J. White.	Range, cooking	June 6, 1854	V.
	Doran, M. W. E., and W. H. Morrison. (See Morrison & Doran.)			
	Dorr, J. A., and B. Dixwell. (See Dixwell & Dorr.)			
661	Douglass, William and Benjamin	Well-curbs	July 11, 1854	Design.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11722	Drayton, John	Bedstead fastenings	Sept. 26, 1854	XVII.
11239	Drayton, Thomas, assignor to Geo. W. McCready, jr.	Oil, purifying	July 4, 1854	IV.
10446	Driggs, Spencer B	Piano-fortes, attachment to	Jan. 24, 1854	XVIII.
11021	Dudley, Samuel H	Scrapers, road	June 6, 1854	IX.
11599	Dudrey, J. B	Stave-machine	Aug. 29, 1854	XIV.
11600	Dudrey, J. B	Stave-machine	Aug. 29, 1854	XIV.
257	Dugdale, Samuel G	Gates, opening and closing, apparatus for	Oct. 11, 1853; re-issued Jan. 31, 1854.	Re-issue.
110	Dugdale, Samuel G	Gates, apparatus for opening and closing	Oct. 11, 1853: re-issued Jan. 31, 1854; additional improvem't Mar 7, 1854.	Additional improvem't.
11828	Dulaney, George L	Mill-bushes	Oct. 24, 1854	XIII.
	Dunham, A. T. & Co. (See —— Vedder, assignor.)			
11779	Dunham, Edwin G	Drill, rock	Oct. 10, 1854	XV.
10733	Eakins, Benjamin	Valve-cock	April 4, 1854	XI.
11548	Earle, Absalom B	Straw cutters	Aug. 22, 1854	I.
11829	Earle, Absalom B	Planters, seed	Oct. 24, 1854	I.
11420	Earle, John E	Compasses and callipers	Aug. 1, 1854	VIII.
11643	Eastman, Augustus M	Ribbon of strips of cloths, making	Sept. 5, 1854	III.
	Easterly, D. L. (See Schuyler & Zern, assignors.)			
10567	Eaton, A. K	Ores, pulverizing, machines for	Feb. 28, 1854	II.
10734	Eaton, A. K	Gold and silver, amalgamating	April 4, 1854	II.
660	Eaton, Harrison, assignor to James Hartshorne and W. Ames.	Stove, cooking	July 11, 1854; antedated June 20, 1854.	Design.
	Eaton, Samuel A., John F. Augustus, and D. F. Mellen. (See Dustin F. Mellen, *et al.*)			
10925	Eaton, Ward	Glaziers' points, machines for cutting	May 16, 1854	II.
11194	Eberhardt, Jonas	Archil, preparation of	June 27, 1854	IV.
112	Eccles, Samuel and James	Looms	Aug. 3, 1852; additional improvement Aug. 1, 1854.	Additional improvem't.
11780	Eckert, Augustus	Bells, alarm, magnetic	Oct. 10, 1854	XXII.
11691	Eddy, Henry	Beehives	Sept. 19, 1854	I.

10941	Edmondson, Joseph, and C. Haworth, executors of T. Edmondson, deceased.	Case for holding railway and other tickets	May 16, 1854	X.
10947	Edmondson, Joseph, and C. Haworth, executors of T. Edmondson, deceased.	Printing railway and other tickets, machine for	May 23, 1854	XVIII.
10746	Edson, Jacob	Pumps	April 4, 1854	XI.
10855	Edson, Jacob	Pumps	May 9, 1854	XI.
11417	Efferenn, John J	Sawing fire-wood, machine for	Aug. 1, 1854	XIV.
11215	Eisenbrandt, C. H	Musical instruments, valve for wind	July 4, 1854	XVIII.
10774	Elgar, John	Hinges, door	April 11, 1854	II.
11991	Eliaers, Augustus	Seats for public buildings	Nov. 28, 1854	IX.
11806	Elliot, Joseph D	Water meter	Oct. 17, 1854	XI.
11692	Elliott, William G	Slag ware, making	Sept. 19, 1854	II.
11156	Ellis, J. A. H., and Alexander Gordon	Capstans, reversible	June 27, 1854	VII.
11323	Ellis, J. A. H., and Alexander Gordon	Excavating machines, mode of operating	July 18, 1854	IX.
11549	Ellis, William M	Engine, steam, arrangement of the	Aug. 22, 1854	VI.
10812	Ells, Josiah	Fire-arms, revolving	April 25, 1854	XIX.
11419	Ells, Josiah	Fire-arms, revolving breech	Aug. 1, 1854	XIX.
10692	Ellsworth, H. G	Belt clasps for machinery	Mar. 28, 1854	XII.
	Ely, A. B. (See Bagin, assignor.)			
	Ely, A. B. (See Bagin, assignor.)			
	Ely, A. B. (See F. C. Goffin.)			
	Ely, A. B. (See F. C. Goffin.)			
	Ely, A. B. (See F. C. Goffin, assignor.)			
	Ely, A. B. (See F. C. Goffin, assignor.)			
11046	Ely, H., assignor to S. P. Ely	Drying flour	June 6, 1854	V.
10775	Emerson, R. H	Cars, earth	April 11, 1854	X.
11418	Emmons, Phineas	Crackers, machines for moulding	Aug. 1, 1854	XVII.
10389	Englebrecht, Theodore F	Hinges, spring, double-acting	Jan. 3, 1854	II.
11023	English, Francis M	Whiffle-trees	June 6, 1854	X.
10881	Enoch, George T., and Daniel Wissinger	Planters, seed	May 16, 1854	I.
11325	Enos, Roswell	Tanning	July 18, 1854	XVI.
11324	Erdle, Jacob	Windmill	July 18, 1854	XI.
10634	Espenchade, Frederick	Locomotives, exhaust-pipes of, tapering nozzles to the.	Mar. 14, 1854	VI.
11155	Esterly, George	Harvesters, grass	June 27, 1854	I.
	Eunson, R. G., and Jno. Myers. (See Myers & Eunson.)			
11854	Evarts, Harry H., assignor to himself and A. J. Brown.	Shingle machine	Oct. 31, 1854	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11436	Everett, Eliza A., and S. T. Thomas, administrators of Edward Everett, deceased.	Yarns, warping and dressing	Aug. 1, 1854	III.
	Everett, Eliza Ann, administratrix of E. Everett, deceased. (See S. T. Thomas.)			
11962	Everitt, Chas. G	Metal boxes, sheet, machine for closing	Nov. 21, 1854	II.
11601	Ewing, O. G	Ploughs	Aug. 29, 1854	I.
11062	Fans, Anthony	Accordeons	June 13, 1854	XVIII.
10640	Fagin, Lewis	Smut machines	Mar. 14, 1854	XIII.
10796	Fairchild, J. H., and Sylvanus Richardson	Potato-washing machine	April 18, 1454	XVII.
10984	Fairchild, J. H	Hooks and eyes	May 30, 1854	XXI.
	Fairman, Simon	Lathes, chuck for, expanding or contracting, or universal.	July 18, 1840; extended July 17, 1854.	Extension.
11603	Fanning, Richard	Saws, cross-cut, method of grinding	Aug 29, 1854	XIV.
10735	Farley, Henry W	Railroad frog-guards	April 4, 1854	IX.
10857	Farley, Henry W	Engines, locomotive, means for adjusting the valves of	May 2, 1854	VI.
	Farmer, M. G., and J. M. Batchelder. (See Batchelder & Farmer.)			
10886	Farr, Chas. K	Cultivators	May 9, 1854	I.
11454	Farr, Chas. K	Cultivator	Aug. 1, 1854	I.
	Farr & Thompson. (See Mansure, assignor.)			
11602	Fawkes, Joseph W	Manure and lime spreaders	Aug. 29, 1854	I.
10472	Fay, Cyrus J	Presses, cotton	Jan. 31, 1854	XII.
11120	Fay, Samuel	Weaving double cloth	June 20, 1854	III.
11932	Felter, Fletcher	Paddle-wheels, feathering	Nov. 28, 1854	VII.
10817	Field, Frederick	Bridges, travelling	April 25, 1854	IX.
10623	Field, George B	Cultivators, rotary	Mar. 14, 1854	I.
10789	Field, Samuel J	Painting window blinds, &c., apparatus for	April 18, 1854	XVIII.
10494	Fillmore, Charles W	Clamps for holding steel plates while being hardened and tempered.	Jan. 10, 1854	II.
10857	Fisk, Albert	Bridges	May 9, 1854	IX.
11216	Fiskle, William	Mill-stone dress	July 4, 1854	XIII.
10607	Fisher, Luther B	Planters, seed	Mar. 7, 1854	I.

10694	Fisher, Luther B	Planters, seed	Mar. 28, 1854	I.
11365	Fishwick, James and John	Saws, mode of driving and straining	July 25, 1854	XIV.
11478	Fisk, George C	Boards, device for grooving	Aug. 8, 1854	XIV.
11313	Fiske, Orin W	Board, paste, machinery for making	July 11, 1854	XVIII.
10695	Fitts, Benaiah	Boilers, steam, feed-water apparatus for	Mar. 28, 1854	VI.
	Fitts, Robert B., and —— Whipple. (See M. D. and L. W. Whipple.)			
12094	Fitzgerald, Daniel, Thomas Rogers, and William C. Walker.	Boats, ferry, guards for	Dec. 19, 1854	VII.
	Fitzgerald, W. P. N. (See Allen B. Wilson, assignor.)			
10693	Fitzhugh, Benjamin G	Harvesters of grain	Mar. 28, 1854	I.
	Fitzpatrick, Wm., and Joseph Iler. (See Iler & Fitzpatrick.)			
	Flanagan, John, and Daniel Ryan. (See Ryan & Flanagan.)			
10801	Flanders, David and Samuel K	Fly-trap	April 18, 1854	XXII.
11604	Flanders, Jos. F., and Jeremiah A. Marden	Leather-splitting machines	Aug. 29, 1854	XVI.
10736	Flanders, Phanuel	Winnowers, cranberry	April 4, 1854	I.
11013	Flanders, W. A	Moth-killer	June 6, 1854	I.
11366	Folsom, Charles	Tables, reading	July 25, 1854	XVII.
	Folsom, Samuel M. (See J. M. Brown, assignor.)			
10668	Fondé, Charles H., and Thomas B. Lyons	Dredging-machines	Mar. 21, 1854	IX.
11268	Foote, George F	Ventilating railroad cars	July 11, 1854	V.
11605	Forbes, J. T	Bedsteads for invalids	Aug. 29, 1854	XVII.
11217	Forbes, Robert B	Lightning-rods for vessels	July 4, 1854	VIII.
11830	Ford, Ebenezer	Granaries	Oct. 24, 1854	I.
10782	Forsythe, Thomas P	Cloth, machines for winding and folding	April 18, 1854	III.
10554	Foster, James, jr., assignor to Platt Evens, jr	Presses, seal	Feb. 21, 1854	XII.
10542	Foster, John T	Stone-picking machines	Feb. 21, 1854	XV.
11859	Foster, Junius	Burglars' alarm	Oct. 31, 1854	XXII.
11644	Foster, William H	Sails, top, from the deck of the vessel, arrangement for reefing and furling.	Sept. 5, 1854	VII.
11781	Fowler, Thaddeus	Sewing-pin	Oct. 10, 1854	XXII.
10888	Fox, Charles R	Saw-mill carriage, journal box for	May 9, 1854	XIV.
271	Fox, Charles R	Sawing-machines	May 9, 1854; reissued July 18, 1854.	Reissue.
1479	Frary, Orange N	Melodeons	Aug. 8, 1854	XVIII.
1963	Freeland, James	Valve-gear for locomotive engines	Nov. 21, 1854	VI.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
107	Freeman, Edmund L	Bog-cutters	June 21, 1853; additional improvem't Jan. 3, 1854.	Addt'l imp't.
11245	French, Elisha	Coal sifter	July 11, 1854	V.
	French, Ephraim, and J. Holmes. (See Holmes & French.)			
12056	French, G. W., and William Wagstaff	Vermin, method of destroying	Dec. 12, 1854	XXII.
11218	Frey, Joseph, and D. B. Burnham	Battery, sub-marine	July 4, 1854	IX.
10903	Frisbee, Hiram	Lath-machine	May 16, 1854	XIV.
668	Fry, Henry, assignor to Samuel Maxwell	Traps, mole	Sept. 12, 1854	Design.
11270	Fry, Robert T	Ink-stands, the construction of	July 4, 1854	XVIII,
11693	Fulghum, Benjamin	Sawing-machine	Sept. 19, 1854	XIV.
11277	Fullerton, William H	Hackling corn-husks	July 11, 1854	III.
11480	Fulton, John G	Packing-machines, salt	Aug. 8, 1854	XII.
	Furbush, M. A. (See George Crompton.)			
	Furbush, M. A., and George Crompton. (See Wm. Crompton, assignor.)			
12095	Gage, John S	Harvesters, clover	Dec. 19, 1854	I.
11372	Gaines, E. P	Mill-stone dress	July 25, 1854	XIII.
11367	Gale, Alanson	Mowing-machine	July 25, 1854	I.
10592	Gale, Warren	Straw cutters	Mar. 9, 1854	I.
11667	Gale, Warren	Straw-cutters	Sept. 12, 1854	I.
	Gallaher, J. J., and R. H. Harrison. (See R. H. Harrison, assignor.)			
11933	Gallagher, C. B	Motion, converting reciprocating into rotary	Nov. 28, 1854	XIII.
10858	Gallagher, John	Cutter for metallic bars and rods	May 2, 1854	II.
11287	Gallahue, A. C	Boots and shoes, machines for pegging	July 11, 1854	XVI.
10685	Gardiner, Heman	Quartz crushers	July 4, 1854	II.
11219	Gardiner, Heman	Quartz crushers	Mar. 21, 1854	II.
11368	Gardiner, Samuel, jr	Ores, &c., machinery for crushing and pulverizing	July 25, 1854	II.
	Gardiner, W. A. (See Loomis, Joseph G.)			
10669	Garlington, J. L	Grain threshers	Mar. 21, 1854	I.
10603	Gaston, J. C	Planters, seed	Mar. 7, 1854	I,

12057	Gates, Moses	Hoes	Dec. 12, 1854	I.
11606	Gates, Nelson	Hinges, cast	Aug. 29, 1854	II.
10737	Gates, Wm. jr., and H. J. Harwood	Matches, friction, machines for making	April 4, 1854	IV.
11860	Gates, Wm. jr	Match-frames, machine for filling	Oct. 31, 1854	IV.
11666	Gatley, Joseph	Pumps, &c., rotary, piston or valve for	Sept. 12, 1854	XI.
10889	Gavitt, Nelson	Paper, machinery for cutting	Mar. 9, 1854	III.
	Geer & Co. (See John Burgess, assignor.)			
11481	Gemmil, John	Radiators	Aug. 8, 1854	V.
11269	Gengembre, H. P	Cement of boiled coal-tar and earth	July 11, 1854	IV.
11298	Genung, Robert W	Jacks, lifting	July 11, 1854	XII.
	George, D. J., and N. Millington. (See Millington & George.)			
11203	Gesner, Abraham, assignor to the Asphalte Mining and Kerosene Gas Co.	Kerosene burning fluids, A	June 27, 1854	IV.
11204	Gesner, Abraham, assignor to the Asphalte Mining and Kerosene Gas Co.	Kerosene burning fluids, C	June 27, 1854	IV.
11205	Gesner, Abraham, assignor to the Asphalte Mining and Kerosene Gas Co.	Kerosene burning fluids, B	June 27, 1854	IV.
11523	Gibbs, Joshua	Ploughs	Aug. 15, 1854	I.
647	Gibbs, S. W., assignor to North, Chase & North	Ranges, summer, doors of gas-ovens or	May 9, 1854	Design.
11369	Gibson, Abram J	Vehicles	July 25, 1854	X.
11124	Gibson, Abram J	Vehicles, mode of attaching thills and poles to	Aug. 1, 1854	X.
11425	Gibson, Abram J	Vehicles, mode of attaching whiffletrees to	Aug. 1, 1854	X.
11668	Gibson, A. J	Carriages, coupling for	Sept. 12, 1854	X.
10390	Gilbert, Banford	Corn-shellers	Jan. 3, 1854	I
11281	Gillett, Thos. W., assignor to John Matthews	Bottles, corking, apparatus for	July 11, 1854	XXII.
	Gilson, R. H., and J. L. Rowley. (See —— Rowley, assignor.)			
11645	Ginn, Jonathan C	Rigging, machinery for worming	Sept. 5, 1854	VII.
11739	Gitchell, D. W., assignor to John C. Wagstaff	Felt garments, seamless, uniting bats for making	Sept. 26, 1854	III.
10543	Glading, William P	Oar-locks	Feb. 21, 1854	VII.
10816	Glass, George W	Wheels, cast-iron car	April 25, 1854	X.
11121	Gleason, F. A	Musical instruments, reed, construction of	June 20, 1854	XVIII.
117	Gleason, F. A	Musical instruments, reed, the construction of	June 20, 1854; additional improvement Nov. 14, 1854.	Addt'l imp't.
11221	Gleason, Joel	Milk-strainer	July 4, 1854	XVII.
11607	Gleason, John	Valves, slide, for steam-engines	Aug. 29, 1854	VI.
10555	Gledhill, John	Hair, treating, for weaving	Feb. 21, 1854	III.
11421	Glover, W. R	Pen	Aug. 1, 1854	XVIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10559	Goddard, Curtis	Bed-pins, machine for making	May 2, 1854	XIV.
10405	Goffin, F. C., assignor to A. B. Ely	Vault and safe doors, attaching cross-bar fastenings to	Jan. 10, 1854	II.
10620	Goffin, F. C., assignor to A. B. Ely	Locks, safe	Mar. 21, 1854	II.
263	Goffin, F. C., assignor to A. B. Ely	Safes, fire and burglar-proof	Feb. 14, 1854; reissued April 25, 1854.	Reissue.
11190	Goffin, F. F., assignor to Alfred B. Ely	Vaults, safes, and banks, powder-channel to doors of	June 27, 1854	II.
10517	Goffin, F. C	Safes, fire and burglar-proof	Feb. 14, 1854	II.
11423	Gold, B. F	Buildings, lathing	Aug. 1, 1854	IX.
11747	Gold, Stephen J	Warming houses by steam	Oct. 3, 1854	V.
12058	Good, John	Coffins	Dec. 12, 1854	XXII.
10536	Goodman, Allen, and Lyman Wheeler	Veneer, machine for scraping and toothing	Feb. 14, 1854	XIV.
	Goodrich, Seavey, & Co. (See Stafford.)			
10729	Goodwin, Lorenzo D	Water-wheels	April 4, 1854	XI.
10738	Goodyear, Charles	Gums, vulcanizable, treating	April 4, 1854	IV.
10680	Goodyear, E. D. S., assignor to New York India-rubber Company.	India-rubber, processes for treating	Mar. 28, 1854	IV.
11694	Goolman, William P., and Samuel Morris	Staging, portable	Sept. 19, 1854	IX.
	Gordon, Alexander, and J. A. H. Ellis. (See Ellis & Gordon.)			
	Gordon, Alexander, and J. A. H. Ellis. (See Ellis & Gordon.)			
11064	Gordon, George P	Printing-press	June 13, 1854	XVIII.
11370	Gore, Ezekiel	Butter workers	July 25, 1854	XVII.
11783	Gossen, Benjamin F	Chair, machinery, railroad	Oct. 10, 1854	IX.
11782	Gossin, Louis A	Sugar-making apparatus, construction of	Oct. 10, 1854	IV.
12096	Grader, George W., and Benjamin F Cowan	Mills, grain	Dec. 19, 1854	XIII.
10044	Graham, Edmund H., assignor to E. Graham and Artemas Wheeler.	Guns, magazine	May 16, 1854	XIX.
11724	Graham, Wm., and L. McLaren	Car-seats, railroad	Sept. 26, 1854	X.
11770	Grant, John E., assignor to Cyrus Carpenter and A. D. Shaw.	Furnaces, hot-air	Oct. 3, 1854	V.
11455	Grant, Robert	Hydraulic press	Aug. 1, 1854	XI.

11785	Grant, Robert	Brakes for checking and starting cars	Oct. 10, 1854	IX.
11587	Graves, Benjamin F., assignor to Wm. C. Knowlton.	Boring recesses for casters, &c., tool for	Aug. 22, 1854	XIV.
12022	Gray, Joshua	Pump, rotary	Dec. 5, 1854	XI.
10571	Gray, Michael M	Chair, railroad, machines	Feb. 28, 1854	IX.
	Gray, S. H. (See D. W. Clark.)			
11582	Gray, Solomon S., assignor to S. S. Gray and S. A. Woods.	Planing lumber "out of wind," machine for	Aug. 22, 1854	XIV.
674	Gray, Wm. P., assignor to Cox, Hagar, & Cox	Stove, cooking	Oct. 17, 1854	Design.
11042	Green, Edwin J	Buggies, joint-bodied	June 6, 1854	X.
11063	Green, Ely H	Axle, carriage	June 13, 1854	X.
11890	Green, Jacob	Glass furnaces	Nov. 7, 1854	XV.
11297	Green, Joel	Sealing cans, apparatus for	July 11, 1854	XXII.
	Green, Parley G., and W. Shaw. (See Shaw & Green.)			
10657	Greene, Henry	Harvesters, grain and grass	Mar. 21, 1854; antedated Sept. 21, 1853.	I.
10391	Greene, J. Durell	Fire-arms, breech-loading	Jan. 3, 1854	XIX.
11157	Greene, J. Durell	Fire-arms, breech-loading	June 27, 1854; in England, May 12, 1854.	XIX.
11964	Greene, Samuel	Cards of carding engines, cleaning	Nov. 21, 1854	III.
	Greenhalgh, Wm., and H. Skinner. (See Skinner & Greenhalgh.)			
10916	Greenleaf, A	Water-wheel	May 16, 1854	XI.
11296	Greenleaf, A	Wheel, water, impact	July 11, 1854	XI.
10427	Greenough, John J	Boots and shoes, machines for pegging	Jan. 17, 1854	XVI.
269	Greenough, John J	Boots and shoes, machines for pegging	Jan. 17, 1854; reissued July 4, 1854.	Reissue.
11220	Greer, Thomas	Boilers, steam	July 4, 1854	VI.
	Greenwood & Co. (See Charles Zenner, assignor.)			
	Greenwood & Co. (See Charles Zenner, assignor.)			
10985	Gregg, Charles	Vises or chucks for holding cylindrical bodies	May 30, 1854	II.
11422	Gregg, Isaac	Brick presses	Aug. 1, 1854	XV.
11784	Griffith, John W	Ships, construction of	Oct. 10, 1854	VII.
10516	Griffiths, John	Valve cocks	Feb. 14, 1854	XI.
12112	Griffiths & Shields, assignors to Robert Griffiths	Horseshoes, machine for forging	Dec. 19, 1854	II.
	Grilley & Peck. (See —— Peck, assignor.)			
10435	Griswold, Geo. W	Amputating-apparatus	Jan. 17, 1854	XX.
11122	Griswold, Geo. W	Tool-handle	June 20, 1854	II.
11326	Griswold, Geo. W	Powder, impalpable, for paints, process of separating	July 18, 1854	IV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11371	Griswold, Geo. W	Grates	July 25, 1854	V.
11646	Griswold, Geo. W	Door-fastener, portable	Sept. 5, 1854	II.
	Grover, Baker & Co	Sewing-machine	June 27, 1852; disclaimer entered Dec. 29, 1854.	Disclaimer.
11244	Guild, Chas. M. Guild & Harvie. (See Harvie & Guild.)	Gas-heating apparatus	July 11, 1854	V.
10406	Gullett, Benj'n D	Gins, cotton	Jan. 10, 1854	III.
11891	Gumaer, Samuel	Corn-shellers	Nov. 7, 1854	I.
12097	Hadley, Stephen, jr. Hagar, Cox, & Cox. (See Wm. P. Gray, assignor.)	Wheel, water, direct-action	Dec. 19, 1854	XI.
12059	Hagar, E. L	Harrows	Dec. 12, 1854	I.
11222	Hague, John R	Hose, machines for punching rivet-holes in	July 4, 1854	XVI.
10457	Haight, Daniel, jr	Wagons, attaching shafts to	Jan. 24, 1854	X.
10568	Hall, Abijah, and Sylvanus Sturtevant	Snow-plough for railroads	Feb. 28, 1854	X.
10456	Hall, Alexander	Piano-fortes	Jan. 24, 1854	XVIII.
10776	Hall, Alexander	Piano-forte actions	April 11, 1854	XVIII.
11723	Hall, Alexander	Clocks, electric	Sept. 26, 1854	VIII.
11373	Hall, B. T	Wheel, water	July 25, 1854	XI.
10504	Hall, Elias	Tool-holder	Feb. 7, 1854	II.
11456	Hall, John S	Ploughs	Feb. 7, 1854	I.
10505	Hall, John S	Ploughs	Aug. 1, 1854	I.
11158	Hall, William	Locks, bank	June 27, 1854	II.
	Halladay, A., *et al.* (See —— Sizer, *et al.*)			
11629	Halladay, Daniel	Windmills, governor for	Aug. 29, 1854	XI.
10902	Hallenbeck, Martin	Harvesters, grass	April 18, 1854	I.
11725	Halsey, Moses E	Chair frames	Sept. 26, 1854	XVII.
10407	Halvorson, Halvor	Boots and shoes, machines for pegging	Jan. 10, 1854	XVI.
11435	Halvorson, H., assignor to H. Halvorson and H. Barnes.	Cloth on looms, machanism for measuring	Aug. 1, 1854	III.
10849	Halvorson, Halvor, assignor to H. Halvorson and J. T. Heard.	Oil, rosin, processes for distilling	May 2, 1854	IV.
10850	Halvorson, Halvor, assignor to H. Halvorson and J. T. Heard.	Distilling apparatus	May 2, 1854	IV.
10365	Hamilton, James	Quartz-crushing machines	Jan. 3, 1854	II.
12023	Hammitt, John T	Car-seats, railroad	Dec. 5, 1854	X.
10918	Hammon, Heman B	Yokes, ox	May 16, 1854	I.
	Hauff & Kuhlershmidt. (See Kuhlershmidt & Hauff.)			
	Hanford, George S. & Co. (See J. Lieberman.)			
11727	Hardman, Thomas, and Albert Vose	Whiffletrees	Sept. 26, 1854	X.
11374	Harig, A. C., and D. C. Stoy	Locks, bank	July 25, 1854	II.
275	Harig, A. C., and D. C. Stoy	Locks, bank	July 25, 1854; re-issued Aug. 22, 1854.	Re-issue.
11669	Harley, J. L., and Samuel Maxwell	Ventilating ship timbers	Sept. 12, 1854	V.
10986	Harraday, John	Cloth, machine cutting out	May 30, 1854; in England, January 20, 1854.	XXI.
11123	Harris, Charles S	Motion, producing continuous circular, from reciprocating rectilinear.	June 20, 1854	XIII.
619	Harris, C., and P. W. Zoiner	Stove, dining-room	Jan. 24, 1854	Design.
620	Harris, C., and P. W. Zoiner	Stove, cooking	Jan. 24, 1854	Design.
624	Harris, C., and P. W. Zoiner, ass'rs to Alex. Bradley	Stove, cooking	Jan. 31, 1854	Design.
631	Harris, C., and P. W. Zoiner	Stoves, coal	Feb. 21, 1854	Design.
11934	Harris, Daniel, assignor to John P. Bowker, jr.	Sewing-machines	Nov. 14, 1854	III.
11065	Harris, F. M	Wagons, tail-boards of	June 13, 1854	X.
11863	Harris, J., J. B. Stott, and G. Richmond	Rope and cordage, machinery for making	Oct. 31, 1854	III.
11524	Harris, Joseph, jr. Harris, L. W., & Montgomery. (See Montgomery & Harris.)	Lamps	Aug. 15, 1854	V.
11749	Harris, Thomas J., jr	Garments, fastenings for	Oct. 3, 1854	XXI.
11040	Harrison, Edward	Mills, grinding	June 6, 1854	XIII.
10763	Harrison, James, jr	Sewing-machines	April 11, 1854	III.
10690	Harrison, R. H., assignor to R. H. Harrison and J. J. Gallaher, jr.	Churns	Mar. 28, 1854	I.
10739	Hart, Carmi	Veneers, machine for cutting	April 4, 1854	XIV.
	Hartshorn & Ames. (See Harrison Eaton, assignor.)			
11892	Hartshorn, Sheldon S	Buckles, manufacture of	Nov. 7, 1854	XVI.
11243	Hartson, George B	Wheels, wrought-iron car, making	July 11, 1854	X.
10447	Harvey, Charles R	Furnaces, air-heating	Jan. 24, 1854	V.
11584	Harvey, H. A., and Edward P. Cowles, administrators of Thomas W. Harvey, assignors to the Harvey Steel and Iron Company.	Furnaces for making wrought-iron directly from the ore.	Aug. 22, 1854	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10385	Harvey, Thomas W., assignor to John B. Terry	Pins, machine for sticking	Jan. 3, 1854	II.
10814	Harvie, A., and C. Guild	Vinous fermenting in close vessels	April 25, 1854	IV.
	Harwood, H. J., and Wm. Gates, jr. (See Gates & Harwood.)			
10635	Haskins, E. S	Clothes-lines, spring clasps for	Mar. 14, 1854	XVII.
10636	Hastings, Elbridge G	Stone, dressing, machines for	Mar. 14, 1854	XV.
11314	Hatcher, Jacob J	Pen and pencil case	July 11, 1854	XVIII.
11550	Hatcher, Wm. Z	Cocks, stop and waste	Aug. 22, 1854	XI.
11726	Hatfield, Aaron L	Numbers, machines for adding	Sept. 26, 1854	VIII.
11427	Hathaway, John M	Shot-pouches	Aug. 1, 1854	XIX.
657	Hattersley, Wm, and Charles Dickinson	Coffee-pot, design for tea or	July 4, 1854	Design.
	Hawes, Josiah J. (See Southworth & Hawes.)			
11748	Hawes, R. L	Cloth, drying	Oct. 3, 1854	III.
10670	Hawkes, Charles W	Printing-presses, nippers for	Mar. 21, 1854	XVIII.
	Haworth & Edmondson. (See Edmondson & Haworth.)			
	Haworth & Edmondson. (See Edmondson & Haworth.)			
11893	Hay, A. K	Glass furnaces	Nov. 7, 1854	XV.
11263	Hayden, Hiram W	Buttons, metallic, ornamenting	July 11, 1854	XXI.
10506	Hayden, J. B	Hubs, metallic	Feb. 7, 1854	X.
10962	Hayes, John P	Furnaces, hot-air	May 23, 1854	V.
11608	Hayward, Daniel	India rubber, manufacture of	Aug. 29, 1854	IV.
10594	Heacock, Joel P	Barrel-heads, apparatus for rounding and bevelling	Mar. 7, 1854	XIV.
	Heard & Halvorson. (See Halvorson, assignor.)			
	Heard & Halvorson. (See Halvorson, assignor.)			
11375	Heath, Mark A	Windows	July 25, 1854	IX.
10740	Hedges, Stephen	Table and chair combined	April 4, 1854	XVII.
665	Heller, Francis, and Elias Young	Stoves, cooking	Aug. 15, 1854	Design.
10366	Helton, Michael W	Saw gates, method of hanging and operating	Jan. 3, 1854	XIV.
10452	Hench, Peter, W. S., and J. J	Mills for grinding sumac	Jan. 24, 1854	XIII.
11861	Heneage, Robert	Picker cylinder, tooth-clothing for	Oct. 31, 1854	III.

11124	Henry, John	Wheels, cast-iron car	June 20, 1854	X.
10572	Henson, Thomas D., and George Rohr	Planters, seed	Feb. 28, 1854	I.
11831	Herriet, Julius, assignor to John Gaylord Wells	Stereotype composition, gutta percha	Oct. 24, 1854	XVIII.
11551	Heywood, Levi, J. L. Ross, and James K. Otis	Bureaus, portable	Aug. 22, 1854	XVII.
11994	Hibbard, Elias A	Stove, rotary cooking	Nov. 28, 1854	V.
11223	Hibbard, Wm. C	Engines, steam, for regulating the motion of	July 4, 1854	VI.
11935	Hibbs, Jonathan	Ploughs	Nov. 14, 1854	I.
	Hickok, S. and Thomas. (See Thomas & Hickok.)			
	Hickok, W. O. (See S. V. Collins.)			
11224	Hidden, Enoch	Stands, reading and writing	July 4, 1854	XVIII.
10921	Higgins, George E	Ear-rings, fastenings for	May 16, 1854	XVIII.
11894	Higgins, Horace S	Barrel machinery	Nov. 7, 1854	XIV.
11159	Hill, Daniel	Planter, seed	June 27, 1854	I.
11807	Hill, E. A	Stove, smoke-consuming	Oct. 17, 1854	V.
11565	Hill, Joseph	Daguerreotype plate holder	Aug. 22, 1854	XVIII.
11147	Hill, Luther, assignor to L. Hill and L. Stratton	Boot-soles, machine for cutting out	June 20, 1854	XVI.
11010	Hill, Wm. W	Stove, rotary, arrangement of dampers in	June 6, 1854	V.
11647	Hinde, John	Flax and hemp, machines for breaking	Sept. 5, 1854	III.
10384	Hine, R. M., assignor to Silsby & Hine	Forks, hay and manure, shanks of	Jan. 3, 1854	I.
10598	Hinman, George C	Sash-sustainers	Mar. 7, 1854	II.
10428	Hitchcock, Daniel T	Pumps, diaphragm	Jan. 17, 1854	XI.
12060	Hoard, J. W	Anglers' combined float and sinker	Dec. 12, 1854	XXII.
10988	Hobson, Carmi	Stave-machine	May 30, 1854	XIV.
11728	Hochstrasser, Henry	Books, machine for paging	Sept. 26, 1854	XVIII.
10637	Hock, A	Gilding or plating fibrous substances	Mar. 14, 1854; in France Dec. 15, 1852.	XVIII.
11609	Hockman, Samuel M	Planters, seed	Aug. 29, 1854	I.
10860	Hodgin, Robert	Straw-cutter	May 2, 1854	I.
10622	Hodgkins, Christopher, assignor to N. Hunt	Sewing machines	Mar. 7, 1854	III.
10879	Hodgkins, Christopher, assignor to N Hunt	Sewing-machines	May 9, 1854	III.
11936	Hodgkinson, George	Paging-machine	Nov. 14, 1854	XVIII.
10547	Holbrook, Samuel F	Cars, railroad, contrivances for protecting passengers in.	Feb. 21, 1854	X.
11995	Hollen, Joseph	Knitting-machines	Nov. 28, 1854	III.
281	Hollingsworth, Jehu	Smut-machines	April 22, 1851; reissued Oct. 10, 1854.	Reissue.
11403	Holly, B., assignor to Silsby, Race, & Holly	Mortising-machine	July 25, 1854	XIV.
10392	Holmes, James B	Washboards, machines for nailing	Jan. 3, 1854	XIV.
10544	Holmes, John B	Derricks	Feb. 21, 1854	XII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
258	Holmes, Jonas, and Ephraim French	Roving, variegated, process of manufacturing	May 18, 1852; reissued Feb. 28, 1854.	Reissue.
10987	Holmes, Silas A.	Daguerreotypes, cameras for taking stereoscope or other.	May 30, 1854	XVIII.
	Homan, ——. (See Tiebe & Muhle, assignors.)			
10804	Hopkins, David A	Cars, railroad, ticket-box for	April 18, 1854	X.
11428	Hopkins, David A	Car, railroad, couplings	Aug. 1, 1854	X.
10910	Hopkins, Israel M.	Knitting machines	May 16, 1854	III.
11786	Horsford, E. N.	Chlorine, compounds for neutralizing	Oct. 10, 1854	IV.
11808	Horton, D. W.	Shoemakers' edge-planes	Oct. 17, 1854	XVI.
	Horton & Co. (See John Jenkins, assignor.)			
10619	Hotchkin, Ashley	Gates, hanging	Mar. 7, 1854	IX.
11160	Hotchkiss, Julius	Suspender ends, manufacturing	June 27, 1854	XXI.
	Howard, R. L. (See W. F. Ketchum, assignor.)			
	Howard, R. L. (See Wm. F. Ketchum, assignor.)			
	Howarth & Marks. (See Marks & Howarth, assignors to Whiting.)			
11892	Howd, Samuel B., assignor to T. T. Davis, J. L. Leach, and R. F. Stevens.	Salt, apparatus for the manufacture of	Oct. 10, 1854	IV.
12098	Howe, Isaac B.	Metal bars, machines for straightening heavy	Dec. 19, 1854	II.
11862	Howe, John C.	Fire-arms	Oct. 31, 1854	XIX.
	Howe, Joseph N. (See Wm. Porter, assignor.)			
11054	Howe, Tyler	Bed-bottoms	June 13, 1854	XVII.
10534	Howell, John W.	Collars, horse, stuffing	Feb. 14, 1854	XVI.
11125	Howes, Frederick	Sails, top, extra yard to	June 20, 1854	VII.
10938	Howes, Peter S.	Irons, smoothing, self-heating	May 16, 1854	XVII.
11648	Hubbard, Moses G.	Plane-stocks, method of hanging	Sept. 5, 1854	XIV.
10548	Hughes, Amos P.	Dove-tailing, tool for	Feb. 21, 1854	XIV.
10923	Hughes, Bernard	Hammers, trip	May 16, 1854	II.
11067	Hughes, Bernard	Vices	June 13, 1854	II.
11553	Hughes, Bernard	Engines, actuating by bi-sulphuret of carbon	Aug. 22, 1854	VI

10927	Hults, James	Locks, gun	May 16, 1854	XIX.
270	Hults, James	Locks, gun	May 16, 1854; reissued July 4, 1854.	Reissue.
10730	Humiston, Willis	Candle-mould, apparatus	April 4, 1854	IV.
	Humphrey, Charles. (See W. E. Woodbridge, assignor.)			
11225	Humphrey, Fenton	Spike-machines	July 4, 1854	II.
11066	Hundley, Benjamin R.	Bed-bottoms	June 13, 1854	XVII.
	Hunt, Nehemiah. (See O. G. Boynton.)			
	Hunt, N., and D. H. Chamberlain. (See D. H. Chamberlain, assignor.)			
	Hunt, N. (See Hodgkins, assignor.)			
	Hunt, N. (See Hodgkins, assignor.)			
	Hunt, N., and Wm. Kidder. (See Wm. Kidder, assignor.)			
	Hunt, Nehemiah. (See G. A. Leighton, assignor.)			
11962	Hunt, Samuel	Harness, apparatus for detaching, from horses	July 11, 1854	XVI.
11161	Hunt, Walter	Sewing-machine	June 27, 1854	III.
11376	Hunt, Walter	Shirt-collars	July 25, 1854	XXI.
11126	Huntington, Solomon F.	Carriage-tops	June 20, 1854	X.
10803	Hurd, Julius C.	Cotton and other fibrous substances, cleaning	April 18, 1854	III.
11610	Hurst, Abraham R.	Manure-excavators	Aug. 29, 1854	I.
10590	Hussey, Isaac	Plastering, machines for	Mar. 7, 1854	IX.
11327	Huston, Felix	Vessels, mode of raising	July 18, 1854	VII.
10429	Hyatt, E. C., & C. Meyer	Boot and shoe soles of gutta-percha or India-rubber, manufacture of.	Jan. 17, 1854	XVI.
11695	Hyatt, Thaddeus	Vault lights	Sept. 19, 1854	IX.
11426	Hyde, Joseph	Washboards	Aug. 1, 1854	XVII.
11552	Hyde, J. Burrows	Telegraph-wires, apparatus for coating	Aug. 22, 1854	VIII.
11226	Ide, Samuel	Planter, seed	July 4, 1854	I.
11053	Iler, James, and William Fitzpatrick	Nail-plate feeders	June 13, 1854	II.
11227	Ingalls, Joshua K.	Vault covers, catch for	July 4, 1854	IX.
10890	Ingersoll, Platt C.	Pestle with the mortar, arrangement of	May 9, 1854	XX.
11787	Ingersoll, Simon	Drills, pawl	Oct. 10, 1854	II.
	Irvine & Merrill. (See —— Merrill, assignor.)			
	Isett, E. B. (See Martin Bell.)			
11788	Jack, John	Saw gummer	Oct. 10, 1854	XIV.
12061	Jackman, Enoch	Carpets, securing to floors	Dec. 12, 1854	XVII.
11457	Jackson, Abraham	Horse-power hoisting machinery	Aug. 1, 1854	XIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11554	Jackson, George	Knitting machines	Aug. 22, 1854	III.
11377	Jackson, Henry	Boiler, steam	July 25, 1854	VI.
10569	Jackson, Timothy D	Dies for making seamless metal tubes	Feb. 28, 1854	II.
10963	Jacobs, Amos	Boilers, steam, apparatus for regulating the supply of feed-water to.	May 23, 1854	VI.
11331	Jaeger, William G. W	Lamp-black, manufacture of	July 18, 1854	IV.
11195	James, Henry B	Smut-machines	June 27, 1854	XIII.
11864	Jarnagin, Chesley	Wagons, seats for	Oct. 31, 1854	X.
11954	Jarosson, Leon	Printing-blocks, method of constructing	Nov. 14, 1854	XVIII.
10989	Jarrett, Thomas T	Hay elevators	May 30, 1854	I.
11833	Jenks, Barton H	Looms	Oct. 24, 1854	III.
12062	Jenkins, J , and J. R. Cooke	Hub-bands for carriages	Dec. 12, 1854	X.
11920	Jenkins, John, assignor to Roe, Horton, & Co	Jacks, carriage-lifting	Nov. 7, 1854	XII.
10453	Jennings, James H., and Thomas Brierly	Cloth, fulling, machinery for	Jan. 24, 1854	III.
11789	Jennings, Lyman	Cans for holding liquids	Oct. 10, 1854	XVI.
11566	Jinkins, Joseph C	Tuning forks	Aug. 22, 1854	XVIII.
10805	Johnson, Abram C	Cars, dumping, operating	April 18, 1854	X.
12063	Johnson, Edward C	Fliers	Dec. 12, 1854	III.
10473	Johnson, Eleazer W	Saw-mills	Jan. 31, 1854	XIV.
10575	Johnson, Frank G	Bank-notes, table to hold, when cut	Feb. 28, 1854	XVIII.
11162	Johnson, H M	Cultivator, rotary	June 27, 1854	I.
11482	Johnson, Josée	Brick-presses	Aug. 8, 1854	XV.
	Johnson, Joseph B., and —— Morey. (See Morey and Johnson.)			
	Johnson, Joseph H. (See John Yandell.)			
11127	Johnson, Nathan	Bricks, mode of moulding	June 20, 1854	XV.
11029	Johnson, Wm. B	Planter, seed	June 6, 1854	I.
10597	Johnson, Wm. H	Sewing-machines	Mar. 7, 1854	III.
10408	Johnston, James J	Irons, smoothing, heaters for	Jan. 10, 1854	XVII.
11044	Johnston, James J., and J. V. Cunningham	Moulding hollow-ware	June 6, 1854	II
10409	Johnston, John	Irons, smoothing, self-heating	Jan. 10, 1854	XVII
11832	Johnston, Joseph	Bran-duster	Oct. 24, 1854; antedated April 24, 1854.	XIII.
11567	Jones, Abner W	Boilers, means for preventing the explosion of	Aug. 22, 1854	VI.
10826	Jones, G. C., and P. King	Wedge-machine	April 25, 1854	XIV
	Jones, Henry C. (See Stephen White and H. C. Jones.)			
	Jones, Orlando, administrator of Sam'l Blatchford	Starch, manufacture of	Mar. 12, 1841; disclaimer entered April 6, 1854; in England April 30, 1840.	Disclaimer.
10696	Jones, Richard	Zinc white, making	Mar. 28, 1854	IV.
10424	Jones, Thomas L., assignor, through Horace Dresser and self, to James B. Jones.	Paddle-wheels, feathering	Jan. 10, 1854	VII.
11068	Jones, William E	Saddle-trees	June 13, 1854	XVI.
11525	Judd, Albert H	Boilers, steam, safety apparatus for	Aug. 15, 1854	VI.
255	Judson, Junius and Alfred, assignors to Junius Judson	Valves for governors	Nov. 5, 1840; reissued Jan. 10, 1854.	Reissue.
10806	Keach, Lawson P	Oysters, &c., cooking	April 18, 1854	XVII.
11228	Keck, Philip H	Wash-boards	July 4, 1854	XVII.
10420	Kedzie, John	Filters	Jan. 10, 1854	XI.
11069	Keech, Jos , and Stephen Stillwell	Winnowing-machines	June 13, 1854	I.
11729	Keeler, J. F	Scales, platform	Sept. 26, 1854	XII.
	Kellar, W C., and Thos. Murdock. (See Murdock and Kellar.)			
10807	Keller, George W	Fire-escape	April 18, 1854	XXII.
11196	Kelley, Alfred D	Cutters, heel	June 27, 1854; antedated March 20, 1854.	XVI.
10671	Kells, Philip H.	Harvesters	Mar. 21, 1854	I.
	Kelsey, John B. (See W. Bryent, assignor.)			
11649	Kendall, A	Riving machine	Sept. 5, 1854	XVI.
11965	Kendall, Adoniram	Shingle machine	Nov. 21, 1854	XIV.
11895	Kendall, Thomas	Bottle stoppers	Nov. 7, 1854	XXII.
11163	Kennedy, D. W	Drying cloth	June 27, 1854	V.
11295	Kennedy, James C	Oven, elevated	July 11, 1854	V.
	Kerosene Gas Co. (See Gesner, assignor, "A," "B," "C"			
10861	Ketchum, A. C	Car-trucks with adjustable axles	May 2, 1854	X.
10697	Ketchum, Seymour	Smut machines	Mar. 28, 1854	XIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
259	Ketchum, Wm. F.	Harvesters, grass	Feb. 10, 1852; re-issued Feb 28, 1854.	Reissue.
11429	Ketchum, Wm. F.	Paddle-wheels, submerged	Aug. 1, 1854	VII.
10841	Ketchum, Wm. F., assignor to R. L. Howard	Harvesters, guard-fingers of	April 25, 1854	I.
12113	Ketchum, Wm. F., assignor to R. L. Howard	Harvesters, grain and grass	Dec. 19, 1854	I.
11996	Kidd, Whitten E.	Bonnet fronts, moulds for pressing	Nov. 28, 1854	XXI.
11542	Kidder, William, assignor to Wm. Kidder and N. Hunt.	Boots and shoes, machines for pegging	Aug. 15, 1854	XVI.
10651	Kimball, Alpheus	Sashes, window, securing	Mar. 14, 1854	II.
11750	Kimbel, John	Car, dumping	Oct. 3, 1854	X.
10596	Kimble, Henry B.	Sash fasteners	Mar. 7, 1854	II.
11966	King, Jerome B.	Kettles for calcining plaster of Paris	Nov. 21, 1854	IV.
11611	King, John H., jr.	Planters, seed	Aug. 29, 1854	I.
	King, P., and J. C. Jones. (See Jones & King.)			
	Kinsley & Stevens. (See Stevens & Kinsley.)			
12024	Kittle, Samuel P.	Switches, railroad	Dec. 5, 1854	IX.
11865	Kitson, Richard.	Cotton and other fibrous substances, machinery for picking.	Oct. 31, 1854	III.
10508	Knecht, Reuben	Daguerreotype-plate holder	Feb. 7, 1854	XVIII.
11483	Knight, Daniel	Fire-arms	Aug. 8, 1854	XIX.
10518	Knowles, Jonathan	Process of treating vegetable fibre	Feb. 14, 1854; in France April 4, 1853.	IV.
	Knowlton, Wm. C. (See Benjamin T. Graves, assignor.)			
	Kolb & Vitally. (See Vitally & Kolb.)			
11077	Kownover, D. N., assignor to R. L. Kownover	Gates, canal, mode of closing wickets in	June 13, 1854	IX.
11866	Krider, John M.	Tailors' measuring instrument	Oct. 31, 1854	XXI.
11049	Krupp, Alfred	Tires, making car and other wheel	June 6, 1854	II.
10828	Kuhlershmidt, W., and W. Hauff	Printing presses, apparatus for feeding paper to	April 25, 1854	XVIII.
10845	Lachenmaier, Mathias	Iron railing, strap, device in constructing	May 2, 1854	II.
679	Lachenmaier, Mathias	Fences, wire	Nov. 21, 1854	Design.
10917	Lackey, Leander	Boots and shoes, machines for pegging	May 16, 1854	XVI.

10750	Lafetra, Tyler W.	Tobacco, machine for drying	April 4, 1854	XXII.
11229	Laird, Joseph F.	Ore-stamping machines	July 4, 1854	II.
	Lamson, Nathaniel. (See Thos. C. Ball, assignor.)			
11612	Landmann, C. R.	Lamp fillers	Aug. 29, 1854	V.
11730	Landmann, Chas. R.	Lamp, safety	Sept. 26, 1854	V.
11289	Lanergan, Andrew	Lanterns	July 11, 1854	V.
10811	Lapham, William, executor of Seneca Lapham, deceased.	Harvesters, maize	April 18, 1854	I.
10638	Larwill, J. B., and J. Cross	Faucets for measuring liquids	Mar. 14, 1854	XI.
	Lathrop & Tyler. (See Tyler & Lathrop.)			
	Lathrop & Tyler. (See White, assignor.)			
11025	Latta, Alexander B.	Steam generators	June 6, 1854	VI.
11165	Latta, Alexander B.	Pump, hydro-pneumatic force	June 27, 1854	XI.
11075	Latourette, David L.	Mills	June 13, 1854	XIII.
10722	Lavender, B. A., and Henry Lowe	Paper and other purposes, treating cane fibre for	April 4, 1854	III.
11378	Lavers, Wm. G.	Fence posts, device for securing ends of wires in	July 25, 1854	II.
11731	Laville, John Baptiste	Hats and hat bodies, machinery for felting	Sept. 26, 1854; in France, Aug. 20, 1852.	III.
	Lawrence & Abbott. (See Allen & Stewart, assignors.)			
	Lawrence & Abbott. (See S. H. Sailor, assignor.)			
	Lawrence & Abbott. (See Smith *et al.*, assignors.)			
10792	La Bau, Geo. W.	Blinds, &c., cleaning, machine for	April 18, 1854	XIV.
11164	La Bau, Geo. W.	Mitre machine	June 27, 1854	XIV.
10721	La Mothe, Bernard J.	Cars, railroad	April 4, 1854	IX.
11809	La Mothe, Bernard J.	Buildings, iron	Oct. 17, 1854	IX.
	Lea & Roth. (See Roth & Lea.)			
	Lea & Roth. (See Roth & Lea.)			
	Lea & Roth. (See Roth & Lea.)			
	Lea, Joseph, and J. Augustus Roth. (See Roth and Lea.)			
11937	Leach, George T.	Brakes, car, method of engaging and disengaging self-acting.	Nov. 14, 1854	X.
10474	Leach, Harry	Propellers	Jan. 31, 1854	VII.
	Leach, James S., and others. (See Samuel B. Howd.)			
10762	Leavitt, Charles, assignor to S. R. Cockrill	Cotton, machines for cleaning	April 11, 1854	III.
11379	Lechtenthaler, Griffith	Cultivator	July 25, 1854	I.
10948	Lee, Elon A.	Piano-forte action	May 23, 1854	XVIII.
11967	Lee, George W.	Planters, seed	Nov. 21, 1854	I.

Alphabetical List of Patents—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10716	Leeds, Joseph	Stoves, cooking	Mar. 28, 1854	V.
11230	Leeds, Joseph	Kilns, brick and lime, controlling draught in	July 4, 1854	XV.
11886	Leeds, Joseph	Furnaces for heating buildings	Nov. 7, 1854	V.
10942	Leeds, L. W., and R. M. Smith	Heaters, hydraulic	May 16, 1854	V.
11613	L'Hommedieu, Ezra	Dies for making augers	Aug. 29, 1854	II.
	Leibrandt & Warnick. (See John C. Smith.)			
	Leibrandt & Warnick. (See Sailor & Smith.)			
11284	Leighton, George A., assignor to N. Hunt	Sewing-machines	July 11, 1854	III.
11867	Lenher, Samuel	Siphon, attachment to,	Oct. 31, 1854	XI.
12099	Leonard, Wm. B	Dynamometer, registering	Dec. 19, 1854	VIII.
10625	Lesley, Oliver	Saw-set	Mar. 14, 1854	II.
11751	Leslie, James Y	Knitting-machines	Oct. 3, 1854	III.
10410	Lester, Ebenezer A	Metallic bodies, squeezing and compressing, machines for.	Jan. 10, 1854	II.
10599	Levan, George	Reeling machines	Mar. 7, 1854	III.
10519	Levis, Samuel G	Paper, making thick	Feb. 14, 1854	III.
11555	Lewis, Abel F	Anchors or drags, floating	Aug. 22, 1854	VII.
	Lewis, T. S., and Moses C. Stiles. (See Moses C. Stiles.)			
12085	Lieberman, M. Jacob, subject of the Emperor of Russia, at present residing in New York, assignor to George S. Hanford & Co.	Cloths, &c., water proofing	Dec. 12, 1854	III.
10862	Liebrick, Conrad	Hasps, trunk-lock	May 2, 1854	II.
12025	Lilley, John	Fibre, machinery for separating the, from the woody portion of tropical plants.	Dec. 5, 1854; in England July 21, 1853.	III.
11864	Lillibridge, Warren and Charles	Tailors' measure	Oct. 31, 1854	XXI.
11197	Lindner, Edward	Gun, magazine, repeating, and needle	June 27, 1854	XIX.
11027	Lipman, Hymen L	Eyelet-machine	June 6, 1854	XXI.
11260	Lipman, Hymen L	Eyelet-machine	July 11, 1854	XXI.
11380	Lipman, H. L	Eyelet-machine	July 25, 1854	XXI.
10827	Little, George	Printing-presses, mode of operating the feed-tables of.	April 25, 1854	XVIII.
10937	Little, Isaac W	Yokes, ox	May 16, 1854	I.
11406	Little, Wm	Lubricating material	Aug. 1, 1854; in England July 14, 1853.	XII.
10448	Littlefield, Dennis G	Stoves	Jan. 24, 1854	V.
10680	Livermore, George W	Barrels, machinery for making	Mar. 21, 1854	XIV.
10749	Livermore, George W	Staves, machines for crozing the ends of	April 4, 1854; in England Aug. 31, 1853.	XIV.
	Livesey, Starkie. (See Thomas Cook, assignor.)			
11381	Livingston, N. B	Carriages, coupling for	July 25, 1854	X.
11128	Lloyd, Charles C	Gas-meters and regulators	June 20, 1854	IV.
	Loeschner & Spencer. (See Spencer & Loeschner.)			
10375	Longbotham, James H	Boards, bookbinders', drying	Jan. 3, 1854	XVIII.
10475	Longking, Thomas	Daguerreotype plates, apparatus for cleaning and buffing.	Jan. 31, 1854	XVIII.
11982	Loomis, Joseph G., Mary Ann Loomis, executrix and assignor to W. A. Gardner.	Forceps, surgical	Nov. 21, 1854	XX.
10847	Loomis, Mahlon	Teeth, artificial, plates for	May 2, 1854	XX.
11526	Lord, J. L	Grindstone frame	Aug. 15, 1854	XXII.
641	Lorton, Wm. B	Clock-cases, fronts of	April 25, 1854	Design.
10748	Loughborough Wm. S	Planes, bench, bit fastening for cast-iron	April 4, 1854	XIV.
10891	Loughridge, Wm	Boats and other vessels, method of unloading canal	May 9, 1854	VII.
11293	Loughridge, Wm	Boats, canal, arrangement of means for freeing from water.	July 11, 1854	VII.
12065	Lovecraft, John F	Sawing light lumber, feed-motion for	Dec. 12, 1854	XIV.
10600	Loveland, Samuel	Docks, dry, sectional	March 7, 1854; antedated Sept. 7, 1853.	IX.
	Lowe, H., & B. A. Lavender. (See Lavender & Lowe.)			
11294	Lowe, Wm	Valves, cut-off, of steam-engines, operating	July 11, 1854	VI.
11752	Lownds, Jacob J	Pen and pencil case	Oct. 3, 1854	XVIII.
10477	Lull, Harvey, assignor to H. Lull and Richard Porter.	Hinges, shutter	Jan. 31, 1854; antedated Jan. 2, 1854.	II.
10848	Lundfear, Mervin T	Musical instruments, reed boxes for	May 2, 1854	XVIII.
12064	Luttgens, H. A	Engines, steam, cut-off, regulators for	Dec. 12, 1854	VI.
11166	Lyeth, John McF	Coffins	June 27, 1854	XXII.
10576	Lyman, A. S	Engines, air	Feb. 28, 1854	XI.
264	Lynahon, Daniel	Boots, cutting	Oct. 18, 1853; reissued May 9, 1854.	Reissue.
11261	Lyon, Amos	Lightning-rods	July 11, 1854	VIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Lyons & Fondé. (See Fondé & Lyons.)			
11382	Lyon, John	Ploughs, ditching	July 25, 1854	I.
12066	Lyon, William, assignor to F. and G. Simpson, B. Dodd, and C. B. Merriman.	Sewing-machines	Dec. 12, 1854	III.
11762	Mabie, John	Pen and pencil case	Oct. 3, 1854	XVIII.
10655	Mcfarlane, J. G	Planters, seed	Mar. 14, 1854	I.
10752	Macgregor, James, jr	Coffee-pot	April 11, 1854	XVII.
11167	Mallerd, William	Gas-burners, regulator of	June 27, 1854	V.
11168	Mallerd, William	Gas-burners	June 27, 1854	V.
11148	Mallory, Levi W., assignor to William Morris	Omnibus registers	June 20, 1854	X.
10393	Malone, Samuel	Planters, corn	Jan. 3, 1854	I.
11810	Manny, John H	Harvesters, grain and grass	Oct. 17, 1854; antedated June 15, 1854.	I.
11459	Mansfield, Martin H	Grain, cleaning, screens for hulling clover seed and	Aug. 1, 1854	I.
11431	Mansfield, Willis	Switch-tenders, house for	Aug. 1, 1854	IX.
10973	Mansure, John, assignor to Farr & Thompson	Bracelet-clasps	May 23, 1854	XVIII.
10892	Marchant, Horatio G	Manure and sand loader	May 9, 1854	I.
11897	Marcy, E. E	Gums, vulcanizing elastic	Nov. 7, 1854	IV.
	Marden & Flanders. (See Flanders & Marden.)			
113	Mardock, Thomas, and W. C. Kellar	Harness saddle-trees	Aug. 12, 1852; additional improvement August 1, 1854.	Additional improv't.
10611	Marks, David B	Legs, artificial	Mar. 7, 1854	XX.
10454	Marks, Joseph	Valves, piston, and steam-passages in cylindrical steam-chests.	Jan. 24, 1854	VI.
10701	Marks, Joseph, assignor to William Whiting	Brakes, car, machinery for operating	Mar. 28, 1854; in England, November 23, 1852.	X.
10702	Marks, Jos., and John Howarth, assignors to William Whiting.	Brakes, car, machinery for operating	Mar. 28, 1854	X.
12026	Markham, Leonard F	Books, machine for rounding the backs of	Dec. 5, 1854	XVIII.
10661	Marland, Obadiah	Safes, iron	Mar. 21, 1854	II.

12027	Marland, Obadiah	Paper-making machinery	Dec. 5, 1854; in England, September 28, 1854.	III.
12028	Marland, Obadiah	Paper-making machinery	Dec. 5, 1854; in England, September 28, 1854.	III.
11556	Marquis, Robert	Sashes, balancing and hoisting apparatus for	Aug. 22, 1854	IX.
11670	Marsh, Seymour N	Trusses	Sept. 12, 1854	XX.
10753	Marshall, Elbridge	Planters, seed	April 11, 1854	I.
11557	Marshall, Elbridge	Manure spreader	Aug. 22, 1854	I.
11968	Martin, Daniel B	Valves, slide, in steam-engines, packing	Nov. 21, 1854	VI.
11997	Martin, Daniel B	Boilers, steam	Nov. 28, 1854	VI.
	Martin, J. B., & Vanduzen. (See B. C. Vanduzen, assignor.)			
11129	Martin, John S	Brushes, painters'	June 20, 1854	XVI.
11291	Martin, Joseph T	Grapple for raising sunken vessels	July 11, 1854	VII.
11898	Martin, William Nelson	Coal-hods	Nov. 7, 1854	V.
11026	Martine, Charles F	Bedsteads, sofa	June 6, 1854	XVII.
10411	Matteson, Harry H	Cordage, flexible	Jan. 10, 1854	III.
	Matthew, David	Spark-arresters	Dec. 31, 1840; extended December 27, 1854.	Extension.
	Matthews, John, assignee of Thomas W. Gillett. (See Gillett, assignor.)			
11133	Matthewson, Nathan F	Watch-chain swivel	June 20, 1854	VIII.
10742	Mattson, Morris	Syringes, enema	April 4, 1854	XX.
11938	Maton, Francis	Fire-arms, breech-loading	Nov. 14, 1854	XIX.
	Maxwell, Samuel. (See Henry Fry, assignor.)			
11259	Mayer, Andrew	Stoves, gas	July 11, 1854	V.
11674	Mayer, Andrew	Gas burners, regulator for	Sept. 12, 1854	V.
11672	Maynard Gilbert	Corn-shellers	Sept. 12, 1854	I.
10492	McAdams, John and William	Ruling paper, machines for	Feb. 7, 1854	XVIII.
	McAlester, Jas. B., and Mansel and E. Blake. (See Mansel Blake, assignor.)			
10577	McBride, Wm	Bed-pins, machines for making	Feb. 28, 1854	XIV.
262	McCarthy, Fones	Gin, cotton	July 3, 1840; reissued April 18, 1854.	Reissue.
	McCarthy, Fones	Gin, cotton	July 3, 1840; reissued April 18, 1854; extended June 28, 1854.	Extension.
10478	McCarty, James	Tubes, rollers for scarfing the edges of skelps for lap, welded.	Jan. 31, 1854	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10747	McCarty, James	Tubes, wrought-iron, heating skelps for the manufacture of.	April 4, 1854	II.
11614	McCauley, John G	Harrows	Aug. 29, 1854	I.
11486	McClelland, James S	Buggies	Aug. 8, 1854	X.
	McComb, James J	Brakes, car, arrangement of bumpers for self-acting	Dec. 12, 1854	X.
11869	McConnell, James E	Axles, railroad car	Oct. 31, 1854	X.
11740	McConnell, Wm. P	Gas, illuminating, from wood, process for making	Sept. 26, 1854	IV.
11258	McCord, Wm	Horse power	July 11, 1854	XIII.
11004	McCormick, Samuel	Screw blanks, impressing the threads upon	June 6, 1854; in England March 22, 1853.	II.
	McCready, George W. (See Thos. W. Drayton, assignor.)			
11998	McDonald, Angus W	Locomotives, tanks and cisterns for supplying	Nov. 28, 1854	VI.
11131	McDougall, D. E	Burglars' alarm	June 20, 1854	XXII.
10421	McGaffey, I. W	Mortising chisels	Jan. 10, 1854	XIV.
11899	McGaffey, Ives W	Potato diggers	Nov. 7, 1854	I.
11169	McGowan, John H	Pump, double-acting force	June 27, 1854	XI.
11673	McGregor, James, jr	Stoves and ranges, cooking	Sept. 12, 1854	V.
10430	McInturff, Abraham	Meat, mincing, machines for	Jan. 17, 1854	XVII.
11900	McKeage, Barnet	Stoves, mode of sawing bolts for	Nov. 7, 1854	XIV.
10681	McKenna, Samuel	Punch, metal, portable	Mar. 21, 18 4	II
11282	McKinstry, Ann G. V., administratrix of Wm. McKinstry, deceased.	Saws, circular, adjustable bearings for	July 11, 1854	XIV.
	McLaren, L. (See Graham & McLaren)			
	McLaughlin, F., and H. Rock. (See Hugh Rock, assignor.)			
11130	McLaughlin, Thos. G	Brakes, radial arms for car	June 20, 1854	X.
11527	McLaughlin, Thos. G	Brakes, railroad car	Aug. 15, 1854	X.
11438	McLean, William S	Wheels, car, with independent flange and tread	Aug. 1, 1854	X.
10964	McMullen, John	Boilers, steam, mechanical means for preventing incrustation in.	May 23, 1854	VI.
11487	McMurtry, John	Bricks, machine for making	Aug. 8, 1854	XV.

11834	McNair, John G	Carpets and rugs, manufacturing	Oct. 24, 1854	III.
11763	McRea, William C	Bridge, draw, railroad, and switch telegraph	Oct. 3, 1854	IX.
	Mead, W. W. (See Thomas W. Brown, assignor.)			
	Mead, William C., and John W. Chittenden. (See Chittenden & Mead.)			
10783	Meldrum, Garret	Turning-lathe	April 18, 1854	XIV.
11170	Melendy, John	Fruit picker	June 27, 1854	I.
11463	Mellen, Dustin F., assignor to D. F. Mellen, J. F. Augustus, and S. A. Eaton.	Metals, machines for planing	Aug. 1, 1854	II.
11568	Mellen, Dustin F	Sawing clap-boards, &c., machine for	Aug. 22, 1854	XIV.
11558	Mellish, Henry	Mills, grain	Aug. 22, 1854	XIII.
11790	Mendenhall, Stephen C	Looms	Oct. 10, 1854	III.
11484	Meriwether, William H	Bed bottoms, spring	Aug. 8, 1854	XVII.
10507	Merrell, Ansel, assignor to John M. Irvine and A. Merrell.	Spokes, machine for dressing	Feb. 7, 1854	XIV.
10431	Merrell, Loriston G	Pill machines	Jan. 17, 1854	IV.
10412	Merrell, Wm. G	Cutting ellipses, machine for	Jan. 10, 1854	XIV.
	Merriam, M. H., and W. W. Nichols, assignors to W. W. Nichols & Co.	Turning lathes, tool-rest for	Aug. 22, 1854	XIV.
11071	Merrick, J. Vaughan	Fans, exhaust	June 13, 1854	V.
12100	Merrill, Chas	Sash fasteners	Dec. 19, 1854	II.
11485	Merrill, J., and Geo. Patten	Engines, marine, refrigerators for	Aug. 8, 1854	VI.
	Merrill, W. B., *et al.* (See Absterdam & Merrill.)			
11132	Merriman, Anson	Engines, steam, regulators	June 20, 1854	VI.
	Merriman, C. B., *et al.* (See William Lyon, assignor.)			
	Merriman, Julius E	Sewing-birds	Feb. 7, 1854	XXII.
	Meshurl, Wm. R. (See D. H. Chamberlain, assignor.)			
11290	Mettam, Chas	Houses, construction of iron	July 11, 1854	IX.
	Meyer, C, and E. C. Hyatt. (See Hyatt & Meyer.)			
10586	Meyer, L. O. P	India rubber and other gums, vulcanizing	Feb. 28, 1854	IV.
10741	Meyer, L. O. P	Gums, vulcanizable, treating caoutchouc and other	April 4, 1854	IV.
10652	Middlekauff, Daniel S	Harvesters, grain	Mar. 14, 1854	I.
11671	Middleton, John W	Water, elevating, for the purpose of, method of applying heat to dilate gases.	Sept. 12, 1854	XI.
11675	Middleton, John W	Fluids, apparatus for distributing	Sept. 12, 1854	XI.
11697	Middleton, John W	Hydraulic ram, tidal or current	Sept. 19, 1854	XI.
11505	Miggett, Peter	Looms, power, shuttle-guards for	Aug. 8, 1854	III.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10951	Miles, L. A	Pump, valve	May 23, 1854	XI.
10669	Miller, Charles	Sewing machines	Mar. 7, 1854	III.
10976	Miller, Christian B	Processes of galvanizing metal	May 30, 1854	IV.
11901	Miller, Elliot T	Bombs, shells, or grenades	Nov. 7, 1854	XIX.
11902	Miller, George	Leather-banding for machinery, manufacturing	Nov. 7, 1854	XVI.
10367	Miller, George D	Tuyeres	Jan. 3, 1854	II.
11940	Miller, Joseph	Car coupling, railroad	Nov. 14, 1854	X.
	Miller, H. A., and John Standish. (See John Standish, assignor.)			
12039	Miller, Henry R	Corn, mill for shelling and grinding	Dec. 5, 1854	I.
10723	Miller, Rodney	Carriage tops	April 4, 1854	X.
284	Miller, Sylvanus	Rake to harvesting machines	July 15, 1851; reissued Nov. 21, 1854.	Reissue.
11172	Miller, William J	Brads, machines for cutting	June 27, 1854	II.
12029	Miller, W. H	Washstands	Dec. 5, 1854	XVII.
11488	Millet, Stanislaus	Bedstead sofa	Aug. 8, 1854	XVII.
10818	Milligan, William E	Car seats, railroad	April 25, 1854	X.
11489	Millington, N., and D. J. George	Squares, carpenters', machines for graduating	Aug. 8, 1854	XIV.
11171	Minthorn, Daniel	Tube, inhaling	June 27, 1854	XX.
10929	Mitchel, William H	Type, composing, machinery for	May 16, 1854	XVIII.
11490	Moffitt, Alexander	Carriage, spring body	Aug. 8, 1854	X.
11437	Monnin, Charles, and W. M Booth	Lanterns, fastening	Aug. 1, 1854	V.
10549	Montgomery, Richard	Medal plates, corrugating	Feb. 21, 1854	II.
	Montgomery, R., and L. W. Harris	Mill for breaking and grinding bark	Aug. 12, 1840; extended Aug. 10, 1854.	Extension.
11070	Montgomery, William	Card-teeth machine	June 13, 1854	III.
11732	Moody, Paul	Brakes, car, connecting a series of	Sept. 26, 1854	X.
	Moore & Thompson. (See John Thompson and A. S. Moore.)			
10659	Moore, Daniel, assignor to George S. Cameron	Type, machines for rubbing	Mar. 21, 1854	XVIII.
11870	Moore, Daniel	Cartridges, for breech-loading fire-arms	Oct. 31, 1854	XIX.
11871	Moore, Daniel	Flask, powder, for breech-loading guns	Oct. 31, 1854	XIX.

11761	Moore, Spencer	Grain threshers and separators, the feeding-hoppers of.	Oct. 3, 1854	I.
11941	Moore, William	Winnowers, grain	Nov. 14, 1854	I.
	Morehead, D. C. (See Chas. T. P. Ware, assignor.)			
268	Morey, Chas., and Jos. B. Johnson, assignors to J. M. Singer and Edward Clark.	Sewing-machine	Feb. 6, 1849; reissued June 27, 1854.	Reissue.
	Morgan and Seymour. (See Platt, assignor.)			
11791	Morgan, Elijah	Shingle-machine	Oct. 10, 1854	XIV.
11632	Morley, P. A., assignor to Jas. Bright	Lanterns, glass	Aug. 29, 1854	V.
10676	Morris, David A	Boxes, anti-friction	Mar. 21, 1854	X.
11134	Morris, Edmund	Slate-frame	June 20, 1854	XVIII.
11903	Morris, Edmund	Slate-frame	Nov. 7, 1854	XXII.
11676	Morris, Ephraim	Weight of cargoes in vessels, apparatus for determining the.	Sept. 12, 1854	XII.
10479	Morris, John L. L	Hammers, steam	Jan. 31, 1854	II.
	Morris, Samuel. (See W. P. Goolman and S. Morris.)			
	Morris, S., *et al.* (See Richardson, Morris and Perry.)			
	Morris, S. J., and B. C. Perry. (See H. Richardson, *et al.*)			
	Morris, Wm. (See L. W. Mallory, assignor.)			
11939	Morris, Wm	Omnibus-registers	Nov. 14, 1854	X.
260	Morrison, Enoch R	Shingle-machine	Nov. 12, 1853; reissued March 7, 1854.	Reissue.
11430	Morrison, Wm. H., and M. W. E. Doran	Mortising-machine	Aug. 1, 1854	XIV.
11698	Morrison, Wm. H	Fire-arms	Sept. 19, 1854	XIX.
	Morse, Samuel F. B	Telegraph, magnetic	June 20, 1840; reissued January 15, 1846; reissued June 13, 1848; disclaimer entered May 23, 1854.	Disclaimer.
	Morse, S. F. B	Electro-magnetism, mode of communicating information by signals, by application of.	June 20, 1840; reissued January 15, 1846; reissued June 13, 1848; extended June 19, 1854.	Extension.
	Morse, S. F. B., assignor to Maguetic Telegraph Company.	Telegraph, magnetic	June 20, 1840; reissued January 15, 1846; reissued June 13, 1848; disclaimer entered June 14, 1854.	Disclaimer.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Morse, S. F. B., assignor to Maine Telegraph Company.	Telegraph, electro-magnetic	June 20, 1840; reissued January 15, 1846; reissued June 13, 1848; disclaimer entered April 20, 1854.	Disclaimer.
	Morse, S. F. B., assignor to trustees of the New York, Albany, and Buffalo Magnetic Telegraph Company.	Electro-magnetism, mode of communicating information by signals, by application of.	June 20, 1840; reissued January 15, 1846; reissued June 13, 1848; disclaimer entered June 20, 1854.	Disclaimer.
	Morse, S. F. B., assignor to New York and New England Union Telegraph company.	Signals, electro-magnetic	June 20, 1840; reissued January 15, 1846; reissued June 13, 1848; disclaimer entered March 17, 1854.	Disclaimer.
	Morse, S. F. B., assignor to A. Vail	Electro-magnetism, mode of communicating information by signals, by application of.	June 20, 1840; reissued January 15, 1846; reissued June 13, 1848; disclaimer entered June 19, 1854.	Disclaimer.
	Morse, B. G. (See W. Bullock, assignor.)			
11650	Morse, Josephine	Wheels, driving, of locomotives for ascending inclined planes.	Sept. 5, 1854	X.
10672	Mott, Jordan L.	Wheels, railroad-car	Mar. 21, 1854	X.
11041	Mott, Jordan L.	Wheels, car, upon axles, securing	June 6, 1854	X.
11383	Mott, Jordan L.	Staples to walls, mode of securing	July 25, 1854	XXII.
11999	Mott, Jordan L.	Stoves	Nov. 28, 1854	V.
	Mott, Jordan L.	Caldron, combined, and furnace for the use of agriculturists and others, mode of constructing a.	Dec. 1, 1840; extended November 20, 1854.	Extension.
10704	Mott, Richard D.	Stereotype pans	Mar. 28, 1854	XVIII.
	Mould & Reed. (See Reed & Mould.)			
	Muhle, ——. (See Liebe & Muhle.)			

10377	Muller, Charles	Type, casting, machines for	Jan. 3, 1854	XVIII.
666	Muller, Nicholas	Clock-cases, fronts of	Aug. 29, 1854	Design.
11231	Muntz, William Henry	Paddle-wheels	July 4, 1854	VII.
11330	Murdock, Ebenezer	Tobacco, cutting	July 18, 1854	XXII.
10977	Murphey, John	Gutta percha, processes for treating	May 30, 1854	IV.
	Murphy, John. (See William E. Rider.)			
11076	Murray, Bronson, assignor to T. R. Spencer, assignor to J. S. Wright.	Harvester, cutters	June 13, 1854	I.
11699	Myer, Henry B	Car-seats, mode of converting the backs of, into beds or lounges.	Sept. 19, 1854	X.
11942	Myers, Alpheus, M. D.	Trap, tape-worm	Nov. 14, 1854	XX.
11943	Myers, Alpheus, M. D.	Tape-worm operation	Nov. 14, 1854	XX.
11528	Myers, Jacob	Harrows	Aug. 15, 1854	I.
12101	Myers, James, jr	Sugar moulds, making	Dec. 19, 1854	IV.
10965	Myers, John, and R. G. Eunson	Sawing thin boards, &c., machine for	May 23, 1854	XIV.
11690	Napier, James R., and Wm. J. M. Rankine	Engines, air	Sept. 19, 1854; in England June 9, 1853.	XI.
10383	Nason, Joseph	Screws in lathes, arrangement in cutting	Jan. 3, 1854	II.
11135	Needham, Orwell H.	Pump, breast	June 20, 1854	XX.
10449	Neilson, George	Ventilating railroad cars	Jan. 24, 1854	V.
10990	Neilson, George	Ventilating window to railroad cars	May 30, 1854	V.
11529	Neisch, Robert	Kilns, lime	Aug. 15, 1854	XV.
	Nelson, Joseph P., *et al.* (See Stephen Woodward, assignor.)			
11969	Nelson Richard L.	Life-preservers to vests, mode of attaching	Nov. 21, 1854	VII.
10743	Nesmith, John	Wire-netting, machines for making	April 4, 1854	II.
	Newark Patent Hosiery Company. (See H. Burt, assignor.)			
	Newark Patent Hosiery Company. (See H. Burt, assignor.)			
	New Haven Iron Railing Company. (See Levi Van Hoesen, assignor.)			
12000	Newman, James	Tubes, making metal rods and	Nov. 28, 1854; in England March 23, 1854.	II.
10551	Newman, M., N. C. Whitcomb, and G. C. Cole	Whiffletree-hooks	Feb. 21, 1854	X.
11074	Newman, M., 2d, N. C. Whitcomb, and G. C. Cole	Coupling	June 13, 1854	X.
115	Newman, Martin, 2d, N. C. Whitcomb, and G. C. Cole.	Whiffletree-hooks	Feb. 21, 1854; additional improvem't Oct. 31, 1854.	Add'l imp't.
10950	Newton, Abner N.	Fire-arms, primer for	May 23, 1854	XIX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11198	Newton, Abner N.	Fire-arms, breech-loading	June 27, 1854	XIX.
11700	Newton, Abner N	Fire-arms, breech-loading	Sept. 19, 1854	XIX.
	Newton & Burrage. (See J. Burrage, assignor)			
10626	Newton, O., and J. A. Crever	Dust, excluding, from railroad cars	Mar. 14, 1854	V.
11384	Nichols, James R.	Fountain soda-water	July 25, 1854	XXII.
11615	Nichols, John B.	Binding folder	Aug. 29, 1854	III.
10724	Nichols, Oldin	Cable, chain, stopper	April 4, 1854	VII.
10725	Nichols, Oldin	Cable, chain, stopper	April 4, 1854	VII.
111	Nichols, Oldin	Mills, grinding	Oct. 12, 1852; additional improvem't May 30, 1854	Add'l imp't.
	Nichols, W. W., and Co. (See Merriam and Nichols, assignors.)			
10673	Nicholson, Ambrose	Hinges, shutter, self-fastening	Mar. 21, 1854	II.
10386	Nicholson, Henry C., and James Spratt	Cans, preserve, sealing	Jan. 3, 1854	XVII.
11491	Nicholson, Samuel	Pavements, wooden	Aug. 8, 1854	IX.
11199	Noble, James	Cotton, and other fibrous materials, combing	June 27, 1854	III.
10705	Norcross, Nicholas G.	Sawing lumber, feed-motion for	Mar. 28, 1854	XIV.
10844	Norcross, Nicholas G.	Tonguing and grooving lumber, certain devices for	May 2, 1854	XIV.
10876	Norfolk, E. L.	Flax, machinery for dressing	May 9, 1854	III.
11944	Normand, C. B.	Saw-mills, mode of controlling and guiding logs in, without a carriage.	Nov. 14, 1854; in England Oct. 27, 1852; in France Nov. 5, 1852.	XIV.
11945	Normand, C. B.	Saws for mills, method of hanging	Nov. 14, 1854	XIV.
11946	Normand, C. B.	Sawing, curved and bevel, method of controlling the log for.	Nov. 14, 1854; in England Oct. 27, 1852; in France Nov. 5, 1852.	XIV.
11733	Norris, Septimus	Engines, locomotive, running gear of	Sept. 26, 1854	X.
11677	North, Newell	Spoke machines	Sept. 12, 1854	XIV.
	North, *et al.* (See Allen & Stewart, assignors.)			
	North, *et al.* (See S. W. Gibbs, assignor.)			
11508	Norton, John	Blasting rock, timber, &c.	Aug. 8, 1854	IX.
11904	Norton, Marcus P.	Brakes, railroad car	Nov. 7, 1854	X.

	Noyes, Chas. W., and Thos. W. Allen. (See Thos. W. Allen.)			
11970	Nutting, Mighill	Pencils for drawing machines, arrangement of	Nov. 21, 1854	XVIII.
10751	Ogden, John C., assignor to Charles S. Ogden	Chairs, railroad, making	April 4, 1854	IX.
10373	Ogden, Zina, assignor to Lewis C. Ogden	Carriage-tops, lowering, raising, and fastening	Jan. 3, 1854	X.
12067	Olds, Henry H.	Vessels, propulsion of	Dec. 12, 1854	VII.
11792	Oliver, Richard	Garments, fastenings for	Oct. 10, 1854	XXI.
11678	Osborn, William E.	Cannon, breech-loading	Sept. 12, 1854	XIX.
11136	Osborne, James P.	Turning casks, &c., from solid pieces, method of	June 20, 1854	XIV.
	Otis, Ross & Heywood. (See Levi Heywood, *et al.*)			
11292	Outcalt, Henry	Roofing, metallic, mode of constructing	July 11, 1854	IX.
10627	Overend, Andrew	Printing-paper, machine for damping	Mar. 14, 1854	XVIII.
11072	Overend, Andrew	Printers' friskets	June 13, 1854	XVIII.
10458	Overend, Wm.	Paper, wetting	Jan. 24, 1854	XVIII.
10556	Packard, Charles F.	Lathes, machines for cutting	Feb. 21, 1854	XIV.
11257	Packard, Charles F.	Sawing-machine	July 11, 1854	XIV.
10480	Page, Charles G.	Electro magnetic engines	Jan. 31, 1854; in England May 3, 1851.	VIII.
10510	Page, Clark D.	Kilns, lime	Feb. 7, 1854	XV.
10394	Page, George F.	Saw-mills, ratchet-catch for head-blocks in	Jan. 3, 1854	XIV.
10368	Page, Lucius	Screw-bolts and nuts	Jan. 3, 1854	II.
10863	Pagett, Washington F.	Harrows	May 2, 1854	I.
11872	Palen, Vincent	Piles, mechanism for sawing off, under water	Oct. 31, 1854	IX.
11002	Palm, Joseph Baron de	Kilns, brick and pottery	June 6, 1854; in England July 13, 1852.	XV.
10459	Palmer, Aaron, and S. G. Williams	Harvesters, grain	Jan. 24, 1854	I.
10481	Palmer, William	Gauges, water, for steam-boilers	Jan. 31, 1854	VI.
11759	Palmer, William	Cars, railroad, apparatus for starting	Oct. 3, 1854	IX.
11439	Palmer, William M.	Threshing-machine	Aug. 1, 1854	I.
11051	Palmer, William Russell	Threshers	June 13, 1854; in England April 11, 1853.	I.
11328	Palmer, William Russell	Horse-powers	July 18, 1854; in England April 11, 1853.	XIII.
11835	Palmié, G. F., and A. H.	Fire-arms	Oct. 24, 1854	XIX.
11971	Parham, Charles	Sewing machines	Nov. 21, 1854	III.
11137	Parker, Charles	Vises, cast-iron	June 20, 1854	II.
	Parker, George, and W. A. Shaw. (See Shaw & Parker.)			
	Parker, Samuel J.	Sewing-machines	April 11, 1854	III.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Parker, Samuel J. (See William H. Akins, assignor.)			
	Parrott, William P., and J. Amory. (See Amory & Parrott.)			
11530	Patrick, Andrew	Cars, unloading coal and other	Aug. 15, 1854	X.
10864	Patton, G. M.	Dies, spring, arrangement of, in machines for making clinch-rings.	May 2, 1854	II.
	Patton & Merrill. (See Merrill & Patton.)			
667	Paul, Amos	Stoves, cooking	Aug. 29, 1854	Design.
	Paul, Mifflin. (See Thomas Worrall, assignor.)			
11760	Paul, Zachariah M.	Brick-machine	Oct. 3, 1854	XV.
11200	Pearsall, Thomas	Barrels, ventilated flour	June 27, 1854	XIV.
11850	Pearson, Mark R., assignor to M. R. Pearson and Samuel Shaw.	Mule, self-acting, roller-catch for	Oct. 24, 1854	III.
10744	Pease, Abiel	Drill for metal drilling	April 4, 1854	II.
11559	Pease, Julius A.	Pump, diaphragm	Aug. 22, 1854	XI.
11947	Pease, Julius A.	India-rubber over-shoes	Nov. 14, 1854	IV.
11174	Peavey, T. H.	Fire-arms, charger for	June 27, 1854	XIX.
10930	Peck, Jeremiah, assignor to J. Peck and C. F. Grilley.	Fire-arms	May 16, 1854	XIX.
11758	Peck, Samuel	Daguerreotype cases, manufacture of	Oct. 3, 1854	XVIII.
	Pendleton & Whittal. (See Whittal & Pendleton.)			
10633	Penfield, Eldridge H.	Grummets for sails, metallic	Mar. 14, 1854	VII.
12068	Penfield, Eldridge H.	Dock-holders for horses	Dec. 12, 1854	XXII.
285	Pennock, M. & S.	Planters, seed	Mar. 12, 1841; reissued Oct. 3, 1849; reissued Dec. 9, 1854.	Reissue.
11173	Penrose, Thomas	Scraper and spreader, road	June 27, 1854	IX.
12046	Pepper, Jno., jr., assignor to "The Franklin Mills."	Knitting machines	Dec. 5, 1854	III.
11081	Perkes, Samuel	Quartz and minerals, crushing and grinding	June 13, 1854; in England Oct. 12, 1852.	II.
11837	Perkins, E. L.	Paper, machinery for polishing	Oct. 24, 1854	III.
12087	Perkins, Joseph, assignor to Perkins & Upton	Yards, trussing, to vessels' masts	Dec. 12, 1854	VII.
11079	Perley, Chas.	Rails, adjustable, for replacing cars on the track	June 13, 1854	IX.
11080	Perley, Chas.	Cable, chain, stopper	June 13, 1854	VII.
12001	Perry, A. D.	Fire-arms, breech-loading	Nov. 28, 1854; in England June 3, 1854.	XIX.
	Perry, B. C. (See Richardson, Morris, & Perry.)			
12069	Perry, James	Gold collector	Dec. 12, 1854	II.
11972	Perry, William	Spinning frames	Nov. 21, 1854	III.
	Peterson *et al.* (See Allen & Stewart.)			
	Peterson *et al.* (See Allen & Stewart.)			
	Peterson *et al.* (See Beesley & Delaney.)			
	Peterson *et al.* (See Beesley & Delaney.)			
	Peterson *et al.* (See Joseph Stewart.)			
11441	Petsch, Alexander H.	Car, dumping	Aug. 1, 1854	X.
10653	Pettes, Simon	Stone, drilling-machines for	Mar. 14, 1854	XV.
	Pettit & Boggett. (See Boggett & Pettit.)			
11679	Phares, Joseph	Tailors' shears	Sept. 12, 1854	XXI.
11028	Phelps, Elijah	Excavators	June 6, 1854	IX.
10640	Phelps, E. C.	Cock-stop	Mar. 14, 1854	XI.
11905	Phillips, Dewey	Gate, farm	Nov. 7, 1854	IX.
10593	Phillips, Wm. G	Gates, method of opening and closing	Mar. 7, 1854	IX.
11836	Phineas, Myer	Pen-holder	Oct. 24, 1854	XVIII.
	Phoebus & Anthony. (See Anthony & Phoebus.)			
11175	Pier, Oliver	Trap, for animals	June 27, 1854	XXII.
11440	Pierce, B. S., and C. M.	Tubes, cement or earthen, moulds for	Aug. 1, 1854	XV.
10414	Pierce, David	Gold-separator	Jan. 10, 1854	II.
10991	Pierce, John R.	Yokes, neck	May 30, 1854	I.
10413	Pierce, Henry E	Matches, machine for matting the ends of blocks in making.	Jan. 10, 1854	XXII.
	Pierce, H. W., *et al.* (See M. J. Wheeler, *et al.*)			
	Pierce & Roberts. (See Milton Roberts, assignor.)			
10966	Pigot, James	Palliasses, apparatus for making	May 23, 1854	XVII.
11256	Pine, Robt. G.	Metals, plating	July 11, 1854	II.
11701	Pitman, Isaac	Lamps, rozin-oil	Sept. 19, 1854	V.
10578	Pitts, James	Cotton-picker cylinder	Feb. 28, 1854	III.
11232	Pitts, John A.	Horse-powers	July 4, 1854	XIII.
	Pitts & Taggart. (See Jno. Taggart.)			
11176	Platt, L. L., and A. L	Buttons, wooden, in the manufacture of	June 27, 1854	XXI.
265	Platt, Nelson, assignor to W. H. Seymour and D. S. Morgan.	Harvesters	June 12, 1849; reissued May 23, 1854.	Reissue.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11177	Plumb, Hiram, and Simon H	Mortising machine	June 27, 1854	XIV.
12031	Plumb, Wm. Henry	Ores, machines for crushing	Dec. 5, 1854	II.
	Poindexter, Wm. H., administrator of J. R. Remington. (See J. R. Remington.)			
10610	Polley, Clark	Rams, hydraulic, method of operating	Mar. 7, 1854	XI.
10482	Pomeroy, Ebenezer G	Iron, sheet, manufacture of	Jan. 31, 1854	II.
10932	Poole, Daniel	Quartz-crushers	May 30, 1854	II.
11432	Porter, Chas. T	Stone-dressing machines	Aug. 8, 1854	XV.
	Porter, Richard, and H. Lull. (See Harvey Lull, assignor.)			
10559	Porter, Rufus, assignor to Geo. Stephenson	Cordage, machinery for making	Feb. 21, 1854	III.
11271	Porter, Rufus	Chair, cane	July 11, 1854	XVII.
11560	Porter, Wm. D	Gas-generators, wood	Aug. 22, 1854	IV.
11849	Porter, Wm., assignor to Joseph N. Howe	Lanterns, securing lamps to	Oct. 24, 1854	V.
	Potter, Lewis. (See Isaac De Zouche, assignor.)			
11082	Potter, Merritt F	Odometers, railroad	June 13, 1854	VIII.
11651	Powell, Thomas M	Freezers, ice-cream	Sept. 5, 1854	XVII.
12114	Pratt, Elisha, assignor to E. Pratt and H. P. Upton	Leather splitting machines	Dec. 19, 1854	XVI.
11009	Pratt, Jared	Tubes, making seamless metal	June 6, 1854	II.
	Pratt, W. F., *et al.* (See D. Wilson, assignor.)			
11793	Prescott, Emerson	Horn, &c., machines for splitting	Oct. 10, 1854	XXII.
10893	Prescott, Jonathan and George W	Slivers, machine for reducing wood to	May 9, 1854	XIV.
10522	Preston, Robert	Cloth, drying	Feb. 14, 1854	III.
11056	Prew, David	Wheels, cast-iron car	June 13, 1854	X.
11083	Price, Ebenezer N	Bits, bridle	June 13, 1854	XVI.
11008	Price, Whitman	Cultivator	June 6, 1854	I.
11616	Price, Whitman	Ploughs for planting potatoes	Aug. 29, 1854	I.
10378	Price, William H	Bedstead fastenings	Jan. 3, 1854	XVII.
676	Prince, Nathaniel S., assignor to F. Muzzy and Co., and A. Lombard.	Franklin fire-places	Oct. 31, 1854; antedated September 10, 1854.	Design.
10829	Prindle, Daniel R	Fence, field	April 25, 1854	IX.
10450	Prosser, Thomas	Metallic plates, manufacture of hollow slabs and flanged.	Jan. 24, 1854	II.
10911	Putnam, Joseph	Pipe-couplings, moulding clay	May 16, 1854	XV.
11757	Putnam, Silas S	Curtain fixtures	Oct. 3, 1854	XVII.
11385	Quantin, Alphonse	Bottles, mineral-water, stopping	July 25, 1854	XXII.
11272	Rabbeth, J	Pins, diaper	July 11, 1854	XXI.
	Race, *et al.* (See B. Holly, assignor.)			
11386	Race, W., assignor to H. C. Silsby and W. Race	Stove regulators	July 25, 1854	V.
10865	Ramsay, Wm. B. and G. M	Harrows, flexible	May 2, 1854	I.
272	Randall, Charles	Planters, seed	Nov. 2, 1852; reissued July 25, 1854.	Reissue.
11756	Rankin, Andrew	Hat bodies, making	Oct. 3, 1854	III.
11255	Rankin, David	Wheels, flutter, buckets of, applying water to cuniformed.	July 11, 1854	XI.
277	Rankin, David	Wheels, flutter, method of applying water to compound buckets of.	July 11, 1854; reissued Sept. 26, 1854.	Reissue.
	Rankine, Wm. J. M. (See J. R. Napier and W. J. M. Rankine.)			
11000	Rauch, A. R	Bottles, machines for washing	June 6, 1854	XXII.
11839	Rauch, John H	Pen and pencil case, sliding	Oct. 24, 1854	XVIII.
10993	Ray, Elias M	Knitting machines	May 30, 1854	III.
10784	Ray, Fowler M	Cars, railroad, spiral springs for	April 18, 1854	X.
10907	Read, Charles A	Irons, smoothing, self-heating	May 16, 1854	XVII.
	Read, J. A., *et al.* (See Smith, Brown & Read.)			
11617	Redick, William	Planters, seed	Aug. 29, 1854	I.
11494	Reed, C., and B. K. Mould	Ventilating railroad cars	Aug. 8, 1854	V.
11139	Reed, Jesse	Ships' capstan and windlass, arrangement of	June 20, 1854	VII.
	Reed, J. M. (See —— Davis, assignor.)			
11045	Reed, John C., assignor to C. P. Buckingham, H. P. Upton, and J. C. Read.	Mills, grinding	June 6, 1854	XIII.
10460	Reese, Jacob	Rolling axles and shafts	Jan. 24, 1854	II.
10493	Reese, Jacob	Nuts, machines for making	Feb. 7, 1854	II.
10524	Reese, Jacob	Rolling, iron, machinery, hanging the fore-plate to	Feb. 14, 1854	II.
12047	Regester, Joshua, assignor to Clampit & Regester	Lubricating apparatus	Dec. 5, 1854	XII.
11493	Reif, Christian	Separators, clover	Aug. 8, 1854	I.
11138	Reimer, Benj. F	Brakes in railroad cars	June 20, 1854	X.
10896	Reinert, Wm. S	Butter, machine for weighing and printing	May 9, 1854	XVII.
11237	Remington, John R., deceased. (See Wm. H. Poindexter, administrator of John R. Remington.)	Cement compounds	July 4, 1854	IV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10574	Renton, James	Zinc white furnaces	Feb. 28, 1854	IV.
11838	Renton, James	Iron, making wrought, direct from the ore	Oct. 24, 1854	II.
615	Resor, William, assignor to W. & R. P. Resor & Co.	Stove, hall	Jan. 3, 1854	Design.
623	Resor, William, assignor to W. & R. P. Resor & Co.	Stove, cannon	Jan. 31, 1854	Design.
618	Resor, William	Stove, laundry	Jan. 13, 1854	Design.
669	Resor, William	Stoves, Franklin	Oct. 17, 1854	Design.
673	Resor, William	Stoves, Franklin	Oct. 3, 1854	Design.
11201	Revercomb, Jacob	Ploughs	June 27, 1854	I.
12102	Reynolds, George	Tanning, compositions for	Dec. 19, 1854	XVI.
11086	Reynolds, Ira	Harvesters	June 13, 1854	I.
11533	Reynolds, O. L.	Forms, irregular, machine for cutting	Aug. 15, 1854	XIV.
12013	Richards, Henry, and Charles F. Winsor	Windlasses	Nov. 28, 1854	XII.
11561	Richardson, H., 8 Morris, jr., and B. C. Perry	Umbrellas, folding	Aug. 22, 1854	XXI.
11820	Richardson, John	Pen and pencil case	Oct. 17, 1854	XVIII.
11840	Richardson, John	Pen and pencil cases	Oct. 24, 1854	XVIII.
11873	Richardson, John	Pen and pencil case	Oct. 31 1854	XVIII.
646	Richardson, N. P.	Stoves, cooking	Dec. 12, 1854	Design.
662	Richardson, Nathaniel P.	Stoves, cooking	May 2, 1854	Design.
	Richardson, S., and Fairchild. (See Fairchild & Richardson.)			
656	Richmond, Apollos, assignor to A. C. Barstow & Co.	Stoves, cooking	June 13, 1854	Design.
	Richmond, G. (See J. Harris, *et al.*)			
11906	Rider, William E., and John Murphy	Gutta-percha and like gums, desulphurizing	Nov. 7, 1854	IV.
11387	Ring, Elihu	Butter-workers	July 25, 1854	XVII.
10641	Ripley, Ezra	Faucet	Mar. 14, 1854	XI.
10612	Ripley, Seaman C.	Brick-machines	Mar. 7, 1854	XV.
	Ritch, Thomas. (See James F. Brodhead.)			
11948	Robbins, Charles A.	Plough, ditching, and excavator	Nov. 14, 1854	I.
680	Robbins, Horace W.	Stoves	Nov. 28, 1854	Design.
10904	Roberts, Cyrus	Harvester rakes	May 16, 1854	I.

10726	Roberts, Elijah	Water-wheels, gates for	April 4, 1854	XI.
12115	Roberts, Milton, assignor to Roberts & Pierce	Turning prismatic forms, machine for	Dec. 19, 1854	XIV.
12015	Robertson, Thomas J. W., assignor to T. J. W. Robertson and N. E. Beach.	Sewing-machines	Nov. 28, 1854	III.
11754	Robertson, William H.	Stone, machines for dressing	Oct. 3, 1854	XV.
11532	Robie, Jacob C.	Table, turn	Aug. 15, 1854	IX.
10455	Robinson, James	Grain, threshers and cleaners of	Jan. 24, 1854	I.
10628	Robinson, Jos. W.	Scythes, form of	Mar. 14, 1854	I.
11140	Robinson, S. B.	Drying grain	June 20, 1854	V.
10523	Robinson, Warren	Ventilator, ship's	Feb. 14, 1854	V.
10866	Robinson, William, jr.	Rope, machinery for making	May 2, 1854	III.
645	Rock, Hugh, assignor to H. Rock and F. McLaughlin.	Hair-brushes, frames and handles of	May 2, 1854	Design.
12070	Roe, Henry A.	Cheese-vats	Dec. 12, 1854	I.
	Roe, Horton, & Co. (See John Jenkins, assignor.)			
11973	Roebling, John A.	Wire rope, manufacturing	Nov. 21, 1854	II.
12032	Roebling, John A.	Boilers, steam	Dec. 5, 1854	VI.
11907	Roff, Erastus W.	Tenons on blind slats, machine for cutting	Nov. 7, 1854	XIV.
11562	Rogers, Artemas	Door-knobs, instrument for manufacturing	Aug. 22, 1854	II.
10706	Rogers, David B.	Cultivators' teeth, machines for forming	Mar. 28, 1854	I.
10914	Rogers, George	Metals, baths for coating, with other metals	May 16, 1854	II.
	Rogers, G. W., *et al.* (See M. J. Wheeler, *et al*)			
10895	Rogers, James	Sash, machine for marking out	Mar. 9, 1854	XIV.
10395	Rogers, Thomas	Rails, hand, machines for cutting	Jan. 3, 1854	XIV.
	Rogers, Thomas. (See Fitzgerald, Rogers, & Walker.)			
	Rohr, George, and Thomas D. Henson. (See Henson & Rohr.)			
10582	Rollins, George A.	Turning lathes, tool-rest for	Feb. 28, 1854	XIV.
12002	Root, E. K.	Fire-arms, machine for boring the chambers in the cylinders of.	Nov. 28, 1854	XIX.
11531	Roper, Sylvester H.	Sewing machines	Aug. 15, 1854	III.
11811	Ross, Charles	Mills, grinding surface in	Aug. 17, 1854	XIII.
	Ross, Heywood, & Otis. (See L. Heywood, J. L. Ross, and J. K. Otis.)			
12071	Ross, Joel H.	Hot-water apparatus, hygrometric, regulator for	Dec. 12, 1854	V.
11495	Ross, Luther, and G. Potter	Boot and shoe soles, machines for cutting	Aug. 8, 1854	XVI.
11591	Ross, Robert	Valve, steam	Aug. 22, 1854	VI.
12072	Roth, George	Looms	Dec. 12, 1854	III.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10780	Roth, J. A., and J. Lea	Flax, machines for bleaching	April 18, 1854; in England, February 7, 1854.	III.
10808	Roth, J. A., and J. Lea	Flax, processes for bleaching	April 18, 1854; in England, May 26, 1853.	III.
10894	Roth, J. A., and J. Lea	Bleaching apparatus	May 9, 1854; in England, February 7, 1854.	IV.
11329	Roth, J. A., and J. Lea	Scouring piece goods, machines for	July 18, 1854; in England, February 7, 1854.	III.
11755	Rouse, Wanton	Mules, self-acting	Oct. 3, 1854	III.
	Rowe, James	Crushing hard substances, machine for	April 24, 1840; extended March 28, 1854.	Extension.
11652	Rowland, Charles	Tables	Sept. 5, 1854	XVII.
10779	Rowland, Moses T	Tailors' measures	April 18, 1854	XXI.
11085	Rowley, James L., assignor to J. L. Rowley and R. H. Gilson.	Carriages	June 13, 1854	X.
11653	Rugg, B. A., and E. H. Benjamin	Printing-presses, machine for feeding paper to	Sept. 5, 1854	XVIII.
11241	Ruggles Solomon W., assignor to Ruggles, Smith, & Austin.	Presses, self-acting cheese	July 4, 1854	XII.
11511	Ruggles, Solomon W., assignor to S. W. Ruggles and A. R. Smith.	Fan-blower	Aug. 8, 1854	V.
10588	Ruggles, Stephen P	Printing-presses	Feb. 28, 1854	XVIII.
11908	Rumley, Charles	Valves, steam-engine	Nov. 7, 1854	VI.
11909	Rumley, Charles	Engines, rotary	Nov. 7, 1854	VI.
11254	Runge, Gustavus	Doors, trap	July 11, 1854	IX.
261	Russ, Horace P	Pavements, sub-strata for	March 14, 1848; reissued March 28, 1854.	Reissue.
11036	Russell, David	Saw-mill blocks, method of operating	June 6, 1854	XIV.
	Russell, J., & G. W. Coats. (See Coats & Russell.)			
10369	Russell, Jonathan	Forms, irregular, machine for cutting	Jan. 3, 1854	XIV.
11618	Russell, Titus H	Saw-mill dogs	Aug. 29, 1854	XIV.
11569	Rust, Wm. O	Saw-set	Aug. 22, 1854	XIV.
10620	Ryan, Daniel, and J. Flanagan	Water-closets	Mar. 7, 1854	XXII.

11499	Safford, Albert G	Window-sashes, applying springs to	Aug. 8, 1854	IX.
659	Sailor, Samuel H., and John C. Smith, assignors to Warnick & Liebrandt.	Stove, radiator	July 11, 1854	Design.
663	Sailor, Samuel H., assignor to J. G. Abbott and A. Lawrence.	Stoves, cooking	Aug. 11, 1854	Design.
10831	Salomon, John C. Fr	Brick making	April 25, 1854	XV.
11552	Sampson, Elnathan	Hubs to axles, attaching	Feb. 21, 1854	X.
11388	Sampson, Elnathan	Scales, platform	July 25, 1854	XII.
11178	Sanders, B. D	Winnowers of grain	June 27, 1854	I.
11570	Sangster, Hugh	Lanterns, securing glasses in	Aug. 22, 1854	V.
10913	Sargent, Charles G	Wool, machinery for combing	May 16, 1854	III.
11534	Sargent, Charles G	Wool, combing, machinery for	Aug. 15, 1854	III.
11812	Sargent, Moses, jr	Roving tubes	Oct. 17, 1854	III.
11179	Saunders, Wm. H	Axle, carriage	June 27, 1854	X.
11974	Savage, Elliott	Screw-blanks, machine for threading	Nov. 21, 1854	II.
10614	Sawyer, Addison M	Rattans, machines for splitting	Mar. 7, 1854	XXII.
10579	Sawyer, Joseph	Sockets for bench-hooks	Feb. 28, 1854	XIV.
10613	Sawyer, Joseph	Rattans, machines for splitting	Mar. 7, 1854	XXII.
	Sawyer & Clark. (See Lyman Clark, assignor.)			
	Sawyer, Samuel, deceased, W. Dalrymple, executor of.	Corks, machine for cutting	June 10, 1840; extended Jan. 9, 1854.	Extension.
12073	Sawyer, Sylvanus	Rattan machine	Dec. 12, 1854	XXII.
11509	Saxton, Amos I	Buildings, iron, mode of constructing	Aug. 8, 1854	IX.
10830	Schaum, Frederick	Glass furnaces	April 25, 1854	XV.
11087	Schinz, Charles	Tallow, process for hardening	June 13, 1854	IV.
	Schooler & Smith. (See Smith, assignor.)			
10546	Schuyler, Joseph M., & William Zern, assignors to D. L. Easterly.	Wire-screens, weaving	Feb. 21, 1854	II.
11445	Schwingroubert, Louis	Shoe horns	Aug. 1, 1854	XVI.
11875	Scost, E. W	Mast hoops, machine for manufacturing	Aug. 31, 1854	VII.
10931	Scott, Lyman	Mill, grinding, portable	May 16, 1854	XIII.
	Scovill Manufacturing Company. (See E. Brown, assignor.)			
10785	Seagrave, John D	Apples, machines for paring	April 18, 1854	XVII.
11910	Searle, Isaac	Hat bodies, machinery for making	Nov. 7, 1854	III.
11180	Seaver, Pensley	Callipers	June 27, 1854	XIV.
	Seavey, *et al.* (See J. R. Stafford, assignor.)			
10759	Seay, Thomas E	Brick machines	April 11, 1854	XV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
625	Seibert, Peter, assignor to Alexander Bradley	Stove, cooking	Jan. 31, 1854	Design.
11911	Selleck, Robert M	Harness saddles	Nov. 7, 1854	XVI.
	Sellers & Bancroft. (See Bancroft & Sellers.)			
11335	Senneff, Jacob	Heddles, weavers'	July 18, 1854	III.
11589	Senneff, Jacob	Heddles for looms, machines for casting metallic eyes or males of.	Aug. 22, 1854	III.
11095	Sergeant, Henry C	Boilers, steam, feed water apparatus to	June 14, 1854	VI.
11233	Severson, Benjamin	Wheels, cast-iron car	July 4, 1854	X.
11883	Sewell, William, assignor to Joseph Barton, re-assignor to W. Sewell.	Condensers, surface	Oct. 31, 1854	VI.
11712	Seymour, Edward, assignor to Daniel B. Brown	Gold separator	Sept. 19, 1854	II.
10707	Seymour, William H	Harvesters	Mar. 28, 1854	I.
	Seymour & Morgan. (See N. Platt, assignor.)			
10674	Shands, J. G	Mill-stones, machines for dressing	Mar. 21, 1854	XIII.
11035	Shank, Isaac R	Lath machine	June 6, 1854	XIV.
11841	Shanklin, Josiah	Square, scale, level, and bevel	Oct. 24, 1854	VIII.
11460	Shares, Daniel W	Cultivator	Aug. 1, 1854	I.
12075	Shares, Daniel W	Planters, seed, and cultivators	Dec. 12, 1854	I.
	Shaw, A. D. (See John E. Grant, assignor.)			
11571	Shaw, Edmund	Sewing-machine	Aug. 22, 1854	III.
11581	Shaw, Melvin, assignor to M. Shaw and D. G. Wheeler	Sewing-machines, clamps for	Aug. 22, 1854; antedated Feb. 22, 1854.	III.
10646	Shaw, Philander	Cultivators, rotary	Mar. 14, 1854	I.
10868	Shaw, Philander	Engines, air	May 2, 1854	XI.
11680	Shaw, Philander	Sewing-machines	Sept. 12, 1854	III.
	Shaw, Samuel. (See Mark R. Pearson, assignor.)			
11141	Shaw, Warren, and P. G. Green	Cloth, tentering	June 20, 1854	III.
10760	Shaw, W. A., and George Parker	Lamps, street, gas	April 11, 1854	V.
11443	Shearman, Simeon	Grain to the mill-stones, method of cleaning and feeding in.	Aug. 1, 1854	XIII.
11033	Sheffield, John	Saws, mill, apparatus for filing	June 6, 1854	II.
11681	Sheldon, Samuel	Mills, portable, grist	Sept. 12, 1854	XIII.

11842	Sherwood, Benjamin	Safes	Oct. 24, 1854	II.
11794	Sherwood, John P	Ovens, damper for	Oct. 10, 1854	V.
12103	Sherwood, John P	Cut-nail machine	Dec. 19, 1854	II.
	Shield & Griffiths. (See Griffiths & Shield.)			
10494	Shimer, Michael	Winnowers	Feb. 7, 1854	I.
12033	Shimer, Michael	Brakes, railroad car	Dec. 5, 1854	X.
	Shippen, E. W. (See William Campbell, assignor.)			
12003	Shirley, Daniel H	Piano-forte action	Nov. 28, 1854	XVIII.
10867	Short, Sewall	Violins	May 2, 1854	XVIII.
11090	Shove, William	Buckles	June 13, 1854	II.
10382	Shuttleworth, John	Looms, power	Jan. 3, 1854	III.
11619	Sibbet, R L	Tenoning spokes, method of	Aug. 29, 1854	XIV.
10842	Sickels, Gerard	Engines, rotary	Mar. 14, 1854	VI.
10761	Sigler, Henry	Fish-hooks	April 11, 1854	XXII.
11461	Sikes, James W	Vessels, masts of, cap or withe for the	Aug. 1, 1854	VII.
	Silsby & Hine. (See R. M. Hine, assignor.)			
	Silsby, —— *et al.* (See B. Holly, assignor.)			
	Silsby & Race. (See W. Race, assignor.)			
11092	Silver, Thomas	Windows, tightening	June 13, 1854	IX.
11094	Simonds, G. B., and A. Breser	Spark arresters	June 13, 1854	V.
11682	Simonds, Lorenzo	Teeth, palate for artificial	Sept. 12, 1854	XX.
	Simpson, F. and G., *et al.* (See William Lyon, assignor.)			
12034	Simpson, James E	Docks, dry	Dec. 5, 1854	IX.
10842	Singer, Isaac M	Sewing machines	May 2, 1854	III.
10974	Singer, Isaac M	Sewing machines	May 30, 1854	III.
10975	Singer, Isaac M	Sewing machines	May 30, 1854	III.
278	Singer, Isaac M	Sewing machines	Aug. 12, 1851; reissued Oct. 3, 1854.	Reissue.
268	Singer & Clark. (See Morey & Johnson.)			
11843	Sirret, Emile	Lanterns, fastening lamps in	Oct. 24, 1854	V.
10718	Sizer, Ephraim, Titus, and Emerson, and A. Halladay.	Braiding machine, Sacket's	Mar. 28, 1854	III.
11572	Skinner, Halcyon, and W. Greenhalgh	Gauge, carpenters'	Aug. 22, 1854	XIV.
10909	Skinner, Smith A	Splints, surgical	May 16, 1854	XX.
11912	Slater, James	Saws, circular, form for and mode of operating	Nov. 7, 1854	XIV.
10432	Sloan, Thomas J	Boilers, steam, apparatus for indicating the action of the feed pump to.	Jan. 17, 1854	VI.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10912	Sloan, Thomas J	Boilers, steam, water indicators for	May 16, 1854	VI.
12035	Sloan, Thomas J	Sashes, window, casting metal	Dec. 5, 1854	II.
11683	Smart, Don Carlos	Curtain fixtures	Sept. 12, 1854	XVII.
10708	Smart, Joseph	Pumps	Mar. 28, 1854	XI.
10836	Smiley, De Witt C	Oilers for machinery	April 25, 1854	XII
11620	Smith, A. J	Corn shellers	Aug. 29, 1854	I.
	Smith, Artemas R., and S. W. Ruggles. (See S. W. Ruggles, assignor.)			
12036	Smith, D. G	Cars, railroad, running-gear of	Dec. 5, 1854	X.
10939	Smith, D. M	Lathe dog	May 16, 1854	XIV.
	Smith, E., *et al.* (See James E. Crowell, assignor.)			
11303	Smith, F. B	Jacks, lifting	July 11, 1854	XII.
11274	Smith, F. G	Engines, steam, condensers for	July 11, 1854	VI.
11684	Smith, F. G	Engines, fire, mode of operating	Sept. 12, 1854	XI.
11753	Smith, Francis H	Brick-machines	Oct. 3, 1854	XV.
642	Smith, G., and H. Brown	Stoves, air-tight	April 25, 1854	Design.
649	Smith, G., H. Brown, and J. A. Read, assignors to Abbott & Lawrence.	Ranges, cooking, portable	May 23, 1854	Design.
11338	Smith, G. H	Steel, direct from the ore, process of making	July 18, 1854	II.
10709	Smith, Henry C	Shingle-machines, construction of	Mar. 28, 1854	XIV.
10422	Smith, Hezekiah B	Mortising-machines	Jan. 10, 1854	XIV.
10535	Smith, Horace, and D. B. Wesson	Fire arms	Feb. 14, 1854	XIX.
11496	Smith, Horace, and D. B. Wesson	Cartridges	Aug. 8, 1854	XIX.
279	Smith, Horace, and D. B. Wesson	Fire-arms	Feb. 14, 1854; reissued October 10, 1854.	Reissue.
11497	Smith, Ira, and J. Stonesiper	Lamps, lard	Aug. 8, 1854	V.
	Smith, Jeremiah, and Carey. (See Carey & Smith.)			
11913	Smith, Jeremiah P	Corn-shellers	Nov. 7, 1854	I.
10553	Smith, John B	Clothes-pins, machine for slitting	Feb. 21, 1854	XVII.
11253	Smith, J. B	Mortising sash-stiles, machine for	July 11, 1854	XIV.
658	Smith, John C., assignor to Warnick & Liebrandt	Stove, cooking	July 11, 1854	Design.
	Smith, J. C. & Sailor. (See Sailor & Smith.)			
12104	Smith, Jonathan	Docks, dry and other, method of holding vessels by the keel in.	Dec. 19, 1854	IX.
11275	Smith, Josiah M	Stone and metals, machines for planing	July 11, 1854	XV.
11389	Smith, J. W	Candlesticks, sheet-metal	July 25, 1854	V.
11702	Smith, Marvin	Water-metre	Sept. 19, 1854	XI.
10643	Smith, Nathan, and A. Crandall	Cards, cotton-machines for grinding	Mar. 14, 1854	II.
	Smith, R. M., and L. W. Leeds. (See Leeds & Smith.)			
	Smith, Ruggles, and Austin. (See S. W. Ruggles, assignor.)			
10560	Smith, Solomon, assignor to S. Smith and William Schoaler.	Parti-coloring machines	Feb. 1, 1854	IV.
11273	Smith, Thomas B	Cow-catchers	July 11, 1854	IX.
252	Smith, William H	Slags of furnaces, utilizing	Dec. 7, 1852; reissued January 3, 1854.	Reissue.
11336	Smith, William W	Buckles	July 18, 1854	XVI.
10835	Snell, Varanes	Boot-counters, machines for cutting and skiving	April 25, 1854	XVI.
11307	Snow, George B	Bells, mode of ringing, by steam	July 11, 1854	XXII.
11984	Snow, H., assignor to James A. Woodbury	Planing machines, presser bar for	Nov. 21, 1854	XIV.
662	Snow, Wm. M	Stoves, cooking	Aug. 8, 1854	Design.
11337	Snyder, Abram	Truck, railroad car	July 18, 1854	X.
266	Snyder, Elisha S	Mills for grinding	Feb. 10, 1846; reissued June 20, 1854.	Reissue.
11340	Snyder, John F	Fire-places, metallic	July 18, 1854	V.
10583	Snyder, John G., and Joseph Young	Planters, seed	Feb. 28, 1854	I.
10809	Sohn, Anthony	Match frames, machines for filling	April 18, 1854	IV.
10604	Sollenberger, Joseph	Brakes, carriage	Mar. 7, 1854	X.
10745	Sollenberger, Joseph	Vine, training the	April 4, 1854	I.
11304	Southworth, Albert S., and J. J. Hawes	Daguerreotypes for stereoscopes, taking	July 11, 1854	XVIII.
10461	Soule, Charles R	Grain, threshers and separators of	Jan. 24, 1854	I.
10446	Souther, George	Tires for carriage wheels	Aug. 1, 1854	II.
	Spafford, Charles, administrator of George Spafford, deceased.	Paper, machine for boiling and washing rags for manufacturing.	Sept. 2, 1840; extended Aug. 25, 1854.	Extension.
10415	Spafford, J. P	Saw gummers	Jan. 10, 1854	XIV.
	Spalding, W. C. (See Alonzo S. Woodward.)			
11280	Spangler, Washington, assignor to himself, E. H. Chambers, and W. F. Wilson.	Augers, gimlets, &c	July 11, 1854	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10946	Spear, Matthew	Mitre box	May 16, 1854	XIV.
12105	Speed, John J., jr., and John A. Bailey	Shingle machine	Dec. 19, 1854	XIV.
11795	Speer, Cornelius	Ginning and cleaning cotton	Oct. 10, 1854	III.
11019	Speers, Noah W	Hydrant cap	June 6, 1854	XI.
11234	Speight, John S	Kilns, brick	July 24, 1854	XV.
12004	Spence, Nathaniel	Bonnet frames, moulds for pressing	Nov. 28, 1854; antedated Nov. 10, 1853.	XXI.
10832	Spencer, A., and A. Loeschner	Hat bodies, forming and hardening	April 25, 1854	III.
11535	Spencer, George	Car windows, railroad	Aug. 15, 1854	IX.
	Spencer, O., and John Webster. (See Webster & Spencer.)			
11573	Spencer, Robert	Saddle trees, harness	Aug. 22, 1854	XVI.
11576	Spencer, Robert	Saddles, harness	Aug. 22, 1854	XVI.
11339	Spilman, Peter	Garments, cutting, apparatus for laying off the seye in.	July 18, 1854	XXI.
10897	Sprague, Alexander M	Boilers, steam, flue bottom of	May 9, 1854	VI.
10898	Sprague, Alexander M	Engines, steam, pistons for	May 9, 1854	VI.
11091	Sprague, E. H	Printers' forms, locking up	June 13, 1854	XVIII.
10644	Sprague, Welcome	Planters, seed	Mar. 14, 1854	I.
11332	Spratt, James	Sealing, hermetical	July 18, 1854	XXII.
	Spratt, James, and H. C. Nicholson. (See Henry C. Nicholson.)			
11813	Squire, John J	Sawing-machine	Oct. 17, 1854	XIV.
10758	Stafford, Hiram	Rat-traps	April 11, 1854	XXII.
10813	Stafford, James R	Distilling and condensing apparatus	April 25, 1854	IV.
	Stafford, James R., assignor to Goodrich, Seavey, & Co.	Boilers for culinary purposes	June 12, 1847; disclaimer entered July 13, 1854.	Disclaimer.
11093	Stagg, David I	Locks, in operating bolts, and for controlling series of doors.	June 13, 1854	II.
10710	Stagg, Thomas G	Tenoning, &c., blind slats, machines for	Mar. 28, 1854	XIV.

10521	Standish, John, assignor to J. Standish and H. A. Miller.	Boots and shoes, machines for pegging	Feb. 14, 1854	XVI.
11084	Stark, J., and L. Perrigo	Spoke machines, device for holding pieces in	June 13, 1854	XIV.
11574	Starr, Alfred A	Supporters, catamenial	Aug. 22, 1854	XX.
633	Starr, Frederick	Piano-fortes, cast-iron legs of	Feb. 28, 1854	Design.
634	Starr, Frederick	Piano-fortes, cast-iron pedal lyre for	Feb. 28, 1854	Design.
10967	Steadman, Thomas S	Harvesters, clover	May 23, 1854	I.
10545	Stearns, D. and H	Cloth, stretching and drying	Feb. 21, 1854	III.
	Stebbins, Lucius	Maps, mode of coloring	Mar. 12, 1840; extended Feb. 15, 1854.	Extension.
12074	Stedman, George W	Sewing-machine	Dec. 12, 1854	III.
12106	Stein, Louis	Fans, revolving, for apartments	Dec. 19, 1854	XVII.
	Stephenson, George. (See R. Porter, assignor.)			
10525	Sterling, W. G	Hoes, planting	Feb. 14, 1854	I.
10833	Sterling, Wm. G	Roofs, forming	April 25, 1854	IX.
11703	Sterling, W. G	Counting machines, and machines for indicating motion.	Sept. 19, 1854	VIII.
	Stevens, A. G., *et al.* (See White, assignor.)			
	Stevens, E. M., and Butterfield. (See Butterfield, assignor.)			
	Stevens & Clegg. (See Thomas Clegg, assignor.)			
	Stevens & Clegg. (See Thomas Clegg, assignor.)			
11975	Stevens, John Lee	Furnaces	Nov. 21, 1854; in England, Oct. 1, 1852.	V.
11622	Stevens, Joshua	Chairs for exercising	Aug. 29, 1854	XX.
10994	Stevens, M. W., and E. G. Kingsley	Sewing-machines	May 30, 1854	III.
	Stevens, Richard F., and others. (See Samuel B. Howd.)			
11334	Stevenson, H. C	Washing-machines	July 18, 1854	XVII.
11814	Stevenson, Richard B	Water-pipes	Oct. 17, 1854	XI.
11876	Stevenson, William J	Furnace, soldering	Oct. 31, 1854	V.
12076	Stever, Jeremiah	Metals, machines for scraping	Dec. 12, 1854	II.
	Stewart & Allen. (See Allen & Stewart.)			
	Stewart & Allen. (See Allen & Stewart.)			
	Stewart & Allen. (See Allen & Stewart.)			
	Stewart & Allen. (See Allen & Stewart.)			
	Stewart, James M., and H. C. Bridgham. (See Bridgham & Stewart.)			

Alphabetical list of patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
681	Stewart, Jos., assign's to Cresson, Stuart, & Peterson.	Stoves, box	Dec. 5, 1854	Design.
10932	Stewart, Linus	Saw	May 16, 1854	XIV.
10370	Stewart, Matthew	Malt-kilns, floor plates of	Jan. 3, 1854	IV.
12037	Stewart, Matthew	Brushes, manufacture of	Dec. 5, 1854	XVII.
	Stickney, Charles T., *et al.* (See James E. Crowell, assignor.)			
12077	Stieren, Edward	Processes of treating the mother water of salines	Dec. 12, 1854	IV.
10462	Stiles, Moses C., and T. S. Lewis	Window-blinds, machine for making	Jan. 24, 1854	XIV.
	Stillman, Allen & Co. (See Smith W. Bullock, assignor.)			
11577	Stillman, Paul	Counting-machines	Aug. 22, 1854	VIII.
11949	Stillson, George D	Excavating-machine	Nov. 14, 1854	IX.
	Stillwell, Stephen & Keech. (See Keech & Stillwell.)			
10433	Stimpson, C. W	Photographic plate vice	Jan. 17, 1854	XVIII.
	Stimpson, H. H. and F. H. (See Daniel Treadwell, assignor.)			
11819	Stimpson, James H., executor of James Stimpson, deceased.	Liquids, vessels for holding	Oct. 17, 1854; antedated April 17, 1854.	XVII.
10605	Stoakes, James W	Vessels, apparatus for paying the seams of	Mar. 7, 1854	VII.
11734	Stockton, Joseph B	Straw-cutters, springs to the knives of	Sept. 26, 1854	I.
10397	Stoddard, Oren	Sawing logs, machinery for	Jan. 3, 1854	XIV.
10906	Stoddard, William	Shingle-machine, rotary	May 16, 1854	XIV.
11950	Stoddard, William	Shingle-machine	Nov. 14, 1854	XIV.
12038	Stone, Amasa	Fire, method of extinguishing in inaccessible places	Dec. 5, 1854	V.
10603	Stone, R. J. R	Boring and mortising carriage-hubs, machines for	Mar. 7, 1854	XIV.
11442	Stone, Sandford	Cart, self-loading and dumping	Aug. 1, 1854	X.
	Stonesifer & Smith. (See Smith & Stonesifer.)			
10834	Storm, William M	Bullet-moulds	April 25, 1854	XIX.
10846	Storm, William M	Fire-arms, chargers for	May 2, 1854	XIX.
	Story, Jos., and Tucker. (See Hiram Tucker, assignor.)			
	Stott, J. B., and others. (See J. Harris.)			
11391	Stouder, David	Spade, ditching	July 25, 1854	I.
11312	Stouffer, J., P. Brough, and J. W. Barr	Flouring and bolting	July 11, 1854	XIII.
11498	Stout, Thomas B	Car-coupling	Aug. 8, 1854	X.
11088	Stowell, John	Steering-apparatus	June 13, 1854	VII.
	Stoy, D. C. (See Harig & Stoy.)			
	Stoy, D. C, and A. S. Harig. (See Harig & Stoy.)			
	Stratton, Lorenzo, and L. Hill. (See L. Hill, assignor.)			
11181	Straub, Isaac	Mills, in grinding	June 27, 1854	XIII.
11390	Straub, Isaac	Cutter, corn-cob	July 25, 1854	I.
11306	Straw, Willis	Chain-hook	July 11, 1854	II.
10935	Street, William H	Printing-presses, attaching blankets to cylinders for	May 16, 1854	XVIII.
10969	Strode, Joseph C	Hydraulic rams	May 23, 1854	XI.
11621	Strode, Joseph C	Valve, puppet, for hydraulic rams	Aug. 29, 1854	XI.
	Stuart, *et al.* (See Allen & Stewart, assignors.)			
	Stuart, *et al.* (See Allen & Stewart, assignors.)			
	Stuart, *et al.* (See Beesley & Delaney, assignors.)			
	Stuart, *et al.* (See Beesley & Delaney, assignors.)			
678	Stuart, David, assignor to W. P. Cressen & Co.)	Stoves, "egg-stove."	Nov. 7, 1854; antedated May 7, 1854.	Design.
11333	Stubblefield, Thomas	Gauges, steam	July 18, 1854	VI.
11444	Stull, John	Saw-mills	Aug. 1, 1854	XIV.
	Stumer, C. (See C. F. Thomin.)			
	Sturoc, W. C., and Josiah Turner. (See Turner & Sturoc.)			
	Sturtevant, S., and A. Hall. (See Hall & Sturtevant.)			
10869	St. John, L. C	Engine, hydrodynamic	May 2, 1854	XI.
11305	St. John, R. H	Bedstead fastenings	July 11, 1854	XVII.
10968	Suggert, Lewis C	Processes for treating hemp	May 23, 1854	IV.
11182	Sumner, Thomas	Hammers, steam	June 27, 1854	VI.
10580	Sumner, William	Organs	Feb. 28, 1854	XVIII.
10423	Swaim, James	Magnetic toy, called the Magical Cupid	Jan. 10, 1854	VIII.
	Swan, Elias A. (See W. J. Casselman, assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
109	Swartz, David	Ploughs	June 22, 1852; additional improvement February 28, 1854.	Additional improve'nt.
11575	Swartz David and Samuel	Ploughs, fastenings of	Aug 22, 1854	I.
11951	Swartz, Jacob	Harvesters, grain and grass	Nov. 14, 1854	I.
11089	Sweeney, Peter	Boilers, steam	June 13, 1854	VI.
11278	Sweeney, Peter	Furnace, hot-air	July 11, 1854	V.
	Sweet, P. T. (See G. S Blodgett.)			
11536	Sweet, William A	Fire-arms	Aug. 15, 1854	XIX.
10645	Swett, James H	Spike machines, hanging of the griping jaws of, in weighted levers.	Mar. 14, 1854	II.
11507	Swingle, Alfred, assignor to E. Townsend	Sewing machines	Aug. 8, 1854	III.
12078	Taft, Benjamin F	Boring machine	Dec. 12, 1854	XIV.
11017	Taft, Timothy F	Planing machines, device for operating cutter heads of.	June 6, 1854	XIV.
11242	Taggart, John, assignor to John Taggart and Richard Pitts.	Excavating earth, machine for	July 4, 1854	IX.
12107	Taggart, Samuel	Flour, clutch in machines for packing	Dec. 19, 1854	XIII.
	Talbot, John G. (See Briggs & Talbot.)			
12005	Talbot, William	Looms for weaving bags	Nov. 28, 1854	III.
10899	Tallcot, Daniel	Hatches, construction of	May 9, 1854	IX.
11704	Tapley, John	Pumps	Sept. 19, 1854	XI.
10379	Tapley, Philip P	Leather, machines for polishing	Jan. 3, 1854	XVI.
256	Taplin, John A	Horse-powers, portable	Dec. 30, 1841; reissued January 24, 1854.	Reissue.
12039	Tasker, Thomas T	Furnace of hot water apparatus, regulating the	Dec. 5, 1854	V.
10647	Taylor, Abijah	Valves, faucet, steam-engine	Mar. 14, 1854	VI.
11005	Taylor, Donald	Berth-knee former	June 6, 1854	VII.
10933	Taylor, H. S	Books, machine for paging	May 16, 1854	XVIII.
12040	Taylor, James	Cotton thread, covering, with wool	Dec. 5, 1854	III.
11097	Taylor, T. C	Soap compounds	June 13, 1854; in England, Sept. 17, 1853.	IV.
11098	Taylor, T. C	Soap manufacturing processes	June 13, 1854	IV.
11510	Taylor, Weatherill	Ships' blocks, bushing sheaves for	Aug. 8, 1854	VII.
11952	Tayman, Benjamin J	Cloth, machinery for stretching and drying	Nov. 14, 1854	III.
10946	Teal, Peter, and Charles Tyler, assignors to W. P. Cresson & Co.	Lathes for turning the interior surface of hollow ware.	May 23, 1854; in England, April 19, 1853.	XIV.
11142	Terry, Adrian R	Gas retorts, coating	June 20, 1854	IV.
11308	Terry, Jabez C	Screw wrenches	Jully 11, 1854	II.
10372	Terry, John B	Pins, machines for sticking	Jan. 3, 1854	II.
	Terry, John B. (See Thomas W. Harvey, assignor.)			
11767	Thatcher, Joseph	Gas meters, movements of	Oct. 3, 1854	IV.
10765	Thayer, George W	Bridges, iron, trusses for	April 11, 1854	IX.
11096	Thomas, Earl of Dundonald	Compositions for coating telegraphic wires, and for other purposes.	June 13, 1854; in England, Oct. 6, 1852.	IV.
10995	Thomas, Robert S	Typograph	May 30, 1854	XVIII.
	Thomas, Samuel T., and E. A. Everett, administratrix of E. Everett. (See Edward Everett.)			
11919	Thomas, Samuel T., and Eliza Ann Everett, administratrix of E. Everett.	Loom beams	Nov. 7, 1854	III.
10837	Thomas, W. B., and S. Hickok	Car seats, railroad	April 25, 1854	X.
11815	Thomin, C. F., and C. Stumer	Processes for enamelling iron	Oct. 17, 1854	IV.
	Thompson & Farr. (See Mansure, assignor.)			
	Thompson, T. C	Sewing machines	Mar. 29, 1853; disclaimer entered Feb. 16, 1854.	Disclaimer.
11500	Thompson, John, and A. S. Moore	Boot and shoe soles, machines for cutting	Aug. 8, 1854; antedated Feb. 8, 1854.	XVI.
11252	Thompson, John M	Engines, beam, parallel motion for	July 11, 1854	VI.
11878	Thompson, Julius	Odometers	Oct. 31, 1854	VIII.
10766	Thompson, jr., Nathan	Boats, life, reversible	April 11, 1854	VII.
12108	Thompson, jr., Nathan	Life preserving seats	Dec. 19, 1854; in England, Sept. 18, 1854.	VII.
10557	Thompson, Smith	Yam, spooling from the cop	Feb. 21, 1854	III.
11276	Thompson, Willet	Ventilator, ship	July 11, 1854	V.
11184	Thorn, Enoch	Sewers, ventilating	June 27, 1854	V.
11705	Thornley, William	Wheels to axles, safety washer for securing	Sept. 19, 1854	X.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
116	Thornley, William	Washers, safety, for securing wheels to axles	Sept. 19, 1854; additional improvement October 31 1854.	Add'l imp't.
11877	Thorp, Samuel R.	Odometers	Oct. 31, 1854	VIII.
10484	Thring, Frederick J.	Carpet bags	Jan. 31, 1854	XXI.
	Tidey, M. B., *et al.* (See M. J. Wheeler, *et al.*)			
12086	Tiebe & Muhle, assignors to Tiebe, Muhle, & Homan.	Tea pots, casting the spouts of	Dec. 12, 1854	XVII.
10815	Tiffany, Joseph C.	Plough, ditching	April 25, 1854	I.
11766	Tilghman, R. A.	Processes for purifying fatty bodies	Oct. 3, 1854	IV.
11976	Tilghman, Samuel H. T.	Inhaling apparatus	Nov. 21, 1854	XX.
10380	Tilton, William B.	Guitars	Jan. 3, 1854	XVIII.
632	Tilton, William B.	Guitars	Feb. 21, 1854	Design.
11347	Tingley, Albert H., assignor to himself, E. W. and H. F. Tingley.	Stone and marble, machines for sawing	July 18, 1854	XV.
12006	Tinsley, William	Mitre box	Nov. 28, 1854	XIV.
12041	Titus, William D.	Lanterns	Dec. 5, 1854	V.
10764	Toll, Jose	Rat traps	April 11, 1854	XXII.
11341	Tomlinson, Seymour	Docks of horses, machine for holding	July 18, 1854	XXII.
11796	Tongue, Henry	Engines, steam	Oct. 10, 1854	VI.
10810	Towers, William H.	Oysters, opening, machine for	April 18, 1854	XVII.
10934	Towers, William H.	Guitars	May 16, 1854	XVIII.
11392	Towers, William H.	Horse shoes	July 25, 1854	II.
11977	Towers, William H.	Clothes clamp	Nov. 21, 1854	XVII.
10838	Towle, Simeon	Syringe, eye-bath	April 25, 1854	XX.
10485	Town, Edward	Books, machine for paging	Jan. 31, 1854	XVIII.
	Townsend, Elmer. (See A. Swingle, assignor.)			
	Townsend, Elmer. (See Sidney S. Turner, assignor.)			
	Townsend, Elmer. (See Sidney S. Turner, assignor.)			
	Townsend, Elmer, and G. J. Wardwell. (See G. J. Wardwell, assignor, &c.)			
12007	Tracy, Edward H.	Valves, inclined sliding	Nov. 28, 1854	XI.
11583	Treadwell, Daniel, assignor to H. H. and F. H. Stimpson.	Furnaces, operating dampers of	Aug. 22, 1854	V.
11578	Treadwell, Francis C., jr.	Ovens	Aug. 22, 1854	V.
11765	Tripp, Ervin B.	Press, printing	Oct. 3, 1854	XVIII.
10712	Trott, George	Engines, steam, oil-cup for	Mar. 28, 1854	VI.
10711	Trotter, Jonathan G.	Zinc white, furnaces for	Mar. 28, 1854	IV.
10839	True, Isaac	Water-wheel, reaction	April 25, 1854	XI.
10451	Trumbull, Harvey	Straw-cutters, feed apparatus of	Jan. 24, 1854	I.
11978	Trussell, Thomas W.	Mill-stones, dressing	Nov. 21, 1854	XIII.
10561	Tucker, Hiram, assignor to H. Tucker and Jos. Story.	Stone, applying colors to	Feb. 21, 1854; in England Sept. 24, 1853.	IV.
12008	Tugnot, George	Lathe, rotary	Nov. 28, 1854	XIV.
11501	Turner, Edward	Hame fastenings	Aug. 8, 1854	XVI.
10949	Turner, George B.	Smut machines	May 23, 1854	XIII.
11183	Turner, Hartwell L.	Water-wheels, head-gate for	June 27, 1854	XI.
10495	Turner, Josiah and W. C. Sturoc	Winnowers	Feb. 7, 1854	I.
11588	Turner, Sidney S., assignor to Elmer Townsend	Sewing machines	Aug. 22, 1854	III.
11631	Turner, Sidney S., assignor to Elmer Townsend	Sewing machines	Aug. 29, 1854	III.
10371	Tuttle, Edward A.	Register, hot-air	Jan. 3, 1854	V.
	Tyler, Charles, and Peter Teal. (See Teal & Tyler, assignors to Cresson & Co.			
10940	Tyler, Philos B.	Saw-teeth, method of nibbing	May 16, 1854	XIV.
11202	Tyler, Philos B.	Cordage machinery	June 27, 1854	III.
11342	Tyler, Philos B.	Winding rope, cord and yarn	July 18, 1854	III.
11502	Tyler, P. B., and Benj. Lathrop	Castors, furniture, rollers of	Aug. 8, 1854	XVII.
	Tyler, P. B., and B. Lathrop. (See White, assignor.)			
10602	Tyng, L. B.	Turning lathes, tail-stocks for	Mar. 7, 1854	XIV.
	Tyrrel, T. (See E. D. Williams.)			
10717	Underhill, Henry	Printing-press, hand	Mar. 28, 1854	XVIII.
10483	Underwood, Benjamin	Printing-blocks, construction of	Jan. 31, 1854	XVIII.
11709	Upton, Benjamin F.	Daguerreotype plates, apparatus for polishing	Sept. 19, 1854	XVIII.
	Upton, ——. (See Joseph Perkins, assignor.)			
	Upton, H. P. (See Elisha Pratt, assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Upton, H. P., and others. (See Jno. C. Reed, assignor.)			
10777	Ustick, Stephen	Brick machines	April 18, 1854; antedated Nov. 15, 1853.	XV.
12109	Utley, Grey	Boot-crimping machines	Dec. 19, 1854	XVI.
	Vail, A: (See S. F. B. Morse, assignor.)			
10687	Valentine, E., and A. Bradway	Staves, machines for jointing	Mar. 28, 1854	XIV.
11979	Vanbunschoten, Isaac	Lamps	Nov. 21, 1854	V.
10996	Vanduzen, B. C., assignor to J. B. Martin and B. C. Vanduzen.	Furnace grate-bars	May 30, 1854	V.
11393	Vansant, John E	Vessels, arrangement of indicating tubes for ascertaining draught of and for trimming.	July 25, 1854	VII.
11879	Vansyckel, Samuel	Grate-bars	Oct. 31, 1854	V.
10840	Van Allen, C. D	Bedstead, invalid	April 25, 1854	XVII.
11590	Van Anden, Wm	Rolling shoulders on axles, machines for	Aug. 22, 1854	II.
11394	Van Antwerp, Abraham	Paddle-wheels	July 25, 1854	VII.
12009	Van Fleet, Daniel	Planing-machine	Nov. 28, 1854	XIV.
11771	Van Hoesen, Levi, assignor to New Haven Iron Railing Company.	Piano-forte stools	Oct. 3, 1854	XVIII.
630	Vedder, N. S., assignor to A. T. Dunham & Co	Stove, parlor	Feb. 14, 1854	Design.
11630	Vice, T. C	Windmill sails, method of furling and unfurling	Aug. 29, 1854	XI.
11106	Victory, Edmund, assignor to D. M. Lindley and G. Goulding.	Wool, spinning, machinery for	June 13, 1854	III.
11099	Vitally, Antho y, and Carl Kolb	Tools securing, to their handles	June 13, 1854	II.
11797	Volkening, Henry	Polishing-machine	Oct. 10, 1854	XIV.
	Vose, Albert. (See Hardman & Vose.)			
626	Vose, Samuel D	Stoves, cooking	Feb. 14, 1854; antedated Dec. 30, 1853.	Design.
627	Vose, Samuel D	Stoves, cooking	Feb. 14, 1854; antedated Dec. 30, 1853.	Design.
628	Vose, Samuel D	Stoves, cooking	Feb. 14, 1854; antedated Dec. 30, 1853.	Design.
629	Vose, Samuel D	Stoves, parlor	Feb. 14, 1854; antedated Dec. 30, 1853.	Design.
637	Vose, Samuel D	Stoves, coal	Mar. 28, 1854	Design.
639	Vose, Samuel D	Stoves, cooking	Mar. 28, 1854	Design.
10999	Waddell, Robert	Engines, steam, balancing slide-valves of	June 6, 1854	VI.
11844	Wade, Oron W	Stoves	Oct. 24, 1854	V.
11024	Wade, Robert M	Lubricator	June 6, 1854	XII.
	Wadsworth, Samuel. (See Matthew Cridge.)			
	Wagstaff, John C. (See D. W. Gitchell, assignor.)			
	Wagstaff, William. (See G. W. French.)			
11537	Wait, I. T. and L. J	Planters, seed	Aug. 15, 1854	I.
11395	Wakefield, Charles A	Planters, seed	July 25, 1854	I.
12010	Wakeley, William	Drills, metal	Nov. 28, 1854	II.
10997	Waley, William, assignor to Jonathan Whipple, jr.	Blocks, nipper, self-acting	May 30, 1854	XII.
11315	Walker, Matthew, assignor to M. Walker & Sons	Fence, iron picket	July 11, 1854	II.
11451	Walker, William B	Brooms, manufacture of	Aug. 1, 1854	XVII.
	Walker, William C. (See Fitzgerald, Rogers, & Walker.)			
11047	Wallace, Thomas, and Elizabeth Backmeister, executrix of H. Backmeister.	Blowing fan	June 6, 1854	II.
10416	Walworth, Caleb C	Valve, float, for discharging condensed water	Jan. 10, 1854	V.
11311	Ward, William E.	Window-blinds, iron slats for, mode of manufacturing.	July 11, 1854	IX.
11625	Wardwell, Charles P. S	Tenons, machine for cutting	Aug. 29, 1854	XIV.
11346	Wardwell, George I., assignor to G. I. Wardwell and E. Townsend.	Boots and shoes, machines for pegging	July 18, 1854	XVI.
10436	Ware, Charles T. P., assignor to D. C. Morehead	Clasps	Jan. 17, 1854	XXII.
11624	Warlick, Noah	Horse-shoeing apparatus	Aug. 29, 1854	II.
11654	Warner, Daniel, jr.	Flax, machinery for dressing	Sept. 29, 1854	III.
	Warnick & Liebrandt. (See John C. Smith.)			
	Warnick & Liebrandt. (See Sailor & Smith.)			
10434	Warren, Ira	Tonsil instrument	Jan. 17, 1854	XX.
11450	Warth, Albin	Engines, fire	Aug. 1, 1854	XI.
11798	Warth, Albin	Turning-lathes	Oct. 10, 1854	XIV.
11845	Warwick, William	Mills	Oct. 24, 1854	XIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
11185	Washburn, Philo, H. G. O. White, and George A. Copeland.	Coffins	June 27, 1854	XXII.
11914	Washington, B. H.	Furnaces, means for directing the blast in	Nov. 7, 1854	V.
11980	Waterbury, Milan	Planters, seed	Nov. 21, 1854	I.
12079	Waterman, H	Engines, steam, condensers for	Dec. 12, 1854	VI.
10778	Waterman, Stephen	Sawing-machine, circular	April 18, 1854	XIV.
11623	Waters, E.	Breast-cups	Aug. 29, 1854	XVII.
11432	Watson, William	Stone and marble saws	Aug. 1, 1854	XV.
11343	Watt, Charles, and H. Burgess	Paper from wood, manufacture of	July 18, 1854; in England, Aug. 19, 1853.	III.
11981	Watt, William	Processes, hemp-rotting	Nov. 21, 1854; in England, May 22, 1852.	IV.
11816	Wayne, Henry	Toilet-glass, joint for	Oct. 17, 1854	XXI.
10670	Weare, John M.	Milker's protector	May 2, 1854	I.
11396	Webb, Benjamin	Polishing-wheels	July 25, 1854	II.
12042	Webb, Ellis	Hydraulic ram	Dec. 5, 1854	XI.
10511	Webb, Joseph W.	Locks, door, portable	Feb. 7, 1854	II.
11539	Webb, Timothy U.	Lightning-rods, insulators for	Aug. 15, 1854	VIII.
10688	Webber, Elbridge	Ships' blocks	Mar. 28, 1854	VII.
10671	Webber, Elbridge	Planing-knife, rotary	May 2, 1854	XIV.
11915	Webber, Elbridge	Shovel-handles, machinery for making head part of	Nov. 7, 1854	II.
12043	Webber, Elbridge	Churns	Dec. 5, 1854	I.
11764	Webster, Benjamin B.	Curtains, mosquito	Oct. 3, 1854	XVII.
10767	Webster, John	Lubricator	April 11, 1854	XII.
10529	Webster, John, and O. Spencer, assignors to John Webster.	Gas-burners	Feb. 14, 1854	V.
	Webster, L. O., & G. W. Wood. (See Wood & Webster.)			
10713	Webster, William	Metal, sheet, machines for bending	Mar. 28, 1854	II.
11186	Weed, Henry	Bonnet frames, wire, mode of constructing	June 27, 1854	XXI.
12011	Weed, Theodore E.	Sewing machines	Nov. 28, 1854	III.

10872	Weeks, Asa	Bit, expansive	May 2, 1854	II.
12080	Weeks, Daniel P.	Furnaces, hot-air	Dec. 12, 1854	V.
12110	Weeks, Daniel P.	Range, oven cooking	Dec. 19, 1854	V.
11706	Weeks, John J.	Sausage stuffers	Sept. 19, 1854	XVII.
11735	Weeks, John J.	Harvesters of grain and grass	Sept. 26, 1854	I.
11105	Weight, Joseph	Cloth, napping, machinery for	June 13, 1854	III.
12081	Wiemar, Jacob	Locks, door	Dec. 12, 1854	II.
10486	Wiemer, Peter L	Hammers, steam	Jan. 31, 1854	II.
10727	Wells, David A.	Fibre, vegetable, the preparation of	April 4, 1854	III.
	Wells, John Gaylord. (See Julius Herriett.)			
11310	Wells, Moses D.	Brakes for light vehicles	July 11, 1854	X.
11538	Wells, Moses D.	Rakes, horse	Aug. 15, 1854	I.
11736	Wells, Moses D.	Washing machines	Sept. 26, 1854	XVII.
11768	Welsh, Joseph	Looms	Oct. 3, 1854	III.
10463	Werner, Carl E.	Distilling apparatus	Jan. 24, 1854	IV.
	Wesson, Daniel B., and H. Smith. (See Smith & Wesson.)			
	Wesson, D. B., & H. Smith. (See Smith & Wesson.)			
	Wesson, Daniel B., and H. Smith. (See Horace Smith.)			
11626	West, Joseph D.	Hydraulic ram	Aug. 29, 1854	XI.
11953	Westgate, Orson	Saw-gauge	Nov. 14, 1854	XIV.
11104	Westinghouse, George	Horse-power, endless chain	June 13, 1854	XIII.
11011	Westrup, Walter	Mills, grain	June 6, 1854; in England, Jan. 24, 1850.	XIII.
11143	Wethered, Charles E., John, and Samuel	Heating purposes, ordinary and superheated steam combined for.	June 20, 1854	V.
10874	Whalen, Seth	Hay knives	May 2, 1854	I.
	Wheeler, Artemas, and E. H. Graham. (See Edmund H. Graham, assignor.)			
10877	Wheeler, Clark	Bee-hives	May 9, 1854	I.
12044	Wheeler, Cyrenus, jr.	Harvesters, grain and grass	Dec. 5, 1854	I.
	Wheeler, Daniel G., and M. Shaw. (See Melvin Shaw, assignor.)			
	Wheeler, Lyman, and A. Goodman. (See Goodman & Wheeler.)			
11235	Wheeler, M. J., G. W. Rogers, H. W. Pierce, and M. B. Tidey.	Plane, bevelling	July 4, 1854	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12012	Wheeler, William	Washing machines	Nov. 28, 1854	XVII.
11020	Whipple, James A	Pumps, mechanism for operating	June 6, 1854	XI.
	Whipple, Jonathan. (See Waley, assignor.)			
11189	Whipple, M. D. and L. W., assignors to L. W. Whipple and R. B. Fitts.	Printing upon glass, process of engraving or	June 27, 1854	XVIII.
	Whipple, Milton D	Cotton ginning: machine for cleaning wool from burs and other foreign matter.	Oct. 28, 1840; extended Oct. 24, 1854.	Extension.
	Whitcomb, N. C., *et al.* (See Newman, *et al.*)			
	Whitcomb, N. C., *et al.* (See Newman, *et al.*)			
	Whitcomb, *et al.* (See Newman, *et al.*)			
	White, Harrison G. O., *et al.* (See Washburn, *et al.*)			
	White, Henry J. (See Donovan, administrator, and Donovan, assignor.)			
10437	White, Lewis B	Trusses	Jan. 17, 1854	XX.
10488	White, LeRoy S	Casters, furniture	Jan. 31, 1854	XVII.
11657	White, LeRoy S., assignor to L. S. White, Lewis White, Lyman White, and A. G. Stevens.	Lamps, railway	Sep. 5, 1854	V.
11506	White, L. S., assignor to B. Lathrop and P. B. Tyler.	Casters, furniture	Aug. 8, 1854	XVII.
11540	White, William A	Printing long-napped fabrics, process for	Aug. 15, 1854	XVIII.
11149	White, Stephen, and H. C. Jones	Locks, pad	June 20, 1854	II.
11627	Whitehead, Jesse	Speeders, counter-twist	Aug. 29, 1854	III.
	Whiting, Jas. M., and George F. Wilson. (See Wilson & Whiting.)			
	Whiting, William. (See J. Marks, assignor.)			
	Whiting, William. (See Marks & Howarth.			
11579	Whiteley, Abner	Harvesters, grass, track cleaners to	Aug. 22, 1854	I.
11710	Whiteley, Abner	Harvesters, grain and grass	Sep. 19, 1854	I.
280	Whitmarsh, Samuel	Calorifiers	Aug. 17, 1852; reissued October 10, 1854.	Reissue.

11447	Whitney, Eli	Fire-arms	Aug. 1, 1854	XIX.
	Whitridge, S. H. (See John Wilcox.)			
11462	Whittall, J. W., and W. W. Pendleton	Hats, felt	Aug. 1, 1854	XXI.
11251	Wickersham, John B	Pavements, foundations for	July 11, 1854	IX.
10615	Wickersham, William	Sewing machines	Mar. 7, 1854	III.
11503	Wickersham, William	Irons, smoothing, self-heating	Aug. 8, 1854	XVII.
11708	Wicks, Loren J	Sawing machine, method of operating guide-rollers or feed-clamps in.	Sep. 19, 1854	XIV.
11102	Wightman, James	Boilers, steam	June 13, 1854	VI.
11580	Wilber, Philander	Presses, cheese	Aug. 22, 1854	XII.
10683	Wilbur, Alexander	Staves, jointing, machines for	Mar. 21, 1854	XIV.
10684	Wilbur, Alexander	Crozing machines	Mar. 21, 1854	XIV.
11769	Wilcox, John, and S. H. Whitridge	Sewing-needles	Oct. 3, 1854	III.
11655	Wild, George L	Musical stringed instruments	Sep. 5, 1854	XVIII.
10714	Wilder, R. A	Wheels, railroad car	Mar. 28, 1854	X.
11880	Wilder, R. A	Spark-arresters, for heating feed-water, arrangement in.	Oct. 31, 1854	VI.
11398	Willard, Simon	Bedsteads, portable	July 25, 1854	XVII.
11449	Willard, Simon	Bedsteads	Aug. 1, 1854	XVII.
	Williams, C. H. (See Bassett, assignor.)			
11397	Williams, Charles	Boxes, mode of fitting heads in	July 25, 1854	XIV.
11817	Williams, E. D., and T. Tyrrell	Brick-presses	Oct. 17, 1854	XV.
10526	Williams, Henry S	Steam, apparatus for controlling the pressure of	Feb. 14, 1854	VI.
11799	Williams, Irvin A	Lamp, locomotive	Oct. 10, 1854	V.
11713	Williams, John, assignor to F. Curtis & Co	Clocks, calendar	Sept. 19, 1854	VIII.
10873	Williams, Parley, 2d	Slotting-machine	May 2, 1854	XIV.
	Williams, S. G., and Aaron Palmer. (See Palmer & Williams.)			
11399	Willis, Daniel	Cooking and warming, apparatus for	July 25, 1854	V.
11881	Wilmot, S. R	Metre, water	Oct. 31, 1854	XI.
12116	Wilson, Allen B., assignor to W. P. N. Fitzgerald	Sewing-machines	Dec. 19, 1854	III.
11073	Wilson, Charles A	Valves, for steam-pumps, operating	June 13, 1854	VI.
11916	Wilson, Charles	Locks	Nov. 7, 1854	II.
11402	Wilson, D., assignor to W. F. Pratt, G. W. Bosworth, and H. M. Bird.	Stove-pipes, thimbles for	July 25, 1854	V.
11344	Wilson, G. F., and J. M. Whiting	Screws, threading, machines for	July 18, 1854; in England, April 4, 1854.	II.
10621	Wilson, Joseph	Railroad switches, self-acting	Mar. 7, 1854	IX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10417	Wilson, Stephen D	Valves and valve-seats of steam-engines	Jan. 10, 1854	VI.
	Wilson, Wm. F., and E. H. Chambers. (See Spangler, assignor.)			
	Winans, Ross	Engines, steam, mode of regulating the waste steam in locomotive.	Nov. 26, 1840; extended Nov. 20, 1854.	Extension.
10901	Winans, Ross and Thomas	Locomotive fire-box	May 9, 1854	VI.
10971	Winans, Ross and Thomas	Locomotive tender	May 23, 1854; antedated May 9, 1854.	VI.
11144	Winchester, Joseph R	Carriage tops, mode of raising and letting fall	June 20, 1854	X.
	Winsor, Charles F. (See Henry Richards.)			
12083	Winsor, Daniel L	Windlasses, ships'	Dec. 12, 1854	XII.
11707	Winter, Archibald	Sawing fire-wood, machine for	Sept. 19, 1854	XIV.
11737	Wiener, Joel	Washing-machine	Sept. 26, 1854	XVII.
	Wissenger & Enoch. (See Enoch & Wissenger.)			
10682	Wolf, David and Herman	Planters, seed	Mar. 21, 1854	I.
10998	Wood, Brown S	Knitting machines	June 6, 1854	III.
11103	Wood, G. W., and L. O. Webster	Gates, canal lock	June 13, 1854	IX.
11187	Woodbridge, W. E., assignor to Charles Humphrey.	Tops, whistling	June 27, 1854	XXII.
11504	Woodbury, H. E	File or holder, document	Aug. 8, 1854	XVIII.
10512	Woodbury, J. A	Planing machines	Feb. 7, 1854	XIV.
	Woodbury, J. A, and W. B. Merrill. (See Absterdam & Merrill, assignors.)			
	Woodbury, J. A. (See H. Snow, assignor.)			
11448	Woodman, Horace	Carding machines, cleaning top cards of	Aug. 1, 1854	III.
10606	Woodruff, Chauncey D	Troughs, eaves, suspending	March 7, 1854	IX.
10527	Woodruff, Jacob D, and J. H. Butterworth	Bridges, drop	Feb. 14, 1854	IX.
11400	Woods, Leonard	Hedge trimmer	July 25, 1854	I.
	Woods, S. A., and S. S. Gray. (See S. S. Gray, assignor.)			
11882	Woodward, A. S., and B. F. Bartlett	Paper, machinery for cutting rags for making	Oct. 31, 1854	III.
11309	Woodward, Thomas B	Mills, for grinding	July 11, 1854	XIII.
11800	Woodward, Thomas B	Smut machines	Oct. 10, 1854	XIII.
11985	Woodward, Stephen, assignor to S. Woodward, J. P. Nelson, and A. C. Carroll.	Clothes, apparatus for drying	Nov. 21, 1854	XVII.
12016	Woodworth, Arad, 3d, and George Chamberlain	Rope and cordage, machinery for making	Nov. 28, 1854	III.
10900	Woolman, Enoch	Hinges, inclined plane, arrangement of friction-roller in.	May 9, 1854	II.
11801	Woolsey, Edward J	Sugar boilers, construction of	Oct. 10, 1854	IV.
11628	Woolten, John	Nail machines	Aug. 29, 1854	II.
11635	Worrall, Thomas, assignor to Mifflin Paul	Plane, multiform moulding	Aug. 29, 1854	XIV.
11541	Wright, A. S	Gold amalgamator	Aug. 15, 1854	II.
11846	Wright, Benjamin H	Engines, rotary steam	Oct. 24, 1854	VI.
11279	Wright, George	Spinning, self-acting mules for	July 11, 1854	III.
10970	Wright, Robert L	Tire-bending machines	May 23, 1854	II.
11917	Wright, Wendell	Fire-arms	Nov. 7, 1854	XIX.
12111	Wright, Wendell	Bed, spring bottom	Dec. 19, 1854	XVII.
10398	Wright, William	Valves, cut-off, of steam-engines, operating	Jan. 3, 1854	VI.
10618	Wright, William C	Stone, machines for drilling	Mar. 7, 1854	XV.
11145	Wright, William C	Cloth, folding and measuring	June 20, 1854	III.
12082	Wyatt, Charles W	Felloes, machine for dressing	Dec. 12, 1854	XIV.
10528	Wyckoff, A	Chains, jack, making links of, machines for	Feb. 14, 1854	II.
10376	Xander, G. A	Corn-shellers	Jan. 3, 1854	I.
10584	Yale, Linus	Locks, bank	Feb. 28, 1854	II.
11818	Yandell, John, and J. H. Johnson	Bridge, iron	Oct. 17, 1854	IX.
11100	Yates, George, and Eli Clayton	Looms	June 13, 1854	III.
11918	Yeaman, S. M., deceased	Straw-cutters	Nov. 7, 1854	I.
10843	Young, Amos	Boats, canal, method of discharging cargo from	May 2, 1854	VII.
	Young, Elias, and F. Heller. (See Heller & Young.)			
11236	Young, Jerome B	Bells, mode of hanging	July 4, 1854	XXII.
10617	Young, Jesse	Air-heating pipes, connecting the joints of	Mar. 7, 1854	V.
	Young, Jos., and J. G. Snyder. (See Snyder & Young.)			
11401	Zeigler, Daniel	Mills, cider	July 25, 1854	XIII.
616	Zenner, Charles, assignor to M. Greenwood & Co.	Foot-stool, or ottoman, frame of a	Jan. 3, 1854	Design.
617	Zenner, Charles, assignor to M. Greenwood & Co.	Foot-stool, or ottoman, frame of a	Jan. 3, 1854	Design.
621	Zenner, Charles, assignor to M. Greenwood & Co.	Shovel and tongs stand	Jan. 24, 1854	Design.
622	Zenner, Charles, assignor to M. Greenwood & Co.	Shovel and tongs stand	Jan. 24, 1854	Design.
	Zern & Schuyler. (See Schuyler & Zern.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
10558	Zink, John	Grain, threshers and separators of	Feb. 21, 1854	I.
	Zoiner & Harris. (See C. Harris and P. W. Zoiner.)			
	Zoiner & Harris. (See C. Harris and P. W. Zoiner.)			
	Zoiner & Harris. (See C. Harris and P. W. Zoiner.)			
	Zoiner & Harris. (See C. Harris and P. W. Zoiner.)			
10585	Zook, Jacob	Lathes, carrier for	Feb. 22, 1854	XIV.

DESCRIPTIONS AND CLAIMS OF PATENTS,

ISSUED IN THE YEAR 1854.

ILLUSTRATED WITH ENGRAVINGS.

No. 10,358.—A. C. Cook.—*Improved machines for Sawing Bevel Surfaces.*—Patented January 3, 1854.

This invention consists in so arranging in a frame a circular saw J¹, a moveable carriage I, a segmental gauge-plate H, and gnomon G, that, by adjusting these several parts, any required bevel is sawed, as the carriage I passes the saw.

Claim.—The employment, in the manner herein described, of an adjustable, swinging, bevel-gauging platform, provided with a sliding carriage I, which has adjustable guide rails *l l*, and adjustable heel and side rest J² and L, and pointer G, in combination with an index plate H and cutter J¹,—the whole being constructed, arranged, and operating in the manner and for the purpose herein described.

No. 10,359.—Samuel and Thomas Champion.—*Improvement in Feathering Paddle-Wheels.*—Patented January 3, 1854.

The improvement consists in the arm of the paddle E being continued through the hub or wheel shaft D, instead of terminating at the hub, or, that when the one paddle is feathered in the water, the other at the opposite end of the shaft is placed in that position which offers the least resistance to its passage through the air, or *vice versa*; and in the cam frame H, G, for reversing the paddles C, which is done by means of the cam-faces G acting against the oblong projections *i i*.

No. 10,360.—Isaac Crandal.—*Improvement in Running Gear of Wagons.*—Patented January 3, 1854.

The improvement consists in a combination of the ordinary fixed perch, or reach, with a spring reach, so that all the solidity of the former is obtained with the advantages of the latter, yet avoiding any weakness of construction.

The drawing represents the spring, &c., in action when the vehicle is turning.

Claim.—The arrangement of the spring-bar (or partial reach) F, furnished with a slot G, the bar *h*, connecting the sand-bar *c* and upper sway-bar *k*, in which is inserted the pin *g*, in combination with the ordinary reach, or perch, and running gear of wagons, for the purpose of not only giving direction and steadiness of the tongue under all circumstances, but also preserving the set of the axle at the same time, as set forth and shown.

No. 10,361.—JOHN COLLMANN.—*Ruling Machine.*—Patented January 3, 1854.

This is an improvement in machines for ruling parallel lines upon copper-plates and other surfaces, and has for its object the moving laterally of the way upon which the ruling carriage runs. It consists in moving the box to which the way is attached along a bar passing through it, by the action of a cam working against a plate alternately sliding upon and secured to the traversing bar; the operation being performed by means of a lever fastened to the cam, the movement of which is regulated by an adjustable stop, thus limiting the advance of the box, and regulating the distance between the lines.

Fig. 1 is a top view of the box with the cover removed.

Fig. 2 is a vertical section.

The claims are to the case *d*, alternately sliding upon and secured to the bar *c*, as specified, in combination with the cam *m*, lever *l*, spring *f*, and stop *n*, arranged and operating as described for moving the box *a* upon the traversing bar *c*, any required distance, substantially as and for the purpose herein fully set forth.

No. 10,362.—WILLIAM S. DILLEHAY.—*Straw Cutter.*—Patented January 3, 1854.

This invention consists in the horizontal double-edged cutter knife D, in combination with the moveable discharge scraper E.

No. 10,363.—JOHN DONLEVY.—*Method of forming Plates for Polychromatic Printing.*—Patented January 3, 1854.

The claims are for a method of producing intagliographic printing and other plates from forms of types, by surrounding the types whilst in contact with a glass plate, or its equivalent, with plaster of Paris, or some equivalent therefor, so that when set the surface of the plaster will be on the same plane with the surface of the types, and then stereotyping the form of types thus surrounded.

Also, for the method of producing embossing plates by taking a cast in plaster from an intagliographic plate, and then stereotyping such plaster cast, thus producing a reverse duplicate in relief.

Also, the method described of producing what are called illuminated printing plates for printing shaded intagliographic letters, characters, or figures, by producing an intagliographic plate in accordance with the

first part of the invention from a form of shaded types, and then removing the plaster from the form of types, so that, after printing in intaglio with the intagliographic plate, the shadows can be printed, either with the form of types after the plaster has been removed, or with a stereotype taken from it.

And finally, producing polychromatic printing plates from an intagliographic plate by taking a cast therefrom in relief, and from such relief obtaining what is termed a stencil plate or plates, from which the plate is obtained, to have the letters or figures, in whole or in part, in duplicate of the intagliographic letters, &c., and in relief.

No. 10,364.—F. P. DIMPFEL.—*Steam Boiler Furnaces.*—Patented January 3d, 1854.

This improvement consists in lining the tin box or furnace with water tubes *d*, connected at the top and bottom with water spaces *e* and *f*, and the grate *a* so arranged that a full and complete circulation of water is produced. The figure represents a vertical section through the boiler and fire-place.

No. 10,365.—JAMES HAMILTON.—*Improvement in Quartz-Crushing Machines.*—Patented January 3d, 1854.

The invention is an improvement on the ordinary roller or cylindrical pestle working in a concave, which is disclaimed.

The drawing represents a vertical section.

Claim.—The means herein described and shown for cracking and grinding metallic ores, consisting of the cylindrical pestle *d*, provided with grooves in its upper part to crack the lumps of ore, and set on a shaft *c*, on which it has a partial rotary motion, and operating in connection with the basin *a*, in which said pestle moves to grind the ore into powder by the gradual approach of the sides of said basin to the cylindrical pestle, said pestle being also provided with a scraper or agitator 5 in its lower surface.

No. 10,366.—MICHAEL W. HELTON.—*Improved method of operating two Saw-Gates by one Pitman.*—Patented January 3d, 1854.

The object of this invention is to relieve the pitman of all strain due to the weight of the gates, and is thus effected: upon the two pivots *k* and *f* rock two levers J and M, to whose extremities friction wheels L and N are attached. The bifurcated pitman I is hinged at *i i* to the lower lever, and confined by a wrist at Q to a crank, upon a shaft, to which motion is imparted by a band over a drum *s*. It is evident that the two gates E will thus receive a reciprocating rectilinear motion, and that the pitman receives no strain from them. A pendulum motion of the pitman may effect the same result.

The claim is for driving a pair of saw-gates, the saws of which operate on the same log, by means of a bifurcated pitman hinged to the

rocking cross-beam by its two arms, and connected by a wrist upon its other end with the crank of the driving shaft; by which means a conical gyratory motion is imparted to the pitman, for the purpose and substantially in the manner described.

No. 10,367.—George D. Miller.—*Tuyere.*—Patented January 3, 1854.

The improvement consists in the notched segment of cylinder *f*, as arranged in relation to the passages *c*, *d*, and *b*, that the blast may be directed, graduated, to one or other of the egress-passages *c* and *d*.

No. 10,368.—Lucius Paige.—*Improvement in Screws and Nuts.*—Patented January 3d, 1854.

This improvement consists in connecting to the nut B a spring-pawl C, which catches into the other threads of the screw, and thus prevents the nuts from being jarred off; and in having the pawl so attached to the nut that the application of the wrench liberates it from the toothed thread.

The claims are to the forming of the helical thread of a male screw with notches or teeth, as specified, in combination with applying to its screw-nut a dog-catch or spring-pawl, to operate in the said teeth or notches, and prevent back rotation of the nut on the screw, substantially as above set forth.

Also, to the improvement of so applying the catch-lever, or dog, or catch to the nut, that it may project beyond one prismatic side of the nut; so that when a wrench is applied to such side of the nut and its opposite side, it may press inwards the dog or catch, or lever thereof, or so act upon the same as to throw such dog or catch out of engagement with the teeth or notches of the male screw, so as to allow the nut to be unscrewed from the same, substantially as specified.

No. 10,369.—Jonathan Russell.—*Improved machine for cutting Irregular Forms.*—Patented January 3, 1854.

The peculiarities of this machine consist in so combining the spur-wheel *f*, on the mandrel *g*, (which carries the pattern,) and the spur-wheels f^1 f^2, on the mandrels g^1 g^2, (which carry the rough material,) with the main wheel *e*, for turning them through their respective carriages, that the carriage G may have a uniform longitudinal motion relatively to the carriage H, for the purpose of cutting to the same or to a greater or less size than the pattern. Also, in so hanging the tracers *u u* in independent frames, working within the frames W W, which carry the cutters T T, as to allow the cutters to reduce the rough material to the same or to a greater or less size than the pattern, in its transverse direction. And also in giving to the pattern H^1 and the rough material (between g^1 and g^2, and J J) a half or less than a half revolution, at each traversing motion of the carriages G and H,

for the purpose of reducing or cutting in longitudinal sections, without revolving the pattern or the rough material. The drawing presents a side view of the machine, showing only one tracer *u* and one set of cutters T, the other tracer and the other set of cutters being behind them.

No. 10,370.—Mathew Stewart.—*Floor Plates for Malt Kilns.*—Patented January 3d, 1854.

The device consists of a peculiar construction of the floor in small square sections of perforated sheet iron, having their edges *b b* bent down at right angles to the horizontal part B of the body of each square. Under the place where the four corners of any four squares meet is a stanchion C, with cross-slots for the resting of each of the four corners of the plates, and the bent-down edges are received in the cross-slots to hold them all in their proper places.

No. 10,371.—Edward A. Tuttle.—*Hot-air Register.*—Patented January 3d, 1854.

The inventor does not claim the rack-and-pinion movement, or the crown-wheel and segment; but what is claimed is the improvement upon William Fenton's Patent Register, which consists in the improved method of maintaining the connecting rod in its proper position, substantially as described, namely: at the bottom, by a prong or prongs of the rod inserted into and working in cast raised openings on the fans or valves, and at the top by a slot or otherwise in the register front, together with the slide plate *p*, by which arrangement the register is greatly simplified and cheapened in its cost.

No. 10,372.—John B. Terry.—*Pin Machines.*—Patented January 3, 1854.

This machine consists in a circular guard *e i* and circular slide 10, combined with the wheel *e* and spring f^2, for bringing the pins from the conductor and dropping them in the sticking channels.

No. 10,373.—Zina S. Ogden, assignor to Lewis C. Ogden.—*Improvement in Lowering, Raising, and Fastening Carriage-Tops.*—Patented January 3d, 1854.

This improvement is to be applied to carriage-tops without joints in the bows. The top is secured to the shaft *a*, which moves up and down in slots in the sides of the vehicle. A lever *e* moves the shaft *c* and its eccentric hooks *d*, which depress the shaft *a*, and lock the top when it is raised. The fixed pins or bolts, *ff*, serve to hold the top steady while raised.

Claim.—The application of the lever, the shafts, the eccentric circle-hooks, and the two bolts to lower, raise, and fasten carriage-tops with stationary bows.

No. 10,374.—D. H. CHAMBERLAIN, assignor to CHAMBERLAIN & HUNT.—*Banding Pulleys for Driving Saws.*—Patented January 3d, 1854.

The claims are: 1st. The arrangement of pulleys and endless belt, whereby the driven pulley is sustained on the periphery of the driving wheel or pulley; the same consisting in placing the peripheries of the two lesser pulleys in contact with the periphery of the driving-wheel, so as to extend beyond the side thereof, and running the endless belt around the extensions of the said two pulleys, and down by the side of the driving-wheel, and without any pressure or contact with its periphery. 2d. To the combination of two endless belts, arranged on opposite sides of the driving-wheel, with the bearing and belt-pulleys, or their equivalents, and the driving wheel, as made to operate together; the same enabling to relieve the bearings of the shafts of the several pulleys from the contractile strain of the belts. 3d. To the improvement of arranging two or more endless belts on one side of the driving-wheel, and not only running all of the said belts around one shaft or drum, or the equivalent, supported on the periphery of the driving-wheel, but respectively around other shafts or drums, or equivalents, arranged and supported on the opposite portions of the periphery thereof; the whole being as exhibited in fig. 3.

No. 10,375.—JAMES H. LONGBOTHAM.—*Improved Machine for Drying Bookbinders' Boards.*—Patented January 3, 1854.

This invention consists in making a close chamber, and arranging around the sides of it a series of steam, hot air, or gas pipes. Also, in arranging in one end of the drying-chamber a revolving fan, surrounded by hot air, steam, or gas pipes. The hot air is forced into the drying-chamber by the fan, producing a circulation of hot air throughout the chamber, to dry the boards as they are carried from end to end on endless bands.

The claim is to the use of the drying-box or chamber; endless belts for carrying the paper boards; coil of pipes arranged therein; in combination with a blower and case, having a series of coils of pipes therein for rarifying currents of air for drying bookbinders' paper boards, and other substances, substantially as hereinbefore set forth.

No. 10,376.—GEORGE A. XANDER.—*Corn-Sheller.*—Patented January 3, 1854.

This invention is the combination of a spring *c*, to which the hopper *x* is attached, with a convex disk A; affording a special facility in feeding in, with the usual advantages of disk shellers. The inventor says: I claim the improvement on the cylinder disk—that is, its oval shape, the spring being attached to the side. I would further state, that by riveting two half cylinders together, the cylinder may as readily be constructed double; and I do therefore not limit my claim merely to the single, but also the double cylinder.

No. 10,377.—CHARLES MÜLLER.—*Improvement in Machines for Casting Type.*—Patented January 3, 1854.

Fig. 1 is a perspective view of the machine.
Fig. 2, a plan of a detached part.
Fig. 3, a side view of the lever for tilting the matrix.

The claims are for suspending the mould below its axis of oscillation, whereby its tendency towards its centre of gravity will act in opposition to the momentum required in its movement towards and from the mould, and its movement and degree of opening can thus be reduced.

Also, the combination of a cam H, lever I, rod J, lever K, and rod L, for the purpose of opening and closing the mould.

Also, tilting the matrix by means of the lever N attached to the oscillating mould arm, combined with the lever M, which receives an oscillating motion from the arm or lever by which the oscillating motion is given to the shaft or axis upon which the mould oscillates.

No. 10,378.—WILLIAM H. PRICE.—*Improvement in Bedstead Fastenings.*—Patented January 3, 1854.

C is a metallic plate or casting attached to the rail, and provided with a tenon E, and with a dovetailed projection D, which last takes into another dovetailed projection B, on the plate A, attached to the post. The tenon E is formed with its end parallel to the dovetail, so that it can fill the mortise in the post and tenon as the rail is let down to bring the dovetails into action.

The claim is to the arrangement of the tenon, mortise, and wedge, in such a manner that the wedge will begin to act before the tenon is inserted in the mortise, and draw it gradually into said mortise, so as to completely close it when the fastening becomes firm, for the purpose of excluding vermin, and for other purposes.

No. 10,379.—PHILIP P. TAPLEY.—*Improvement in Machines for Polishing Leather.*—Patented January 3, 1854.

In this machine, the swing-beam B, which carries the rubber at its lower end, and is operated by a connecting-rod K and crank *m*, is jointed a little way above the rubber; and the lower jointed part Q is governed by a secondary connecting-rod O, pivoted to a stud *a*, which is fastened into the connecting-rod K. While the crank-line *m* is in the upper half of its revolution during the return motion of the swing-beam, the part Q is drawn aside—as shown in the drawing—so as to throw the rubber out of action; but as the crank-pin descends into the lower half of its revolution, the part Q is thrown back into a straight line with B, and the rubber brought into contact with the leather on the table G, which is thus rubbed only in one direction, To provide for the excess of motion after the point where Q is brought into a straight line with B, the connecting-rod O is jointed in the middle, and its thrust kept up by the spring W attached to the connecting-rod K.

The claim is to the above-described combination and arrangement of the crank-wheel, the connecting-rod K, the swing-bar B, the lever Q, and the connecting-rod O; and also to the improvement of making the connecting-rod OO in two parts, jointed together, and to operate as specified, whereby the contact of the dicing or polishing ball or surface with the leather is prolonged under circumstances as stated.

No. 10,380.—WILLIAM B. TILTON.—*Improvement in Guitars.*—Patented January 3, 1854.

The claim is to the depressing of the strings of guitars slightly below the bridge, by passing them through perforations in the ordinary pins or pegs *h*, or by any means substantially the same, when the strings are fastened at the foot *d* of the instrument, for causing the bridge to act as a fulcrum, in producing the tension of the strings, and so relieving the sound-board as to give the instrument a richer, fuller, and more complete tone.

No. 10,381.—CLAUDE DESBAUX.—*Apparatus for Turning the Leaves of Books.*—Patented January 3, 1854.

Fig. 1 is an elevation of a music-stand, with the "turn-page" attached. Fig. 2, metal disks to clasp the leaves of books.

The invention consists in mechanically turning the leaves of music and other books, by means of a magnet D, in the arm, operated by the pedal E, and metal disks or clasps attached to the leaves of books.

The book being placed on the stand, the metal disks, fig. 2, are attached to its leaves on the right side; then, by means of a cord b^2, which is passed round a pulley, c^1, the magnet on the end of the arm *c* is made to turn over from the left side, where it is represented in the drawing, to the right side of the book, by means of the pedal E, where it seizes one of the metal disks, and is carried back to its original position by the spring *a*; in its passage the magnet slides from the disk, is disengaged from the leaf of the book, and is ready to operate again.

No. 10,382.—JOHN SHUTTLEWORTH.—*Improvement in Power Looms.*—Patented January 3, 1854.

The improvement consists in a combination of devices for regulating the movement of the treadles, to adapt them to the formation of any desired figure of the design to be woven, and in the mode of effecting the movement of the picker-bars.

The claims are—

1st. To the connecting rod I and lever H, in combination with the reciprocating frame L, for the purpose of giving a reciprocating motion, and a rocking motion to the shaft G.

2d. To the rocking shaft G, arm F, the vibrating lever N, and arms B and T, in combination with the reciprocating frame L, for the purpose of giving an intermittent rotary motion to the wheel E and disks A.

3d. To the discs A, in combination with the horizontal sliding stops D, for the purpose of forcing out and drawing in said stops, in the manner described; and also for the purpose of operating the picker-bar O.

No. 10,383.—JOSEPH NASON.—*Screw-cutting Machine.*—Patented January 3, 1854.

This consists—

1st. In constructing and combining the stud *f* with the tube *g* and guide-screw *j*, by which guide-screws of the various patterns used in screw-cutting may be put on or taken off expeditiously.

2d. In the mode of constructing tool-bearer *o*, particularly as relates to placing the slide-rest *q* behind the work.

3d. The construction of the tool-lifter a^1, for withdrawing the tool from the work.

4th. Combination of the guide-screw *j*, the threaded block *n*, and the tool-bearer *o*, with the shaft, for giving the proper transverse motion to the cutting-tool, and releasing the block from the guide, and removing the tool from the work.

No. 10,384.—SILSBY & HINE—*Hay and Manure Fork.*—Patented January 3d, 1854.

A method of fastening the unwelded part of the shank, or the portion where the tang unites with the shank, giving to such tang a semicircular bearing upon the socket piece.

No. 10,385.—J. B. TERRY, assignee of HARVEY.—*Pin Machine.*—Patented January 3d, 1854.

The improvement consists in the slide 20, for taking one row of pins from the conductors *i*, and delivering them to the forceps *o*, for sticking them. The claim is, to allowing one pin at a time to pass down the conductors by means of a vibrating slide, or its equivalent, so as to supply one row of pins at a time by the conductors to the forceps.

No. 10,386.—SHERBURN C. BLODGETT.—*Improvement in Hemming and Cording Umbrellas.*—Patented January 3d, 1854.

This invention consists in the use of a guide for cording and hemming umbrella covers. There is a curved slot, which folds the hem around the cord, and a hole through which the cord is passed. It is to be used alone, or attached to a sewing machine. Figure 1 represents a perspective view of the guide; figure 2 is a top view, on an enlarged scale.

The claim is, to the guide for cording or hemming umbrella covers, arranged upon a stand with a curved slot to fold the hem around the cord, and a hole through which the cord is passed to its place. This

is claimed, whether the guide be used alone or attached to a sewing machine.

No. 10,387.—Patrick Clark.—*Controlling and Regulating the Combustion of Fuel used in Steam-boilers.*—Patented January 3d, 1854.

An elastic diaphragm E, within a cylinder B, the space D, underneath it, communicating with the steam in the boiler, and having above it a piston F, which, through the pressure of the steam upon the diaphragm E, is made to operate the damper L of the smoke-stack, and thus regulate the combustion of the fuel.

No. 10,388.—R. H. Collyer.—*Gold Separator.*—Patented January 3d, 1854.

This improvement relates to the arrangement of the cylinder A, curved basin B, vibrating arm D, connecting rod C, and power wheel attached to it; by which arrangement the cylinder is operated as a pulverizer and triturater without a fixed shaft.

No. 10,389.—Thomas Engelbrecht.—*Spring Hinges.*—Patented January 3, 1854.

This improvement relates to the combination of the two independent spindles, *c c*, having right and left graduated slots, *e e*, in their sides, and against the stops of which the pins *f*, passing through the barrel of the hinge, act to operate alternately either of the springs D attached to the spindles, as the door is opened outwards or inwards, with the barrel of the hinge having flanges at the opposite side of the barrel.

No. 10,390.—Banford Gilbert.—*Corn-sheller.*—Patented January 3, 1854.

The invention consists in a combination of the arrangement of the teeth on the periphery of the shelling cylinder B, as compared with their arrangement on the concave bed C, each set being in curved rows, and curved each contrary to the others, as they meet heads to heads.

No. 10,391.—J. Durell Greene.—*Improvements in Breech-Loading Fire-arms.*—Patented January 3, 1854.

The breech B is partially rotated by means of the handle F, in the chamber D, which moves on trunnions *a*, in the slots *b*. The breech is secured to the chamber by the sectional screw on its rear end *d*. When in proper position for closing, the rotation causes the screw portions to engage and press the breech against the barrel.

Fig. 1 represents a section of the piece when closed.

Fig. 2, a view when the breech is open for loading.

The sectional screw of Benjamin Chambers, which is on the end of the breech and fastens it to the barrel, is disclaimed.

The claim is to the combination of the movable breech with the revolving chamber D, when the two are connected together by means of the divided screws.

No. 10,392.—James B. Holmes.—*Improved Method of Nailing Washboards.*—Patented January 3d, 1854.

This invention consists in an arrangement of mechanism to apply percussion force, positively, to drive home all the nails at one blow of the two hammers *m*. The two sides *e e* are nailed to the piece *s*, at one blow, thus:—By a suitable mechanism the pulleys 1, 3, and 4, raise the slide *p* up to the guide *o*; the two rods *q* will thus bring the hammers quietly against the two bars *k*, which force the drivers *l*, through holes in the fixed nail-holders *g*, into the sides and bottom *e e* and *s*. The friction pulley 4, run by a band on the opposite end of its axle, is caused to impinge against the pulleys 1^1 and 3^1 alternately, by moving to the right or to the left lever 3; and two cords are made to raise or depress the slide *p* quickly, which of course operates the hammers.

The claim is to the operating the hammers by a positive percussion force, by means of the mechanism described.

No. 10,393.—Samuel Malone.—*Corn-Planter.*—Patented January 3d, 1854.

The gist of the invention consists in the construction of a planter valve K, made reversible from end to end, so that the same valve piece can do different kinds of work by reversing it, for the purpose of varying the quantity of seed planted.

No. 10,394.—George F. Page.—*Improvement in ratched Catch for Head in Sawmills, &c.*—Patented January 3d, 1854.

This improvement consists in so combining a spring latch and catch with a double or escapement pawl, as to greatly facilitate reverse movements.

The tooth *i* on the spring latch *h* keeps the pawl *g* in place; and by rocking the lever *e* about the axle of the pinion *c*, the head block *a* will move to the right or left, according to the position of the tooth *i*: if above the catch *k*, the block will move to the left; if below, to the right. The pawl may be easily shifted into either of the two positions.

The claim is to the combination of the latch, catch, and escapement pawl, for the purposes set forth.

No. 10,395.—Thomas Rogers.—*Machines for cutting mouldings and caps of Hand-rails.*—Patented January 3d, 1854.

This invention consists in so arranging the knives T and P upon the mandrel or shaft R R, connected by a universal joint within box O, so

that this shaft R R may revolve in either direction, as may be required by the direction of the grain of the wood, to "cut with the grain."

The knives are fitted to the shafts in pairs, and so connected that when the shaft revolves in one direction, one of each pair is cutting, the others not, and *vice versa*.

The material is fed by hand; under these cutters are friction-rollers, H H L, Y Y Q.

The claim is to the combination of self-adjusting cutters (reversible in motion when required) with the jointed shaft, and devices for driving the same, as specified.

No. 10,396.—NICHOLSON AND SPRATT.—*Sealing Preserve-cans.*—Patented January 3, 1854.

The invention consists in a device for closing the mouth of a can *c c*. A is the section of a cylinder or barrel of an exhaust pump, with a wire *h* crossing its bottom—an india rubber disk *b* fitting the inside of the barrel, but underneath the cross wire, and lying over the mouth *a* of the can. The wire holds the rubber disk in place, while the pump is exhausting air from the can. The disk, as the exhaustion goes on, presses close upon the mouth of the can, and secures the exhaustion as fast as made.

No. 10,397.—OREN STODDARD.—*Improvement in Cross-cut Sawing Machines.*—Patented January 3, 1854.

This invention consists in arranging machinery so that by turning the crank 3 (fig. 1) the saw descends, cuts through the log, is again raised, and, while being raised, the log is led forward the required length and stopped, when the saw at once descends as before. The pitman *f* rocks the lever *g*, about pin 4, and this rocks the elbow lever *o* about pin 8; the dog 9 takes into a ratchet in the sliding-frame *m*, and thus elevates the saw periodically, by rocking the elbow lever *o*. When sufficiently elevated, the dog disengages itself, and the saw drops in consequence of the end of the log coming against a lever *t*, thereby throwing out the latch *r*, and allowing the saw to drop upon the log. At this moment the feed of the log is arrested by the pawl 18 being thrown out by means of the lever 2 (figure 2) and the string attached to the end of the brace 23.

The claims are, 1st. To the means herein set forth for elevating the saw when it has cut through the log, by means of the ratchet pawl lever *o*, and parts attached in combination with the retaining-latch *r*, operated upon by the log when it has been forced forward the required amount to disengage said latch, and allow the saw to operate on the log, as set forth. 2d. To forcing the log along the required amount for each section to be sawed off, by means of the roller operated on by the lever and pawl 18, when said pawl is brought into action by the lever *r*, as specified.

No. 10,398.—WILLIAM WRIGHT.—*Self-adjusting Cut-off.*—Patented January 3, 1854.

The employment of a rotary concentric hub *t*, on which the toes of the lifters rest when the valves are closed, combined with a cam c^1, connected therewith, and which turns excentrically thereon, for the purpose of opening and closing the valves, and regulating the period of closing the same. Also, combining with the hub *t* and cam c^1 the slide within them, and resting on an oblique groove *y* within the cam c^1 and the straight slot *u* in the hub, to determine the period of closing the valve.

No. 10,399.—DAVID CLARK.—*Improvement in Oil-Cups for Steam Engines.*—Patented January 10, 1854.

This invention consists in having a conical valve seat at the upper end of the cup-tube connecting with the steam-chest, and a like seat to the lower end of the tube, to which seats are adapted conical valves upon opposite ends of a stem or rod playing within the tube. The pressure of the steam and the weight of the valves and steam alternately opening and closing the one and the other valves, and thus giving an intermittent flow of oil to the steam-chest.

The claim is, to constructing the oil-cup in the manner described, or in any other equivalent thereto, so that the flow of the oil from the chamber A into and from the chamber B may be regulated wholly by the agency of steam and gravity, as set forth.

No. 10,400.—LUCIAN A. BROWN and JEREMIAH W. BROWN.—*Improved Press for Veneering.*—Patented January 10, 1854.

The improvements consist in a flexible caul, or covering *g*, formed of copper, or other metal possessing sufficient elasticity to yield to some extent to the pressure required to be exerted upon it, and also such a degree of tenacity as to take out the curls that may be found in almost all veneers, combined with a box B, having flexible sides *c*, flanges *e*, a water-trough *d*, and frames or posts *a b*. The inventors employ steam and an air-pump in conducting the operation. The air-pump is used to press the glued veneer more closely against the substance to which it is to be united.

They do not claim the method of setting or pressing a veneer down on a surface by the pressure of water upon an elastic material, or the employment of heat for this purpose through such material; but they claim "the employment, in the manner set forth, of a thin metallic plate, or caul, not only having the property of flexibility, but that of sufficient tenacity to take out the curls, in manner and under the circumstances above stated." Also, "the combination of a flexible metallic caul with a box having flexible sides." Also, "the combination of the water-trough *d* and flange *e* with the flexible sides *c*, and frames or posts *a b*, of the box B.

No. 10,401.—Leonard Campbell.—*Improvement in Cotton Gins.*—Patented January 10, 1854.

The invention consists in the employment of a peculiarly constructed concave placed between the saws and revolving brush; this concave has a series of slots for the saws to run in, and the sides of these slots are covered with bristles, which aid in separating such portions of the leaf as may have passed through the saws from the fibre. The lower edge of the concave has a row of bristles on it, which serves in some degree to straighten the fibre as it is taken away by the revolving brush.

The claims are, 1st. To the concave brush-ribs F and concave brush M, in combination with the brush-wheel E, for the purpose of scouring the nap (which is formed by the ginning-bars) out of the cotton, and at the same time removing all impurities or foreign substances from it. Said ribs F are each of them provided with two rows of short stumpy bristles, which are secured on the inner edges of said ribs." 2d. "To the concave plate G, for the purpose of regulating the current of air which passes between said plate and the wheel C.

No. 10,402.—Daniel S. Darling.—*Improvement to prevent dust from entering Railroad Cars.*—Patented January 10, 1854.

The claims are: To the arrangement of "a series of deflectors along the sides of the locomotive, and entire train of cars, in such a manner that a series of funnel-shaped chambers will be formed, which run into each other and form a continuous channel for the dust and air under the car to be confined in, while the funnel-shaped mouths at the front of the locomotive receive a powerful outside pressure of air, which, by the position of the deflectors, is forced into less than its ordinary space, and causes an extraordinary suction-current under the train, which concentrates and carries the dust arising from the wheels with it into the artificial channel under the cars, and confines it until it escapes at the end of the train; the open mouths of the deflectors on the sides of the cars also serving as channels for any side-dust which may come in contact with them to be sucked through into the central channel."

Also to the manner shown in the drawings of reversing the deflectors, so that they will effect the desired object in whatever direction the train is going.

No. 10,403.—D. M. Cummings.—*Improvement in machinery for Mortising Window-Blinds.*—Patented January 10, 1854.

Fig. 1 presents a front elevation of the machine, in which A represents the driving-shaft; B, a bar extending across the frame of the machine; C, a movable platform; D, the sill of the frame; G G, the ways; and H the guage to which the stile must be attached for mortising. The inventor claims "the movable platform C, spacing-guage H, oblique ways G G, when combined and arranged with each other, and with the adjustable guage-bits H H', &c., or their equivalents, in such a manner that the mortises formed will be exactly equi-distant from each other, and also in such a manner that any desired degree of inclination may be given to the said mortises—disclaiming the use of the said movable platform C, save when employed in combination with the said spacing-guage and oblique ways, as above set forth."

No. 10,404.—Charles W. Fillmore.—*Improvement in Clamps for holding steel plates to prevent them from warping during the operation of hardening and tempering.*—Patented January 10, 1854.

This improvement consists in making the ribs of the clamping-plates wedge-shaped; thick exteriorly, and thin where they come in contact with the steel plates undergoing hardening.

No. 10,405.—E. C. Goffin, assignor to A. B. Ely.—*Improvement in securing doors of Bank vaults amd Safes.*—Patented January 10, 1854.

This improvement consists in having the cross-bars B, which cover the key-hole, fitted into grooves D D; the surface of bar and groove being even and smooth, for strengthening and fortifying the doors, and protecting the vault and safe-lock from burglars.

No. 10,406.—Benjamin D. Gullett.—*Improvement in Cotton-gins.*—Patented January 10, 1854.

This invention consists in adding to the usual saws and brushes of a cotton-gin a series of supplementary brushes, so placed that as the cotton is drawn from the seed by the saws through the ribs of the gin, it will also be compelled to pass through and be a time in contact with the additional brushes, which will aid in separating the impurities.

The claim is to the combination of the mote brushes, arranged and operating in the manner herein described, with the saw and stripping brushes.

No. 10,407.—Halvor Halvorson.—*Improvement in Machines for Pegging boots and shoes.*—Patented January 10, 1854.

In this machine the shoe is fixed upon a carriage, which, by means of slides, combines a longitudinal, a lateral, and a vertical motion, keeping its parallelism in all these motions. The lateral and vertical motions are each governed by fixed, waved, or cam surfaces, which, as the carriage travels along, are traversed by projections from the lateral and vertical slides, so as to keep the edge of the sole always properly presented to the awl and peg-driver, which occupy a fixed point.

The longitudinal motion of the carriage is produced by a long screw connected with the mechanism for driving the peg.

The awl and peg-driver, the peg-cutters, and the peg-feeding rack, with the mechanism for operating them, are all mounted upon a tilting

frame, the line of whose journal-centres lies parallel with the length of the shoe-carriage, and passes through the points of the awl and peg-driver. The inclination of this tilting-frame determines the angle at which the peg is driven, and is governed by a lever extending from it, and resting upon a waved surface that travels with the shoe-carriage.

The claims are to the automatic combination constituting the same, and composed of the following elements or their mechanical equivalents:

1st. A frame or boot-holder, B.

2d. Machinery for moving the boot-holder B, horizontally in directions both towards and away from the awls or hole-making contrivances, or in accordance with the horizontal or peripheral curvature of the sole, such mechanism being the guide I, and bearing-point or tracer H, and return spring M.

3d. Machinery for raising and depressing such boot-holder in accordance with the vertical curvature of the sole, such mechanism being the guide or cam E, and the second frame C, with its tracer F.

4th. Mechanism to give the boot its movement from heel to toe, or *vice versa*, under the awl or pricking machinery; such mechanism being the screw K, cogged-wheel c^1, pawl a^1, or e^1, lever g^1, connecting rod i^1, and crank pin k^1, on shaft K.

5th. Machinery for holding the strip or strips of wood from which the pegs are to be cut, and regularly advancing such strip or strips in the manner required towards the cutters, the same consisting of the troughs *g h*, and slide or carriage i^1, arranged and operating as described.

6th. A series of cutters or cutter-knives *z z z*, so made to operate as to cut from the peg-strips pegs as explained, and hold or retain the same by friction between them, and move such pegs forward to and directly over the holes in the sole previously made by the awls or pricking machinery.

7th. Machinery for pricking the holes in the sole for the reception of the pegs.

8th. Machinery for pressing or forcing such pegs into these holes, such being accomplished by the plate *b*, carried and forced down by the punch *c*.

9th. A rocker-frame or swinging lathe P, made to support and carry the mechanism above denoted, or the fifth, sixth, seventh, and eighth elements of combination.

10th. Machinery for giving or imparting to such rocker-frame its proper movement to insure the correct direction of the awls in punctuating any holes in any part of the sole, such machinery being the movable guide S and the tracer R, the latter being attached to the rocker-frame.

And as auxiliary to the above, or as an improvement, is claimed the reversible plate or awl-holder *b*, made capable of being turned around, substantially in manner and for the purpose as herein before stated.

Also the improvement of so arranging (as described) the awls, and the machinery that cuts the pegs from strips of wood and brings them forward and forces them into the holes, that there shall always be one or more holes made in the sole, between the pegs that are being driven and the holes that are being simultaneously driven or made in the sole.

No. 10,408.—James J. Johnston.—*Improvement in Heaters for Smoothing-Irons.*—Patented January 10, 1854.

The heater is in the form of ring G, made to fit around the solid core F, cast upon the bottom of the hollow flat-iron.

The patentee represents, that the surface-heater becomes too much chilled for use before the heat of its interior has travelled outward and become available; and that the ring form, by increasing the surface and the mass of the centre part of the box part of the iron, enables it to be longer used without reheating.

The claim is to the raised body, F, as described and represented, and for the purpose described, in its combinations with the heater, with the large central opening to fit the raised body; the outer shell of the box-iron and the heater being adapted, in shape and depth, the one to the other, for the purposes described.

No. 10,409.—John Johnston.—*Improvement in Self-Heating Smoothing Irons.*—Patented January 10, 1854.

This is an improvement in that class of box-irons which are heated by coals burned within the box. It consists of a flue running around the sides of the bottom of the box, and distributing the draught to the coals at every point; the centre of the bottom being made thick, so as to rise in a convexity that causes the ashes to settle into the flue.

Claim.—The inventor does not claim the chimney, wooden handle, fastening for the top, &c.; neither does he claim, in general, the use of a distributing-flue over the bottom of the iron, as that device has been used before in the self-heating flat-iron of Taliaferro & Cummings, patented March 30, 1852. But he claims the flues around the edge of the bottom, as herein described, in connexion with the convexity of the upper part of the bottom of the iron, for the purpose herein mentioned.

No. 10,410.—Ebenezer A. Lester.—*Toggle-joint Squeezer, for Squeezing Metallic and other Substances.*—Patented January 10, 1854.

This invention consists in giving to the hammer or compresser a positive reciprocating motion, by means of a toggle-joint having a movable fulcrum to let the hammer down as the substance acted upon is reduced; this combined with the bed composed of rollers, or the equivalent thereof, to hold and turn the ball or body of metal for the repeated action of the hammer.

No. 10,411.—Harry H. Matteson.—*Improvement in Flexible Cordage.*—Patented January 10, 1854.

This cordage is made of strips of whalebone, or like material, covered with oil-silk, India rubber, or any other water-proof substance,

and then cotton, flax, or silk thread, plaited over or around it, after the manner of covering whip-stocks.

The claim is to the method of making flexible cordage impervious to moisture, and that will not shrink or stretch by use or exposure; forming the body or core shreds of whalebone, bamboo, or rattan, covered with a water-proof coating; and the whole completely covered with plaited thread.

No. 10,412.—Wm. G. Merrell.—*Machine for Cutting Ellipses.*—Patented January 10, 1854.

This improvement on the trammel plate in ordinary use, is to secure greater steadiness in the cutter-bar in quick movement of the machine, which is accomplished by resting the cutter-stock E on the trammel plate B, as described in the claim, as follows: "The manner in which the driving-pulley G, and cutter-stock E, is made to rotate firmly in the trammel plate B, viz: having the ways C C on the upper surface of the trammel plate B, and a circular ledge or projection D on the under surface, and causing the pulley G and cutter-stock to press firmly against the ways and ledge or projection, by means of the screws *b b*', and nuts *c c*, &c.

No. 10,413.—H. E. Pierce.—*Machine for Matting the Ends of Match-Blocks.*—Patented January 10, 1854.

This machine is to obviate the necessity of using glutinous substances upon the ends of match-blocks (before submitting them to splitting-knives.) Figure 1 is a perspective view of the complete machine. A series of rollers, G, are turned by crank V, and the block is thus drawn between those rollers and corresponding rollers, B, C, E, above. The filleted roller B, by pressure, indents the end of the block; and the similar roller C likewise indents at right angles to the former lines. The surface of the block is thus covered with small projections, or teeth; and, as it passes beneath a smooth roller E, these are crushed, and the fibres closely intertangled, or "matted" together. The block is afterwards split into matches.

The inventor does not confine himself to the precise arrangements of the devices, but claims any equivalent means capable of producing the desired end.

No. 10,414.—David Pierce.—*Gold-Separating Cylinder.*—Patented January 10, 1854.

This invention consists in having the interior of the cylinder of an inclined-stepped surface with a valve, and opening at the bottom, through which, when in solution, the earth, &c., passes in over the steps, and by gravity is deposited upon the different steps, or washed out as may be, and thus the metal is separated from other matter or materials.

No. 10,415.—J. P. Spofford.—*Saw-Gummer.*—Patented January 10, 1854.

This invention is upon the combination of the cutter *i* and collar *r*, with the recesses *b* and *k*, so as to change the cutter, when the teeth become dull from use on one part, to the other, where they are sharp; and thus make it perform double service.

No. 10,416.—Caleb C. Walworth.—*Apparatus for Discharging Condensed Water from Steam-Pipes or Vessels.*—Patented January 10th, 1854.

This invention is designed for the purpose of removing from long lines of steam-pipes the water produced by the condensation of steam, and consists of a close vessel having an inlet and outlet pipe. The former, for the passage of steam and condensed water into the vessel, connects with the steam exhaust-pipe from which the water of condensation is to be abstracted. Within the vessel is a float open at top. Attached to the bottom of the float, and extending above it, is a valve connected with another similar valve, by crossed plates, the width of which are equal to the diameters of the valves. The first valve works through an aperture made through the bottom of a small outlet chamber connected with the outlet pipe. There is an inlet chamber, directly over the second valve, connected with the outlet chamber.

The claim to the combination with the float D, the outlet tube C, the valve *a*, and opening *e*, (or the mechanical equivalents of said valve *a* and opening *e*,) the second valve *b* and opening *f*, (or the mechanical equivalents for said valve *b* and opening *f*,) so arranged and applied to the tube C and the vessel or float D, as to operate to counteract the pressure on the other valve *a*, under circumstances and for the purpose substantially as hereinbefore specified.

No. 10,417.—Stephen D. Wilson.—*Improvement in Steam-Ports, in Valve-Seats, and Slide-Valves for Steam-Engines.*—Patented January 10th, 1854.

This invention consists in the enlargement and peculiar construction of the steam-ports in the valve-seats B, E, and F, figs. 2 and 3, and in adapting the valve A, fig. 1, to these parts, so as to exhaust the steam from one end of the cylinder with greater rapidity than it is admitted at the other.

No. 10,418.—John H. Barth.—*Improvement in Bedsteads.*—Patented January 10th, 1854.

A is one of the main or outer posts, which support the curtains; B the post of the bedstead proper; *a* is a support attached to the outer post E; *b* is a holder attached to the bottom of the post B, and provided with cheeks, *r r*, which embrace the shank on the bearer. This

shank has catches *i*, to fit into recesses in the cheeks *r r*, and a shoulder, *e*, to fit a face *f*, on the holder. The bearer can be disconnected from the holder, so as to take down the posts A at pleasure, by turning the tops of the latter outward, when the catches *i* can be unlocked from the recess in the cheeks *r r*. In putting up they can be replaced in the same manner, and are held in bearing by the weight of the bedstead tending to throw the tops of the posts A inward.

The claim is to the notched ckeeks *r r*, in combination with the shank *a* and catch *i*, as described for fastening the post A to the inner frame, by inserting the shank between the cheeks in the manner set forth, and giving the post a vertical position; and also, causing the speedy disconnection of the same by the inward inclination of the foot of the post, substantially as specified.

No. 10,419.—HARVEY BREWER.—*Torch Lamps.*—Patented January 10, 1854.

This invention is designed to enable one to employ camphene, or other inflammable fluids, for the purpose of lighting street lamps; and consists of a reservoir for the fluid, formed by two concentric tubes united at top by a plate. The interior tube is open at both ends, and extends about half way to the bottom of the reservoir, all entrance to which is closed, except that through the interior tube; the object of the arrangement being to prevent the spilling of the fluid in case of accident from falling.

The claim is to the peculiar construction of the reservoir for containing the camphene—that is to say, the combination of the exterior tube E with the interior tube *d*, for the purpose of preventing the liquid from being spilled should the lamp be overturned, while the reservoir is at all times open for the reception of the torch.

No. 10,420.—JOHN KEDZIE.—*Improvement in Filters.*—Patented January 10, 1854.

The claim is to constructing a filter, with an inverted jar B, having a detachable perforated base *c*, of a concave form, with a flange or rimmed edge, &c., to receive and retain in place the reservoir B.

The water, after properly packing around the reservoir, filters through and enters it below. The pipe *e* is to allow ventilation, and also the escape of confined air. The concave bottom prevents it from moving about easily.

No. 10,421.—J. W. MCGAFFEY.—*Improved Mortising Chisel.*—Patented January 10, 1854.

This instrument is designed chiefly for mortising window-blind stuff. The improvement consists in adapting two pivoted lips, B B, to an ordinary mortising mandrel, so that these descend, cut the mortise, and retain the chip on ascending until partly drawn out; the chip is then

caused to drop from the lips by the tongue D, which is checked by means of its internal shaft or handle *k* coming in contact with a dog or stop.

Claim.—The construction of the chisel substantially in the manner herein described, viz: having two cutting lips B B inserted in a slot or recess *a*, in the lower end of a stock A, said lips working upon pin C C, which pass through the stock. The inner surface of the lips being constructed as shown, and having tongue D working between them, which tongue, when the chisel is raised, forces apart the cutting edges of the lips, and throws out the chip from between said lips. The cross-bar of the tongue, when the chisel descends, throwing apart the upper portion of the lips, and closing the lower and cutting ends, the tongue being raised between the lips by means of the spring, or its equivalent.

No. 10,422.—H. B. SMITH.—*Device for reversing a Mortising Chisel* Patented January 10, 1854.

This machine reverses the chisel, when it has cut to the end of the mortise by friction upon a band or pulley Q Q. The treadle C is suffered to drop when the chisel has cut to one end of the mortise, and the lever E disengages a catch from one of two pins, opposite to each other, on the circumference of a pulley F on the mandrel. The band passing over the two pulleys O L is thus allowed, by friction on the pulley *v*, to turn *half round* the mandrel. The foot again brings the piece in contact with the chisel, &c.

Claim.—Reversing a chisel by friction, operating the mandrel substantially as described.

No. 10,423.—JAMES SWAIM.—*Magnetic Toy, called the Magnetic Cupid.*—Patented January 10, 1854.

This is an apparatus for the amusement and instruction of children. Upon the top or cover of the box containing the mechanism is balanced, so as to turn freely upon a pivot, a magnet, carrying upon its upper side a figure of a cupid, (this figure, as well as the cover on the box, are left out in the drawing,) by which it is also concealed from view. With the mechanism in the box is connected another magnet turning on a centre directly under that of the cupid. A series of question-blocks is provided, and when one of these is introduced into the box, through an opening at the side, it acts upon the mechanism, and partially rotates the interior magnet, which, attracting the magnet above, directs the finger of the cupid to an answer on the box cover appropriate to the question on the question-block; *m*, in the engraving, is the interior magnet, made to revolve by a pinion T, and a rack *h*, attached to the sliding-block A. From this block A projects a long pin Z, that enters into a hole in the question-block as the latter is introduced through the opening C. The bottom of this hole strikes the end of the pin Z, and then begins to act on the sliding-block A; and thus, by making the hole of a different depth in each block, which must be pushed in its whole length by closing the door D upon it, the magnet

m will be made to take a determinate direction for each. The block A is drawn back by a spiral spring H.

Claim.—The combination of the question-blocks with adjustable holes, the sliding-piece A, the toothed wheel T, the rotating-bar magnet, and the exterior cupid, in the manner and for the purpose substantially as hereinbefore described.

No. 10,424.—THOMAS L. JONES.—*Paddle Wheel.*—Patented January 10, 1854.

The claim is to the combination, with the mode of maintaining the paddles *e* in parallel planes by means of the suspension ring *b*, making the wheel and paddles in two parts, with a space between for the reception of the suspension ring

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No. 10,425.—PERRY C. BATES.—*Improved Method of Constructing Hinges.*—Patented January 17, 1854.

The arrangement of this application is a cast-hinge, the union between the two parts being one made up of a coiled or helical thread-joint, which joint is produced, and the two parts of the hinge united by the casting of the hinge. The claim is to the spiral or worm-joint hinge constructed as described.

No. 10,426.—T. DAVIDSON.—*Saliva Pump.*—Patented January 17, 1854.

Consisting of a curved metallic U formed vessel A, B, the legs of which are received along side of the teeth, or one inside and the other outside of the teeth, and the cavity of these legs communicating with that of the tube D, and the usual valve *d*, and pump G, F. By the working of the pump piston the saliva is drawn from the mouth and discharged into the reservoir. The *claim* is to drawing the saliva from the mouth, and keeping it dry during the operation of filling teeth, by means of an instrument constructed with a hollow mouth-piece, which connects with a tube and suction and force-pump, as described.

No. 10,427.—J. J. GREENOUGH.—*Improvement in Machines for Pegging Boots and Shoes.*—Patented January 17, 1854.—Reissued July 4, 1854.

Fig. 1 is a perspective view of the machine fitted to drive pegs of metallic wire; fig. 2, a cross vertical section on a smaller scale. The peg driver is a reciprocating slide *d*, operated by an excentric *g*, on the shaft *h*. The wire for forming the pegs is first passed down through a hole in the slide, as shown in the figures, and just previous to the descent of the slide is caught between two cutters, one of which is fixed to the lower end of the slide, as seen in figure 4, and the other, *x*, to

the lower end of a lever *y*, screwed to the slide, and operated by a face cam *k*, on *g*, fig. 1. The slight cut made in the wire at the commencement of the downward stroke thus serves as a hold by which to force it into the leather; and at the end of the downward stroke a further movement of the lever *y* cuts it entirely off, and leaves the remaining portion of wire sharp enough to pierce the leather at the next stroke without the use of an awl.

Fig. 3 shows an apparatus substituted for that above described, in driving wooden pegs. The driving slide or stock *d* carries an awl *v*, and a peg driver *u*, which pass through fixed grooves o^2, o^1, in the plate *o*, and are separated by an interval equal to the space between the pegs to be driven. The groove o^1 receives the end of the peg blank fed into it from a trough screwed to the front side of *o;* and a sliding cutter *p*, being forced downward by a pin on the side of the excentric *g*, is driven against the side of the blank by the action of the inclined plane o^3, so as to cut off a peg by a draw cut. The knife, also, by being thus driven latterly over the groove o^1 forms with it a tube, in which the peg is confined till forced into the leather by the driver *u*.

The shoe last L is fixed upon a carriage a^3, so mounted that it can turn and move freely in every direction, and, by means of self-acting mechanism, is made to travel round in such manner as to keep the line of the pegs always coincident with that of the awl and peg driver. The universal movement of a^3 is provided for by means of two slides at right angles mounted upon a table that is free to rotate upon an axis in the same vertical line with the awl and peg driver, the axis at the same time having a vertical play, and being supported by a weighted lever b^1 pressing the shoe permanently up against a fixed stop-plate. The motion of a^3 is governed by a groove on its under side forming a pattern of the line of pegs to be driven, into which groove projects the upper end of a spindle c^1, which spindle carries a small pinion that gears into a toothed rack just within the pattern groove, and by its rotation causes the groove to traverse over the end of the spindle. The spindle and pinion receive their motion from a lever c^2, acting by a ratchet wheel and click, and connected with the driving shaft *h*, above.

The coincidence of the direction of the groove with that of the awl and peg driver, is preserved by means of a fixed stud or guide, projecting upward into it at a short distance to one side of the axis c^1. The support of this fixed stud is a collar e^1 fastened to a hollow fixed shaft *c*, rising from the lever b^1.

The claims are to the automatic combination constituting the improved pegging machine, and composed of the following elements, or their mechanical equivalents, enumerated in the succeeding claims, and comprising the peg-cutter, peg-driver, centre-guide, shoe movement, &c.

1st. The cutting of the peg from the peg blank by a lateral motion of the cutter against the side of the blank, the cutter assisting to hold the blank in position while it is driven substantially as herein described.

2d. The combination of parts composing the "universal movement carriage," consisting of a disc supported upon the arm of a horizontal lever, so that it can be raised or lowered, surmounted by the device for holding the work, having a free motion in all directions, substantially in the manner and for the purpose described.

3d. The centre guide for directing the movement of the shoe or other article in the course indicated by the pattern of the sole, for the purpose of keeping the line of the pattern as herein specified, so as to keep th line of the pattern coincident with that of the awl and peg driver.

4th. So constructing, arranging, and operating the shoe carriage, that each point of the sole which is to receive a peg shall be brought successively to the same point under the stationary pegging standard, so that the pegging shall be effected, without interruption, entirely around the shoe or other article, substantially as herein described.

5th. In combination with the moveable carriage, the stationary pegging standard made adjustable, or the equivalent of that adjustment, so that the pegs can be driven at any distance from the edge of the sole or centre of motion of the carriage holding the material to be pegged as above set forth, so that a new pattern will not be required to drive a second row of pegs within the first row.

6th. Driving the pegs by a tool having a positive motion, as described, in both directions.

No. 10,428.—D. T. HITCHCOCK.—*Diaphragm Pump.*—Patented January 17, 1854.

This invention alludes solely to the *shape* of the two surfaces comprising the periphery of the elastic diaphragm. The two disks F and G (constituting the piston) clasp between them at *i i* the annular elastic diaphragm D D. These peculiarly-curved clasping surfaces gradually compress the diaphragm, prevent its elasticity, and prevent its rapidily moving. The claim covers nothing more.

No. 10,429.—ELIAS C. HYATT and CHRISTOPHER MEYER.—*Improvement in the Manufacture of Boot and Shoe-Soles of Gutta Percha or India Rubber.*—Patented January 17, 1854.

The material, in its plastic state, is passed between two rollers, marked 1 and 2 in the engraving, so as to form a continuous sheet of various thicknesses in its different parts, suitable for the heel, the shank, and the toe. The external surface of the sole is formed by No. 2—*a* being a corrugated surface for the toe parts, *c* for the heel part, and *b* a smooth surface for the shank part. After the continuous sheet has been formed between the rollers, it is cut up into pieces of suitable width for soles.

The inventors say: "We are aware that India rubber has long since been reduced to sheets by rolling, and that the rollers used for this purpose have sometimes been engraved to produce a figured surface, analogous to that often connected to the heels and fore parts of shoes; but these sheets have been substantially of uniform thickness, varying only in the slight indentations, &c., required to produce an ornamental or figured surface. This we do not claim. But we are not aware that India rubber has ever been rolled into sheets having a substantial variety of thickness in its different parts. Nor are we aware that shoe-soles, having the proper variety of thickness, have ever been

rolled out, or made in one solid piece, before our invention; nor was it known that such forms could be produced, as we have produced them, in India rubber, until our experiments practically illustrated the fact.

What we claim, therefore, as our invention, and desire to secure by letters patent, is—

1st. Producing a shoe-sole, or other analogous manufacture, in India rubber or gutta percha, in one piece, having a variety of thicknesses in its different parts, by the use of rollers whose surfaces present the reverse of the forms to be produced, at a single operation, substantially as herein described.

2d. Forming soling of India rubber or gutta percha, with shanks, fore-parts, and heels of appropriated differences of thickness in one solid piece, at one operation, as described—thus producing a useful, economical, and novel manufacture.

3d. Also, forming such solings, or analogous manufacture, in continuous sheets, at one operation, by rolling, as described.

No. 10,430.—ABRAHAM MCINTURFF.—*Improvement in Machines for Mincing Meat.*—Patented January 17, 1854.

The machine consists of a vertical cylinder *a*, armed with cutters *d*, *f*, and *e*, revolving in a hollow cylinder, armed with other cutters and with what are called stops *m*. The cutters *e* are fixed vertically upon the longitudinal cutters *f*, and the stops *m* are shaped so as to pass between the horizontal and between the vertical cutters.

Claim.—The employment of the compound cutters *e f*, as herein described, in combination with the holders *m*, operating substantially as and for the purposes fully set forth.

No. 10,431.—LORISTON G. MERRILL.—*Pill Machine.*—Patented January 17, 1854.

A rectangular machine, having in its upper parts a nearly horizontal endless apron H stretched from rollers G G, on which the pill mass is carried forward and rolled into a sheet between rollers E E, cut into square wire by knife K moved by the machinery, then rolled down the slotted inclined plane M against fingers N, whence it is taken by the sectional roller piece ZB, and carried down the curved concave A, by which movement the pill mass is converted into rounded pills. Fig. 2 is a perspective view of the concave A and the roller ZB in its lowest position.

Claim—The revolving segment with the knife in the manner described; also, the peculiar operation of the fingers which support the pill-worm until the proper time for dropping it between the segment and concave, with the coating-box attached, and moved as aforesaid, or any other arrangement of machinery substantially the same, and which will produce the intended effect.

No. 10,432.—Thomas J. Sloan.—*Apparatus for Supplying Water to Steam Boilers.*—Patented January 17, 1854.

Claim.—"Combining with the motor which operates the cock or valves, and with the supply-pump, or with either, a mechanism which, when the said motor and pump, or either, fail to operate, shall operate the valve of the whistle or other alarm, to give warning that the apparatus needs personal attention, with the view to perfect safety."

The mechanism referred to in the claim, as shown by the drawing, is lettered d^1, e^1, f^1, g^1, and the alarm is lettered h^1.

No. 10,433.—C. W. Stimpson.—*Improved Photographic Plate-Vise.*—Patented January 17, 1854.

The invention consists in so constructing the vise for holding the metallic plate, that all the surface of the plate is exposed to the action of the buffer, or polishing-wheel, without having any part of the vise projecting above the surface of the plate. It may be used in the hand upon a polishing-wheel, or may be fixed on a stationary bench.

The plate to be polished is laid on a carriage-bed C, and sustained by tips E and F, and firmly clamped there by the action of the lever arm G^1 and cam G.

Claims.—The plate *a*, with the ways BB, in combination with the carriage-plate C, with its projection and T head, and lip E, operating in conjunction with the lip F upon the main frame *a*. Also the manner of securing the carriage-plate C to the ways BB by means of the slot and T head, and moving the same backward and forward upon the ways BB by means of the eccentric or cam lever, in the manner specified.

Also the arrangement by which the carriage-plate can be changed from one side to another, simply by bringing the lever arm back to its farthest point to the left, or in the direction opposite to the course indicated by the arrow.

The inventor disclaims the lips E and F, and the cam-lever, separately considered; but he claims the several parts in combination, as herein set forth.

No. 10,434.—Ira Warren.—*Tonsil Instrument, to remove elongated Tonsils.*—Patented January 17, 1854.

The invention consists of curved scissors $h\ h^1$, working in the groove space of loop O, by means of handles $k\ k$; the extra handles $s\ s$ being designed to enable the operator to seize the part cut by the scissor-blades.

The *claim* is to an instrument for the excision of the tonsils, and other analogous operations, the crescent-shaped blades constructed and operating substantially as described.

No. 10,435.—George W. Griswold.—*Amputating Apparatus.*—Patented January 17, 1854.

Consisting of an upper and under vertical thin plate, A and B, which meet together to clamp the bone of the limb after the soft parts have been severed by the knife. Plate A is hinged so as to guide it in its movements. The saw is worked in the groove of D, as in the kerf mitre-box. Piece B may be elevated or depressed, as required, by means of dog G.

Claim, to the combination of the adjustable rest B, movable disk A, and guide or standard D, for holding the bone, retracting the flesh, and guiding the saw in amputating limbs; the whole being made and operating substantially as described.

No. 10,436.—David C. Morehead, Assignee of Charles T. P. Ware.—*Improvement in Clasps.*—Patented January 17, 1854.

There are two novel features in this clasp; the one shown in figure 1 is used when there is no backing, the projections *a b* holding the clasp tight.

Claim.—The spring clasp-lock, so constructed and arranged that the lips L shall when closing depress the wide end C of the tongue T, and allow it at last to spring outward into the enlarged space S, between and above the lips, where it is held firmly by the turned-over end of the tongue, or by the thickness of the metal itself, whether used in the projections *a b*, or without them.

No. 10,437.—Lewis B. White.—*A Truss.*—Patented January 17, 1854.

The invention in this case is confined to the arrangement of the stirrup joint *e*, *d*, *j*, and the spring *f*, controlling the action of the parts *a a*.

The *claim* is to the knuckle K, the stirrup *e*, and the spring *f*, the offset of the bow as shown at *d*.

No. 10,438.—Calvin Adams.—*Improved Copying Press.*—Patented January 24, 1854.

This press is intended for copying letters; and the nature of the improvement consists in connecting the platen to the lower plate or bed by a hinge, either attached immediately to the platen, or to a lever bar which carries it; so that the platen may be raised or opened like a book, to receive the copying-book. Also, in the mode of giving the requisite pressure by the use of a cam working on the extremity of a lever, in combination with a screw to adjust the press to any required thickness of book to be used, or degree of pressure to be employed.

No. 10,439.—R. ANDREWS.—*Improved Saw.*—Patented January 24, 1854.

This improvement aims at sawing and planing at the same time. About three sawing-teeth, grouped, are followed by one or two planing-teeth, A A, and the peculiar set of these constitute the invention. From the plate these planing-teeth curve quite abruptly outwards, and near their extremities again curve inwards, so as to bring the cutting edges nearly or quite parallel to the surface of the plank.

This peculiar form of teeth constitutes the claim.

No. 10,440.—L. B. BATCHELLER—*Improvements in Railroad Car Brakes.*—Patented January 24, 1854.

A brake operated either by the bumper or windlass. The windlass is placed upon a sliding-bar C, which by means of levers is connected with another fixed windlass U, so that the slack may be taken up and the action of the brake regulated.

Claim.—Operating the levers I I, which are attached by the rods J and K to the cross-bars L M, by means of vibrating bars *c c*, said bars *c c* being moved or operated either by turning the standards E E, or by the action of the buffer-rods upon the levers R S, both devices being attached to the trucks, &c.

No. 10,441.—CHARLES P. BAILEY.—*Improvement in Dumping-Cars.*—Patented January 24, 1854.

The figure explains the mode of hanging the body of the cars C C, the dotted lines showing the position when tilted.

Claim.—Hanging or connecting the bodies of dumping cars or wagons to the trucks, axles, or bolsters which usually support the bodies of similar carriages by means of hinged cross-braces or arms, which pass transversely from end to end, or crosswise of the body, as the case may be, one end of each of said arms or braces being hinged to the body, and the other ends to the bearings or support beneath them, for the purpose of allowing said bodies to swing or dump either way.

No. 10,442.—ENOCH BURT.—*Improvement in Fancy-Check Looms.*—Patented January 24, 1854.

This invention consists in the position of the levers *a a*, which operate the jacks to spring the web, and the position of their fulcrums, whereby even sheds are effected both at top and bottom—all the threads of the warp being sprung at the same angle, regardless of the number of jacks used, or the number of leaves of harness used.

Claim.—Hanging the levers or jack-lifters *a a* below the web, and on a shaft parallel with, and at or about a vertical plane with the "fell" or cloth-making line, so as to produce an even shed both at the top and bottom, and render the shifting of the jacks from the said levers sure,

avoiding the jar of the machinery, and obviating the liability of the jacks to hang on the flanges of the levers.

No. 10,443.—SILAS CONSTANT.—*Improvement in Rosin-Oil Lamps.*—Patented January 24, 1854.

To render rosin oil efficient as a material to furnish a cheap light, the improvement in this patent consists in several devices to augment the amount of oxygen in contact with the top of the wick and the flame.

Claim.—1st. Enclosing the portion of the wick which rises above its guide within a perforated conical tube, for the purpose of causing a portion of the air that enters the chamber between G and H to be brought in contact with the wick which is there in an uncompressed state, and to rise in and about the same to the flame.

2d. The draught tube C placed within the burner, and having button *b* and the perforated and deflecting head *a* combined therewith.

3d. The lip *k* projecting downwards from the under side of the cap H within the series of air holes in the same, for the purpose of preventing gusts of air from producing puffs of smoke up the chimney.

No. 10,444.—WILLIAM CUNNINGHAM.—*Improvement in Washing Machines.*—Patented January 24, 1854.

B B are rollers in swing frames C C, hung upon pivots in the adjustable slide pieces D D. The lower ends of these swing frames are thrown towards each other by a weight F, acting on toggles E E, the whole system admitting, at the same time, of a free motion from side to side. Between the swing frames works a rubber operated by a weighted lever, K.

Claim.—The roller frames hung in adjustable boxes, and connected by weighted arms.

No. 10,445.—JOHN H. DENNIS.—*Bee-Hive.*—Patented January 24, 1854.

The invention consists in the construction of a moth-trap S, which represents a section of the hive; *r* and *q* show the trumpet-mouthed entrance for the moths, which, having once entered, on attempting to fly out through the same passage, their wings strike the end of the tube and prevent egress. *Claim*, to the moth-trap, consisting of a close chamber, having no communication with the rest of the hive, and in which may be placed a vessel containing some fluid attractive to the bee-moth, in combination with a conical or tapering entrance tube.

No. 10,446.—SPENCER B. DRIGGS.—*Improved Attachment to Piano Fortes.*—Patented January 24, 1854.

This invention is called a "linguine" attachment to piano fortes, and figure 1 is a plan view of the interior of a piano forte with this attachment. Figure 2 is a transverse vertical section of the same.

The nature of the invention consists, in combination with the piano forte, of a series of metallic musical tongues or springs, in such a manner that each key, at the same time that it actuates one of the regular series of hammers, will strike one of the tongues, and thereby produce a combination of two musical sounds. Also, in a certain method of connecting the striking actions of the strings and tongues, whereby both are actuated by the key simultaneously.

Claims.—1st. A combination of springs or tongues, *c c*, with a piano forte, in such a manner that a tongue and string are struck simultaneously by the hammers and a single key.

2d. Actuating the hammer which strikes the tongue by means of a jack, *d*, attached to the damper H of its corresponding string, whereby the said hammer is caused to strike by the raising of the damper, when the piano forte action is brought into play, and thus the tongue and string are struck simultaneously.

No. 10,447.—Charles R. Harvey.—*Improvement in Air Heating Furnaces.*—Patented January 24, 1854.

This invention consists in constructing the top of the fire-chamber of an air-heating furnace with a depression in the centre, which leaves an open space encircling the outside of the flue. This is to equalize the expansion and contraction of the parts, and causes the gases to reverberate and be consumed; thus obtaining the advantages of a diving flue, avoiding the unequal attraction of the currents of heat, &c., to one side, and the irregular expansion and contraction attendant thereon. (See figure, which is a section of fire-chamber and flue, showing the depressed top or bonnet of the dome.)

Claim.—Constructing the bonnet or top of the fire-chamber with a depression at the centre, into which the smoke or exit pipe enters, so that the heat is equalized all around, and the expansion and contraction is made uniform, as above specified.

No. 10,448.—Dennis G. Littlefield.—*Improvement in Stoves.*—Patented January 24, 1854.

This invention consists in the employment of a cylindrical grated fire-pot, surmounted by a reservoir closed at top for the reception of the gases which arise.

The unconsumed gases escape through the cylindrical grate at a point where the solid unconsumed coal is in a state of ignition, and are there burned, and, by the heat thus produced, aid in the combustion of the partially consumed coals.

Claim.—The cylindrical grated fire-pot E, in combination with the gas receptacle F, constructed and operating in the manner substantially described, by which the gaseous and more inflammable elements of the coal burn in immediate contact with its more refractory portions, and thus secure the complete combustion of them both.

No. 10,449.—George Neilson.—*Improvement in Ventilating Railroad Cars.*—Patented January 24, 1854.

This invention consists in placing on the top of the car a box or case E, communicating with the interior of the car, and provided with cisterns or reservoirs to contain water, and partitions covered with sponge or other capillary substance. The figure represents a vertical section of the case, and part of the roof of a car, P′, and a cross-section of the same. F and G are the cisterns, *d e f* the capillary partition, and B the open mouth or communication with the interior of the car.

Claim.—Two or more ranges of sponges or capillary partitions, as arranged and combined with the cistern of water and open-mouthed case E, made to communicate with the interior of the car and the surrounding atmosphere, and to operate when the car is in motion.

No. 10,450—Thomas Prosser.—*Forming Hollow Slabs or Plates.*—Patented January 24, 1854.

The invention consists in forming hollow slabs or plates by welding together the two plain plates with the rim or flange between the two, and at right-angles to them; pins being used to hold the parts together while being welded.

No. 10,451.—Harvey Trumbull.—*Straw Cutter.*—Patented January 24, 1854.

The device claimed is that of arranging nearly horizontal wire fingers over, and resting upon, the lower feed-roller of a straw cutter, as seen in the sectional drawing. These wire fingers prevent the straw from getting and winding around the lower roller.

Claim.—To the device for securing the clear passage of the straw, &c., over the interval between the trough and mouth-piece and the lower roller, consisting of fingers, &c., attached to the trough and passing over the said roller into or upon the mouth-piece, and secured from interference with the passage of the straw, &c., by grooves in the face of the roller in which the fingers lie.

No. 10,452.—Peter, W. S., and J. J. Hench.—*Improvement in Mills for Grinding Sumac.*—Patented January 24, 1854.

An interior perforated cylinder is used for the first part of the grinding, the fibrous portions being removed by means of teeth on the cylinder and on a roller with heads or flanges to prevent the teeth from being knocked off. The coarsely bruised matter falls into an outer cylinder, and is finely ground by balls.

The use of balls for grinding is not claimed.

Claim.—The employment of a cylinder *e*, having projecting points or teeth on its internal surface, with a roller having heads on its ends, on which it rolls and is kept above said teeth; said roller also having teeth projecting from its surface, which interlock into those first named

on the cylinder, by which the better portions of the sumac are beaten off, and, passing through the apertures in the cylinder, enter another cylinder, where they are ground fine as described.

No. 10,453.—JENNINGS and BRIERLY.—*Improvement in Fulling and Scouring Cloth.*—Patented January 24, 1854.

The invention consists in the short flanged roller in common use, for long, flat-surfaced rollers without flanges, so as to permit the cloth to occupy a large surface upon them, instead of being confined to a narrow surface by the flanges.

Claim.—The application of the flat-surfaced rollers *d d d*, in combination with the gatherer, the horizontal and vertical rollers or fold breakers *i i i i*, and *f f*, and guide *e*.

No. 10,454.—JOSEPH MARKS.—*Balanced Steam Valves.*—Patented January 24, 1854.

The portion of the claims here copied are a sufficient guide to the invention.

Claim—1st. The constructing a steam-chest with continuous circular ports or passages both for the induction and exhaustion of the steam, so as to keep a constant and equal pressure of steam upon both ends and the periphery or outer surface of a cylindrical piston-valve, which travels in the bore of the same, and by which also is secured a large area of port by a very small movement of the valve; and this is claimed whether the said valve be used as a main-valve, cut-off, or throttle valve.

2d. The construction of a piston-valve composed of two heads, which fit closely in the bore of the circular steam-chest, and are united by a cylindrical portion of less diameter than the said heads, with a steam-chest constructed with circular ports or passages, as specified in the foregoing claim, by which a large exhaust space is secured without increasing the size of the said steam-chest, or making it very large, and by which means alone provision is made for the escape of the exhaust steam into the exhaust-chamber.

a, is the steam cylinder; *b*, the piston; *c c*, the steam-chest; and *l*, the circular ports; *o*, cylindrical piston-valve, and *r s*, the piston-valve heads. The figure represents the piston-valve in dotted lines.

No. 10,455.—JAMES ROBINSON.—*Thresher and Cleaner of Grain in the Field.*—Patented January 24, 1854.

The invention consists in the use of tightening pulleys S S, to aid in steering the machine, and also in checking the motion of the threshing cylinder. It also consists in adjusting the feed by curved rods c^1, extending partly around the feed-roller. Also, an adjustable feed-gauge or slide V.

Claim.—1st. To the mode of checking the motion of the carriage when under headway, and steering the same by means of the tightening pulleys combined with the threshing cylinder and a two-wheel cart, with double gearing.

2d. To the employment of the adjusting rods C^1 C^1, in combination with the feed-roller, for the purpose of regulating the amount of material to be taken up by the feed-roller.

3d. To the employment of said adjusting rods in combination with the feed-roller and threshing cylinder, for the purpose of regulating the amount of material to be taken up by the feed-roller, and of keeping up the material to the threshing cylinder.

4th. To the combination of the adjusting rods, feed-roller, and gauge-rods.

5th. To the combination of the gauge-rods with the feed-roller and concave, or mouth of the concave, of the threshing machine.

No. 10,456.—ALEXANDER HALL.—*Improvement in Piano-fortes.*—Patented January 24, 1854.

The improvement consists in so arranging the bridges and dampers, that a person can play in one or more octaves at the same time. In order to obtain the additional octave notes, two or more extra bridges are employed, as represented in the figure at B C, placed on the sounding board in front of the bridge A in common use. These bridges are arranged at suitable distances apart to produce the required tones, and are provided with notches or depressions *a a*, over which the strings of ordinary length pass; the bearings *b b*, on the additional bridges, sustain the additional octave strings. Two or more sets of damper-bars are used, one for each octave. The object of this is, that one or both may be played by one key, through the agency of pedal rods *c c*.

No. 10,457.—DANIEL HAIGHT, jr.—*Improvement in Attaching Shafts to Wagons.*—Patented January 24, 1854.

Claim.—Attaching the shaft or tongue by the lateral insertion of the cylindrical-headed draw-iron A into the circular socket of the jack B, by which to form a safe and readily detachable connexion between the shaft or tongue and axle, without the use of bolt and nut or bar, or any intermediate means.

No. 10,458.—WILLIAM OVEREND.—*Machine for Wetting Paper.*—Patented January 24, 1854.

This machine is intended to give to paper a certain degree of dampness, in order to adapt it to receive the ink when used in printing.

A given quantity of paper is placed on the table *g*, and is fed into the machine by the nippers *n*, when it is carried forward between the wetted blankets *a* a^1, passing between the rollers *b* b^1, and finally deposited on the pile beneath the machine, having received the required amount of moisture in its passage.

Claims.—1st. The yielding gauges *i*.

2d. The combination of endless bands *l*, nippers *n*, roller m^3, rollers *u u*, and their bands *t*; the roller *y*, with its bands *r*, and counterbalance *z*; the carriage *w*, with its vertical arm 2, &c., &c.

3d. The combination of the sliding pieces moving in the vertical grooves 5 with the arms and the rollers 7, for adjusting the depositing apparatus to the height of the pile of paper.

4th. The combination of levers with the roller m^1 and curved groove 13, for the purpose of maintaining a uniform tension of the bands *l* in every position of the depositing apparatus.

Fig. 1 is a longitudinal and vertical section of the machine.

Fig. 2 is a plan of the nippers detached.

Fig. 3, side view of the nippers about to close on the paper.

No. 10,459.—Aaron Palmer and S. G. Williams.—*Grain-harvester.*—Patented January 24, 1854.

The point of the invention consists in the devices for moving the rake R over the platform, consisting of a curved rack (*a*) and pinion (*b*) movement, in which the said pinion moves around the inner face of the flattened ellipsoidal cogged rack, as seen in the figure.

Claims.—1st. To the method of transferring motion to the rake on the platform from the driving-wheel, by means of the double-curved rack and pinion on the axle of the driving-wheel, the iron arm *c*, latch *p*, and spring *m*.

2d. To the method of hanging the reel, so as to dispense with any post or reel-bearer next to the standing grain; thereby preventing the grain from getting caught and held fast between the driver and a reel-supporter.

No. 10,460.—Jacob Reese.—*Rolling Car-axles.*—Patented January 24, 1854.

The invention consists in shaping bars of heated iron into axles and shafts, and with collars and journals, by rolling them on their own axes and under pressure between properly shaped converging surfaces.

No. 10,461.—Charles R. Soule.—*Thresher and Separater of Grain.*—Patented January 24, 1854.

The invention consists of—

1st. A spring-board *d*, just below the feed-mouth, to allow stones, &c., to escape.

2d. The rotary vane straw-carrier, consisting of notched bars *f*, having an endway motion, and the beater *i* combined with the movable conducting board *m*, for discharging the grain; also, the mode of hanging and moving the shoe.

No. 10,462.—Moses C. Stiles and Tristram S. Lewis.—*Improved Machine for Making Window-blinds.*—Patented January 24, 1854.

This improvement consists in so arranging the necessary machinery that, with a cutter of the proper kind and a gouge, the slat may be finished, and the stile mortised, at a single operation by the foot of the operator.

A is the arbor on which the cutter C revolves; L, the treadle or lever by which it is operated; K, the rule by which the length of the mortise is determined; and J, the gouge by which the ends of the slats are rounded to fit exactly the mortises that have been cut. The cutter C and chisel J are worked simultaneously.

No. 10,463.—Carl E. Werner.—*Distilling Apparatus.*—Patented January 24, 1854.

The invention consists in the construction of a column-still in cylindrical sections, with inverted caps and discharging tubes for beer.

The figure shows a sectional view, in which the beer from reservoir *d* descends by tube *f* into the several divisions of the still, till it is finally discharged at S. The steam enters at *q*, and is finally discharged at C, with the spirit.

The claim is:

1st. To the inner rim *h*, rising from the floor of the chamber, and surrounding the discharge opening of conducting pipe *f*, to prevent interference of the steam with the discharging action of said pipe.

2d. Surrounding the entrance of the conducting pipe *f* with an open tubular screen *g*, which rises above the pipe-entrance to a height greater than any possible ebullition of the liquid, and terminates below at such portion of the liquid as it is desired to discharge from.

No. 10,464.—John E. Brown and Stephen S. Bartlett.—*Improved Mortising Machine.*—Patented January 24, 1854.

The principal feature in this machine is the conical cam M, that traverses freely the shaft N, which, in combination with the other mechanism, operates the chisel, and enables the workmen to vary the length of the stroke at pleasure.

Figure 1 is a side view.

Figure 2, horizontal section.

The stuff to be mortised being placed upon the bed D, the machine is put in motion, when the person using it by depressing with his foot the lever *e*, and traversing the cam M under the lever L, moves the chisel E a short distance the first two strokes; but by degrees the cam is slipped further into the wood, until the highest part of the cam is brought under the lever L, when the chisel is operated with a full stroke.

Claim.—Operating the chisel by the graduated conical cam in combination with the mechanism described, or its equivalent, which enables the operator to vary the length of the stroke made by the chisel while it is in operation, or suspend its motion at pleasure, without disconnecting the driving power applied to operate the machine.

No. 10,465.—Henry T. Anthony.—*Improvement in Presses for making Miniature-Cases, &c.*—Patented January 31, 1854.

The improvement consists in constructing the platens D so that they can be lined with India rubber, or other elastic material, in such a manner that the embossed leather used for covering the cases may not be injured during the process of attaching it to the wooden frame of the box.

No. 10,466.—Philander H. Benedict.—*Daguerreotype-Plate Holders.*—Patented January 31, 1854.

The nature of the invention consists in a more convenient method than is at present in use for holding daguerreotype plates while they are being polished preparatory to their receiving the impression.

The operation is as follows: Place the block A firmly in a vise; place the bent edge of the plate to be polished between the upper edges of the plates O and D, and close them upon it by the screw F; the under surface of the plate B in contact with the upper surface of the block A.

Claim.—The vise upon the side or edge of blocks used for holding daguerreotype plates while they are being polished or buffed. Also, the vice constructed as set forth, and operating by holding the bent edge of the plate between its jaws, as described.

No. 10,467.—Enos Boughton.—*Cultivator.*—Patented January 31, 1854.

The figure exhibits a nearly rectangular cutting-blade T C T from the axle of a wheel cultivator, and designed to run under the surface of the ground and cut the roots of thistles and other noxious weeds.

This is a case in which the decision of the office was reversed by one of the circuit judges of the District of Columbia.

No. 10,468.—William Boyd.—*Mode of fixing Likenesses in Monuments.*—Patented January 31, 1854.

The *claim* is to combining with a monument or grave-stone a case having a concave mirror set in the back part, and having also within it a miniature or likeness of the deceased, which may be kept secure from the action of the weather, or from liability to receive other injury, said miniature being attached to the cover of the case in such way that by opening the cover the likeness may be viewed by reflection in the mirror.

No. 10,469.—William Cleveland.—*Improved Fountain Pen.*—Patented January 31, 1854.

A stem, *a*, is attached to a sliding arm, which runs a short distance into the barrel of the pen, and has on its upper end a little pin moving in a slot. The stem is also provided with a cone, which fits the orifice of the barrel, and serves as a stopper when the pen is not in use.

The *claim* is to the employment of capillary action to supply the ink to the pen when used under an arrangement and combination consisting in the employment of the leading stem so fixed in the delivery aperture, that it shall lead the ink down on one side of the aperture and allow the air to enter the other.

No. 10,470.—William O. Davis.—*Improvement in Presses for Moulding Glass.*—Patented January 31, 1854.

The mould is placed on a table *a*, and receives its pressure from two central pistons, *e* and *p*, of which the one above the table *p* slides in guides in the gallows frame *c*. The pressure from one piston to the other is transmitted through two yokes, *k* and *m*, and their connecting rods *l l*, by which means the table and frame supporting the guides for the moving piston and followers are relieved from any heavy strain tending to flex them out of shape. The upper yoke *m* is free to swing laterally with the connecting rods *l l*, in order to accommodate the play of the toggle-joint lever *q*, which gives motion to the piston *p*.

Claim.—The combination of the rocking-shaft, connecting rods, swinging beam, and toggle-joint lever, or their mechanical equivalents, as hereinbefore described, for the purpose of procuring a vertical pressure in presses, together with the mode of attaching them so as to relieve the bed-plate and frame-work of the press from any strain.

No. 10,471.—Samuel L. Denney.—*Improvement in divided Railroad Axles.*—Patented January 31, 1854.

Claim.—The gradual conical enlargement, terminating in the more abrupt curved portion, towards the inner end of one part of the axle, in combination with the alloy surrounding it and the adjustible connecting box.

No. 10,472.—Cyrus J. Fay.—*Improvement in Cotton Presses.*—Patented January 31, 1854.

In this press the follower consists of several separate planks F F, drawn by a cross-beam G, and prevented from coming together at their edges by ribs E fastened to the inner side of the upper half of the box; the spaces thus left serving to rope the bales after compressing them.

Claim.—The use of the slats or guide-strips E, arranged and operating in the manner substantially as set forth.

No. 10,473.—Eleazer W. Johnson.—*Improvement in Saw-mills.*—Patented January 31, 1854.

The peculiar features of this machine consist in the new arrangement of the several parts, and the manner of applying the motive pow-

er, steam. This is done by combining the piston-rod directly with the saw-gate in such a way that single saws, or gangs of saws, may be operated on both sides of the cylinder, which latter is placed directly within the centre of the framing.

Claim.—The arrangement of mechanism for driving two saws or gangs of saws and placing the whole upon one bed-plate, in the manner and for the purpose set forth.

No. 10,474.—Harry Leach.—*Propellers.*—Patented January 31, 1854.

This improvement consists in an opening or passage E, between the divided floats C D of a propeller, for the escape of the back-water.

The claim is to the combination with each of the arms B B B of a propeller, of two parts of floats C D (projected in opposite directions,) and an opening or passage E, arranged between them for the escape of back-water.

No. 10,475.—Thomas Longking.—*Apparatus for cleaning and buffing Daguerreotype Plates.*—Patented January 31, 1854.

The nature of the invention consists in a mode of cleaning the plate previous to buffing. To accomplish this object, a rotary cushion is used, over which a cover of Canton flannel or similar substance is placed and secured by a ring; the daguerreotype plate being applied to the rotating cushion while held in a proper plate-holder. A buffing wheel *h* is afterwards used to finish the polish of the plate.

Claim.—1st. The revolving cushion *m*, with the ring *o*, by which the Canton flannel or similar covering is secured to the cushion or removed, and a new cover substituted when required.

2d. The arrangement of the gearing and shafts, by means of which the cleaning cushion is combined with the buffing wheel, substantially as set forth.

No. 10,476.—T. O. Cutter.—*Improvement in Quartz Crusher.*—Patented January 31, 1854.

Claim.—The employment of balls to act by centrifugal action due to their rotation about a common centre, where the said balls are combined, and act against the inner periphery of a shell or concave, which rotates on a common axis with the balls, and which, by reason of its rotation, distributes and holds the material to be ground, &c., in the concavity of said shell.

No. 10,477.—Harvey Lull.—*Shutter Hinge.*—Patented January 31, 1854.

The claim is to forming a self-locking hinge, cast in two pieces, so that a shutter hung thereon may swing open and shut on a horizontal plane, and lock when opened to its limit, and so that, also, when locked

open, the strain shall be taken off the spindle and thrown on the cam-arms.

Fig. 1 represents the hinge about to lock when the shutters have almost reached the wall. Fig. 2 represents the hinge locked when the shutters are entirely open.

No. 10,478.—James McCarty.—*Improvement in machinery for Scarfing the edges of Skelps for Lap-welded Tubes.*—Patented January 31, 1854.

This improvement consists in a pair of rollers having vertical and horizontal adjustments and bevelled shoulders, so that the skelp plates of different widths may have bevelled edges formed on their opposite sides, in being passed through the rollers.

No. 10,479.—John L. L. Morris.—*Improvement in Steam Hammers.*—Patented January 31, 1854.

Claims.—1st. Admitting steam to the cylinder above the piston, and exhausting the steam therefrom through ports *gg* and *jj*, which are opened and closed by an annular valve T, working in the cylinder itself and in the steam-chest S, which is placed above and forms a continuation of the cylinder.

2d. Combination of a bell-crank latch-lever J with a trigger or catch K, of T or other shape, when the fulcrum of said catch-box is attached and stationary in relation to the hammer-block, and one end or arm is attached to the connecting-rod of the hammer-block, and receives the necessary movement to actuate the trigger or catch to set free the valve-rod, by means of a continued descent of the connecting-rod after the hammer is arrested by striking the blow,

The rod I is connected with one end of the walking-beam, and the piston-rod H (by means of a connecting-rod) with the other end of the same. C is the hammer and C^1 the hammer-block. Fig. 1 represents a vertical and longitudinal section through the machine, and figure 2 a vertical cross-section through the steam-chest.

No. 10,480.—Charles G. Page.—*Improvement in Electro-Magnetic Engines.*—Patented January 31, 1854; in England, May 3, 1851.

A A represent two horse-shoe electro-magnets of soft iron, acted on by two sets of helices B B, and B^1 B^1; one arrangement of the pair of electro-magnets being shown in fig. 1. Motion is communicated to the electro-magnets by the action upon them of the helices alone, which have not only been discovered to be capable of exerting a great force when made on a large scale, but at the same time present the advantage of a long range of action. The motion of the electro-magnets is communicated, through the connecting-rod I, to a crank and fly-wheel. Upon the shaft of the fly-wheel is a cut-off, as it is termed, by which the current of the battery is alternately thrown upon the

coils B B for the stroke in one direction, and upon the coils B^1 B^1 for the return stroke.

G G represents soft-iron armatures, the object of which is, by their reaction upon the magnets at their approach to them, to increase the force near the end of the stroke.

Figure 2 represents a coil of heavy copper wire of a square form in section, the object of the square form being to fill the space occupied by the coil as fully as practicable with conducting material.

Claims.—1st. The employment of the axial action or force of the electro-current as a mechanical agent or motive power, for the various purposes herein named; the power being produced by the combination or united operation of a helix or helices, and axial bar or bars of iron, and a cut-off or its equivalent, for regulating the motion of the axial bar or bars, under a general arrangement in principle substantially as set forth in this specification.

2d. The employment of co-operating electro-magnets or armatures, in combination with axial bars, helices, and cut-off, or its equivalent, substantially as herein set forth.

Lastly. The employment of square wires in the construction of helices for electro-magnetic purposes, substantially as set forth.

No. 10,481.—William Palmer.—*Water-Gauge for Steam Boilers.*—Patented January 31, 1854.

The claims are to the use of the double tubular case in combination with the lever, having a float at one end working one of the tubes, and a compensating plate at the other, working in the opposite tube; also, the use of the lever, having a float at one end and a compensating plate at the other, whether working in a double tubular case or otherwise, in combination with an upper and lower rod-valve for operating a bell by means of the steam escaping through these valves, whether using the paddle wheel or any equivalent device for that purpose, to indicate the minimum or maximum of the water in the boiler.

No. 10,482.—Ebenezer G. Pomeroy.—*Improvement in making Sheet-Iron.*—Patented January 31, 1854.

A paint is formed from ground plumbago, pulverized charcoal, and the black soot deposited from burning bituminous coal, along with ivory or bone or lamp black, either with water, weak spirits, or any acetous preparation, until the paint is very fine and fit to be applied. This is applied with a soft brush to the previously cleansed surface of the iron. The iron is then passed between rolls, and thereby the carbonaceous matter in combination with the surface of the iron forms a permanent coating thereon.

The *claim* is to incorporating with the surface of iron solid carbonaceous matter by pressure, so as to protect it from oxidation and beautify it at the same time. No drawing given.

No. 10,483.—Benjamin Underwood.—*Improvement in the construction of Printing-Blocks.*—Patented January 31, 1854.

The nature of the invention consists in the construction of suitable movable types of wood, or other material to answer the same purpose, and so arranging them together that they shall collectively constitute blocks with which ornamental figures and designs may be printed on cloths and other fabrics, in one or more colors.

Fig. 1 is a plan of a case for holding the movable types, the end-piece a^1 being removed. The case *a a a* is represented as being half full of types, composed into one-half of a design. The bottom of this case is grooved, as seen at *g*, which grooves extend across the entire width of the bottom of the case. All the types have angular projections on their lower parts, which fit and slide in these grooves.

Claim.—The above described movable types with angular projections, and blocks with grooves to receive the angular projection of the types.

No. 10,484.—Frederick J. Thring.—*Improvement in Carpet Bags.*—Patented January 31, 1854.

This carpet bag is provided with a metallic frame D, extending all around one side of the bag, and furnished with a hinged part or clasp E, by which nearly the whole of one side of the bag can be thrown open, the clasp being properly secured with lock and key.

Claim.—Constructing the carpet bag with its top B, and bottom C, of equal or nearly equal widths, and arranging round its front a strong metallic frame D; attaching to the front and near the centre of said metallic frame, by hinges or loose joints, a metallic swinging cover E, which extends from the centre to the top of the frame, and has a ledge on its inner face; the said cover serving to close up the mouth of the bag, and, in connexion with the metallic frame D, to keep out all dust and rain.

No. 10,485.—Edward Town.—*Machine for Paging Books.*—Patented January 31, 1854.

The type for printing the numbers are arranged spirally on a cylinder placed under the table, on which the book to be paged is placed, and in which there is an aperture of sufficient size to admit one number at a time, by means of the lever V and arm S. The printing is performed by a pedal, and a ratchet movement at one end of the cylinder rotates the cylinder at each movement sufficiently to present a new number, by means of the screw-shaft C.

Claim.—To the arrangement of type in spiral columns around a cylinder for the purpose of printing successive numbers, the cylinder being moved laterally while it revolves by means of a screw on the end of its shaft, substantially as described.

No. 10,486.—Peter L. Weimer.—*Steam Hammer.*—Patented January 31, 1854.

The claim is to the arrangement of the toggle W, the catch U, the arm T, the weight I, and the shaft *g*, for the purpose of opening the valve admitting steam into the cylinder, from the concussion or spring of the anvil in its bed, caused by the force of the blow of the hammer.

No. 10,487.—Isaac L. Dickinson.—*Improvement in Churns.*—Patented January 31, 1854.

This churn is one of the kind which has a cylindrical tub, with a vertical revolving dasher, the latter being shown in the engraving by *f f*. Outside of the dasher are breakers *g g*, attached to cross-pieces *k*, which are free to slide up and down the dasher-shaft *c*. In churning, these breakers are let down, till pins *l l* enter holes in the bottom of the churn and hold the breakers stationary. In gathering the butter, the breakers are raised till the pins leave the holes in the bottom of the churn, and the dashers *f f* are received into slots *j j* in the lower cross-piece of the breaker frame, and, catching by springs, hold the latter in that position so as to revolve with the dasher.

Claim.—The combination of the movable or rotating dashers *f f* with the breakers *g g*, constructed and operated as above described, so that said breakers may remain stationary while churning, and revolve with the dashers to collect the butter, substantially as herein described.

No. 10,488.—Le Roy S. White.—*Improvement in Furniture Casters.*—Patented January 31, 1854.

In the interior of the socket of the caster is formed a square-shouldered groove F, which receives and confines a spring D in the form of an open ring. The inner circumference of this open ring is smaller than the shank of the caster; and as the latter is forced into its place the ring is slightly distended, until it comes to a groove F in the shank, into which it then springs and holds the shank from falling out. The shoulder of the latter groove is bevelled, so that, although the shank will not drop out in ordinary use, it can be drawn out by the application of force, when desired.

Claim.—The patentee disclaims the invention of making the shank of the caster detachable from its sockets; also the employment of a spring to hold the shank in the socket; also the arrangement of said spring in a groove made in and round the shank, and the making the spring to bear against the internal surface of the socket made without a groove; but,

What is claimed is, the arrangement of the sustaining-groove F, of the spring D in the socket E, instead of the shank *c*, so that, when the shank *c* is being drawn out of the socket, or when it is within or out of the same, the spring will remain in the socket. Also, in combination with the spring and groove made in the socket, to make the groove G of the shank with its upper side flaring, and the upper end of the shank

bevelling, as described or as represented in the drawing, the said flare of the side of the groove and the top rendering the shank capable of being detached from or attached to the socket.

No. 10,489.—Ebenezer Barrows.—*Rotary Engine.*—Patented February 7, 1854.

The invention, as covered by the claims, is:

1st. The revolving steam-wheel E, having projecting rims or flanges F revolving within the interior of a stationary cylinder A, in which there are two or more fixed abutments or stops N, which fit steam-tight, so as to close and divide the annular space between the cylinder and wheel into two or more steam-chambers; the said wheel having four or more pistons, G, G^1, C, C^1, whose operation is controlled by a stationary curved groove or way H in each cylinder-head D, so as to be alternately acted upon by the steam in the cylinder, and drawn within the wheel so as to pass and clear the abutments or stops N, substantially in the manner herein shown.

2d. The six-way cocks or steam-heads M, having each a steam-passage R leading to its plug-seat; two steam-passages T T leading from the plug-seat to opposite chambers of the cylinder; two exhaust passages U U leading from opposite chambers of the cylinder back to the plug-seat, and one, V, leading from the plug-seat to the exhaust-pipe, their cock-plugs Q being provided with suitable openings and passages to make communication to and from the steam and exhaust-pipes to either division of the cylinder, or to close both.

3d. The mode of uniting the face and side packing-pieces of the pistons and abutments so as to make them steam-tight at their corners, by dove-tailing them, as shown at O P, fig. 3.

4th. Making the steam-cylinder within and a part of the piston-wheel, the stationary rim forming the outer side of said cylinder, so that the three sides of said cylinder shall revolve with the pistons.

One half of fig. 1 represents a section through the tube W, the other half a section through the tube S. Fig. 2 represents an end-view on a smaller scale.

No. 10,490.—A. M. Asay.—*Dental Chair.*—Patented February 7, 1854.

The invention consists in the arrangement of the crank *r*, screw *e*, and pinions *b*, *b*^{1}, to raise and lower the seat of the chair. See figure.

No. 10,491.—Edward Bancroft and William Sellers.—*Improvement in Turning-Lathes.*—Patented February 7, 1854.

The first part of this improvement consists in the employment of a series of cog-wheels *k*, *l*, *m*, *n*, connected and turning together, and receiving motion from the mandrel *d*, or from any other source, and imparting motion to the screw-shaft *x*; each successive wheel in the

series being of greater diameter than the other, and the number of wheels being equal to the number of changes required to be made. These wheels are combined with another and corresponding series of wheels, *r*, *s*, *t*, *u*, in inverted order, all engaging the wheels of the first series, each wheel of the second series being on a separate hollow arbor, and each wheel so arranged that it may act independently of the others in connexion with the screw-shaft *x*, or leader, to prevent it from being strained out of line. This is done by means of a metal trough b^1, which supports the screw throughout its entire length, while it is permitted to turn freely but accurately therein.

Claim.—The method of varying the motions of the mandrel and screw-shaft, or leader, by means of the two series of wheels, each series consisting of wheels of different diameters, and all the wheels of one series being connected and turning together, and imparting motion to all the wheels of the second series, with different degrees of velocity, substantially as described; when this is combined with the method of locking any one of the wheels of the second series with the shaft of the screw, or leader, by having the wheels on separate sleeve arbors fitted to turn on each other, and adapted to receive a locking pin or bolt *y*, fitted to holes in a plate a^1, fast on the shaft of the screw, or any arrangement effecting the same end by means substantially the same.

Also the manner of supporting or sustaining the screw or leader, by combining therewith a trough, substantially as specified; having the outer end of the said screw, or leader, without a journal.

No. 10,492.—John and William McAdams.—*Improved Machine for Ruling Paper.*—Patented February 7, 1854.

The principal result secured by this invention is the ruling of both the horizontal and vertical lines on the paper, by passing it once through the machine. This is done by feeding the paper from the platform *c*, till the first set of lines are ruled, and then by a peculiar arrangement of the revolving drums *r r*, and the band *q*, changing the direction in which the paper is moving, so as to take it off at right-angles to its former course, and feed it to another set of pens, *x x*, which rule the cross-lines.

Fig. 2, of the drawings, represents a device for lifting the pens from the paper, so as to leave any desired width of heading; this is effected as the paper is fed into the machine, by means of the edge of the paper striking the movable tongue D, which is attached to the inside of the roller I, on another portion of which is a cam-projection G, by means of which the pens are raised at intervals.

Claims.—1st. A machine for ruling paper, in which both the horizontal and vertical lines of the sheet are ruled in passing once through the machine, by any arrangement of devices which carries the sheet, after one set of lines is ruled, in a direction at right-angles to its first course, to another set of pens, which rule the sheet across the lines first made.

2d. Changing the direction of the movement of the sheet, after passing from the first set of pens, by means of the travelling band *q q* and revolving drums *r*, *r*, *r*.

3d. Lifting the pens so as to leave a heading to the sheet, by means of the roller E, with its movable tongue and cam-projection, acted upon by the edge of the paper and the motion of the feed-roll, so as to lift an adjustable arm connected to the pen-holder.

4th. Forming grooves in the feed-rolls, so that the pens may rest over these grooves and not upon the rolls, between the passage of the different sheets.

5th. Guiding the sheet straight to the second set of pens, after the direction of its movement is changed, by means of the converging bands which carry the edge of the sheet against a proper guide, or against the side frame-work of the machine.

6th. Forming the last roll, which carries the sheet after it is ruled to the receiver, of a polygonal or angular shape, so that its revolution may give a vibratory motion to the sheet.

No. 10,493.—Jacob Reese.—*Machine for Making Nuts*—Patented February 7, 1854.

The claims allowed on this application cover:

1st. The trough of cold water A in combination with the rotating die-box B, for the purpose of cooling each die or mould after it has discharged its nut, and preventing the water from coming in contact with other parts of the machine or with the nuts which are made in it.

2d. The guide-head *g*, in combination with lever *h* and guide *j*, for the purpose of communicating to the rotating mould-box the peculiar motion required, consisting of a succession of sudden yet steady quarter-revolutions, each followed by a pause or rest, during which the mould-box is held firmly in its place.

No. 10,494.—Michael Shimer.—*Winnower.*—Patented February 7, 1854.

The invention is confined to the construction of a trunk in a winnowing machine, of which A, in the drawing, represents the trunk; P, the hinged board; and *f*, the inclined screen. The *claim* is to the combination of the board and the screen for accomplishing three purposes: 1st, to prevent grain from passing over the edge of the screen till fully exposed to the blast.

2d. Partially cutting off the draught, as the state of the grain may require.

3d. Expanding the draught of the blast as it ascends the trunk, to weaken its force, so that the pure grain will not be carried over into the horizontal part of the trunk. Also the square rubber G, in combination with the circular flange formed on its lower end, for mashing all impurities softer than the wheat, and also for preventing the grain from passing out of the bottom of the hopper before it has been thoroughly pulverized.

No. 10,495.—Josiah Turner and W. C. Sturoc.—*Winnower.*—Patented February 7, 1854.

Claim.—The combination of the oscillating cradle H, made of slanting-slat or blind-work, with the two blowers M and Q, and the fender E.

The purpose of this invention is to separate the grain perfectly from the straw and chaff after leaving the thresher.

No. 10,496.—John M. Bachelder and Moses G. Farmer.—*Improvement in the mode of making Battery Connexion with an Electro-Magnetic Coil on the Travelling Carriage of a Telegraphic Register.*—Patented February 7, 1854.

The battery wires P^1 N^1 are run along a series of bars, *y y y*, jointed together in the manner of what is called the lazy tongs, one end of the series being jointed at a^2 to the fixed base-board of the whole machine, and the other to the travelling carriage B, a bottom view of which is seen in the engraving, and which is designed to carry the marking apparatus, and cause it to traverse the length of a cylinder wrapped with the paper upon which the message is to be written.

Claim.—The combination of the system of progressive levers with the battery wires, the base-board, and movable platform, so as to operate substantially as specified, and for the purpose set forth.

No. 10,497.—Thomas Blanchard.—*Improved Machine for Polishing Plough-handles and other articles.*—Patented February 7, 1854.

This machine is designed for reducing, smoothing, or polishing plough-handles, or other articles of a similar description, by means of an endless polishing or smoothing belt, and such other devices as are necessary to sustain the article to be operated upon while passing under the said belt. The engravings—fig. 1 being a plan, and fig. 2 a vertical section. H is the plough-handle, or article to be operated upon; A, the endless belt; E, a lever, whose fulcrum is at F, and by which, through power applied to the arm *b* of said lever, the endless belt is pressed against the article to be operated upon to the extent required. Motion is communicated to the machine by means of the driving-shaft T, to which is attached the pulley S, around which and the pulley Q extends an endless belt. An endless belt U, extending around the driving-shaft and a large pulley V, gives motion to the shaft I, and produces such a rotation of the frame G as to cause the smoothing-belt A to revolve in a circle entirely around axis I, and in contact with the article H.

Claim.—The above-described mode of applying and operating said belt with respect to the article to be smoothed or polished, the same consisting in not only making the said belt to traverse or run on sustaining pulleys or their equivalents, but, at the same time, to rotate such belt and sustaining contrivances in such manner around the article to be smoothed or polished, as to cause the belt, while in motion on its

rollers, to run in contact with and around the surface of the article to be reduced, smoothed, or polished.

Also, the combination of the feeding-carriage, its guides, and the guide-rollers, or the mechanical equivalents therefor, with the endless polishing belt, provided with machinery imparting to it its compound motion, or movement in two directions, as specified.

No. 10,498.—George Edward Burt, assignor to George Edward Burt and David C. Butterfield.—*Improvement in Machines for Cleaning and Assorting Bristles.*—Patented February 7, 1854.

The bristles are laid by hand across a pair of endless bands E and F, with the butt-ends upon E and the small ends upon F, and are carried by them beneath a roller K and an endless band L, passing over the rollers K and I. The bands E and L clasp the butt-ends of the bristles between them, and, as they travel along, pass over a large roller G, by which the small ends of the bristles, being left at liberty, as soon as they pass the roller K, are raised from the band F, and presented to the action of a comb T. This comb, with its staff *g*, sliding freely in a turning collar *h*, is operated by a crank, shown in the drawing, so as to be alternately brought down upon the bristles and carried through them, and raised up and carried back. As the butt-ends of the bristles are on the point of leaving the bands E and L and roller G, the small ends, after passing the comb T, are caught between the band F, and another endless band M passing over the rollers I and N; and these bands F and M are carried with the bristles over a second large roller O, by which the butt-ends of the bristles are in their turn raised up and presented in a free state to the action of a second comb U.

After passing the combing apparatus, the bristles are delivered lying loosely across the band F and a band P, in travelling along which their butt-ends come in contact with the inclined face of another endless band l^1, that receives a rapid succession of smart taps from a light hammer r^1, acting on a long bar p^1, which just touches the band l^1. By this means the butt-ends of the bristles are brought so as to lie evenly in one straight line, and in this state they are taken between two endless brushes *v v*, which carry the bristles along until the small ends of the longest are caught between inclined rollers a^2 and f^2, and endless bands k^2 and q^3, by which they are drawn from between the endless brushes, and from which they are conveyed along k^2 and q^3, and between two other endless bands, of which l^2 is one, till they are delivered by the rollers i^3 and q^3 upon the end of the platform w^2.

The shorter bristles are left between the endless brushes till those of middle length are caught between a second set of rollers b^2 and g^2, and are in like manner drawn from the brushes, and delivered from the rollers i^3 and q^3 upon the middle of the platform w^2. The shortest lengths of all are finally caught between a third set of rollers c^2 h^2, and delivered upon the inner end of w^2.

To prevent the bristles from following the rollers i^3 or q^3 around, so as to interfere with their proper delivery, the rollers are formed with

deep grooves t^2 running around them and receiving the teeth of two combs u^2 and v^2.

Claim.—1st. The combination of machinery for combing or straightening the bristles, and machinery for separating or assorting them, as specified.

2d. The combination of two movable combs or rakes T U, the two lifter-wheels G O, and their carrying endless belts E and L F and M, so arranged as above described; the whole being for the purpose of first holding the mass of the bristles by one part or portion of it, and lifting and combing the remainder of it, and subsequently seizing and lifting it by such combed part or portion, and combing the part previously seized, all as specified.

3d. In combination with the machinery for combing or straightening the bristles, and machinery for assorting or separating them, is claimed the endless guide-belt l^1, the spring-board p^1, and rapping apparatus or hammer r^1, as applied and made to operate, substantially in manner as specified.

The inventor does not claim the combination of an endless platform, a roller, and a series of pressure rollers, as employed in the machine of Lorenzo D. Grosvenor; but what he does claim as of his invention is the combination and arrangement of the two endless brush-belts v v, and two series of draught rollers, and their two sets of endless bands, as made to operate together and assort the bristles, substantially as hereinbefore specified.

4th. He claims the combination of the combs u^2 v^2, and their grooves t^2, &c., with the delivery rollers, so as to operate substantially in manner and for the purpose as specified.

No. 10,499.—Dexter H. Chamberlain.—*Bit or Drill Stock.*—Patented February 7, 1854.

The *claim* is to the arrangement of the bell-crank I, separate from and so as to play or rotate within the tool-shaft stock, as exhibited in the drawing; the said bell-crank having a spur-gear to work into a pinion fixed into the end of the tool-shaft, and to impart to said tool-shaft an accelerated motion.

No. 10,500.—Dexter H. Chamberlain.—*Awl-Haft or Tool-Holder.*—Patented February 7, 1854.

The *claim* is to arranging and applying together the jaws and confining-screws, the same consisting in making the jaws a b separate from the screw-shank e, (on which the screw f is cut,) and not only providing the screw-nut with a closing concavity or socket i, but the screw-shank e with a closing socket g for the jaws to rest in; the whole being so that when the screw-nut is screwed down upon the jaws, the combined action of the jaws and the screw-nut shall operate to simultaneously close the jaws at their upper and lower ends, as specified.

No. 10,501.—John J. Crooke.—*Manufacturing Tin Foils or Sheets.*—Patented February 7, 1854.

The *claim* is to making a new article of manufacture—that is, foils or sheets composed of tin and lead, formed in separate strata, but so that the exposed or external surface shall be of pure tin only, the lead being entirely encased within the tin.

No illustration.

No. 10,502.—Lewis S. Davis.—*Improvement in Blocks for Horse Collars.*—Patented February 7, 1854.

The collar block is made in four sections, e e^1, f f^1, hinged together at the extreme ends, and provided at the side joints with sliding spring plates m m^1. The several sections have pins k k^1, l l^1, which enter inclined slots h h^1, i i^1, in the base board a, by the action of which pins and slots the sections are made to expand in width simultaneously with their expansion in length, which last is effected by the action of the screw c and nuts g g^1.

Claim.—The inventor does not claim as novel the construction of a horse collar in expanding sections; but he claims as new, and desires to secure—

The four-parted collar block, of which the front pair of sections are hinged together at the gullet, and the back pair at the neck of the block, as described; the same being combined with a temporary bolt, placed at the intersection of the partings, the said bolt serving to unite the base and cap, and also forming a fixed bearing for the right and left hand screw c, which, in conjunction with the pins on the block, and the diverging grooves in the base and cap, effect the prolongation and proportional lateral expansion of the block, or devices substantially equivalent.

No. 10,503.—F. O. Deschamps.—*Improvement in Omnibus Registers.*—Patented February 7, 1854.

The machine is one of the class long since used or proposed in France as a security against the frauds of omnibus drivers, and in which a bell-pull is combined with an alarm-bell and a registering apparatus, both inaccessible to the driver. On a passenger entering the omnibus it is the driver's duty to register his fare by drawing the bell-pull, and his omission to do so is notified to the passengers by the failure of the bell to give its signal.

Claims.—1st. Attaching the secret slide G to the bolt of a lock H, substantially as described, so that it can only be moved to expose or conceal the numerals on the dials by a key which properly fits the lock.

2d. Combining the secret slide G with a stop-bar J, substantially as described, so that both move together in such a manner that when the apparatus is left free to work by the stop, the numerals on the concealed dials are not exposed, and when the numerals are exposed to view, the apparatus is made inoperative by the stop.

No illustration.

No. 10,504.—Elias Hall.—*Tool Holder.*—Patented February 14, 1854.

The claim is to the flat spring-catch C, inserted in the side of the stock or handle, there being an opening *b* through the handle, in a line with the catch of the spring, by which one is enabled to see and mark on the shank of the tool held the point touched by the catch of the spring when the shank is pressed home in the socket, and thus readily mark the recess or notch in the shank.

No. 10,505.—J. S. Hall.—*Plough Point.*—Patented February 7, 1854.

The claim is to the hinges *i*, constructed in such a way that the edge of the front part of the mould-board may lap over the edge of the back part or wing of the mould-board, to prevent clogging.

No. 10,506.—J. B. Haydon.—*Improvement in Metallic Hubs.*—Patented February 7, 1854.

The addition of a disk D, between flanges B C, having mortises *a b* for the insertion of the spokes, each one of which fits upon and is supported by D. A bolt *c* secures each spoke.

Claim.—The disk D, in combination with the recesses or "saw-cuts" formed in the end of the spoke, into which said disk is fitted, and acts to secure said spokes in a permanent position, and effectually prevents them from working in the hub.

No. 10,507.—Ansel Merrell, assignor to John M. Irvine and A. Merrell.—*Improved Machine for Dressing Spokes.*—Patented February 7, 1854.

The design of this machine is to dress in a complete manner a spoke of any desired dimensions and of any taper. This is done by the peculiar arrangement of its parts, as shown in the engraving, which presents a longitudinal section of the machine: *a a* are cam-props, on which either end of the piece of wood is to be seated, and which are connected with a sliding-carriage A. B is a rotary cylinder of cutting-knives of suitable shape to form the spoke; *d d* are springs attached to the carriage for the purpose of keeping it steady upon the rails, and also to permit it to rise and fall in order to conform to the curvatures of the rails *b* and *c*, and give the proper taper to the spoke. By means of the clawed sliding-dog *i*, and the screw-threaded cam-lever *k*, together with the gripe-lever *m*, a spoke of any size may be kept firmly in its place.

Claim.—The combination of the cam lever, having a screw-thread thereon, with the adjustable dog and supports, as herein set forth; whereby the rough stick or block may be held firmly at any required angle to the carriage, and at a variable distance below the knives, in order that it may dress spokes of variable taper, and of different lengths and thicknesses.

No. 10,508.—Reuben Knecht.—*Improved Daguerreotype-plate holders.* Patented February 7, 1854.

The claim is for the application of the screw tire wheel J to the projecting arms H H or D D, which is effected by turning the swivel A, which is firmly attached to the wheel aforesaid, in the direction of the arrow; and the application of the oblong aperture B to the projection of either arm D D, according as one or the other arm requires a further projection. The corners of the plate to be polished are turned down, so that when placed on the block, the extending arms H H, acted upon by the wheel G, press against the turned down corners, and securely hold it in place.

No. 10,509.—Julius F. Merriman.—*Improvement in Sewing-birds.*—Patented February 7, 1854.

Claim.—Employing in connexion with a sewing-bird a spring tape-measure, arranged in a case placed directly under the belly of the bird, the said case being so situated that it may have, if desired, a handsome pin or needle cushion placed on its top.

This arrangement renders the sewing-bird capable of measuring as well as holding the cloth, while the sewing or measuring operations are performed, and also makes it more convenient for use, and ornamental in design.

No. 10,510.—Clark D. Page.—*Improvement in Lime-Kilns.*—Patented February 7, 1854.

In the drawings, *c c* are the main fire-places, and *j j* the principal passages from them to the column of limestone. There are also two small auxiliary fire-places *o o*, in which are burned the waste fuel from *c c*, and from which the products of combustion pass to the kiln at *p p*. The interior is of the same general form as usual in kilns of this class, except that the diameters of the point where the flues *j j* enter, is some six inches greater than at a point *d*, several feet above. This is for the purpose of preventing the descending column from clogging under the action of the high heat when it meets the flues.

At the bottom of the kiln a metallic shoe or arch *q*, having a cold-air flue *s* beneath it, divides the descending column and cools the limestone preparatory to its being drawn out.

Claims.—What the inventor claims is the form, substantially as described, of the stack or cupola, in combination with the arrangement of flues from the fire-chambers for the introduction of the products of combustion at the lower end, substantially as specified, to insure the burning of the central part of the charge as specified.

He also claims cooling the calcined lime preparatory to drawing it out and exposing it to the atmosphere, by causing a current of cold air to pass through the saddle, or its equivalent, placed at the bottom of the stack, and on to which the calcined lime descends.

No. 10,511.—Joseph W. Webb.—*Portable Door-Lock.*—Patented February 7, 1854.

The claim is, to the claws *b*, in combination with the bar A and thumb-piece B. The bar A is placed with the claws against the edge or post of the door, and by closing the door the claws are forced into the post, the bar A projecting inside; then the thumb-piece is slid over the bar, and, by falling into the notches in the bar, fastens the door on the inside.

No. 10,512.—J. A. Woodbury.—*Improvement in Planing Machines.*—Patented February 7, 1854.

This improvement consists in combining a rotating disk-cutter with the bed upon which the board to be cut rests, and other devices by which the board is held down upon the bed; these devices serve also as a mouth-piece to hold the fibres of the wood from under the operation of the disk-cutter; and also in the combination of the "Bramah" wheel with the rotating disk-cutter, in order to remove the rough or surplus material before the action of the disk-cutter.

The claims are: 1st. To the combination of the rotary disk-cutter with the pressers and bed. 2d. To the combination of the "Bramah" wheel, so called, with the rotating disk-cutter and its accessories.

No illustration

No. 10,513.—A. H. Caryl.—*Improvement in Picking and Cleaning Flax.*—Patented February 14, 1854.

This invention consists in hooking or bending the teeth of the picker-shaft in the direction of its motion, and arranging them on separate bars, so connected with the shaft that open spaces will be formed through which currents of air operate upon the fibres of the flax during the operation.

The drawing shows a section of the machine with the hooked teeth and the open spaces.

Claim.—The employment of a picker having the teeth hooked in the direction of the rotation, and arranged on separate bars so connected with the shaft as to leave open spaces for the free passage of foreign substances, substantially as specified; when this is combined with hooked teeth in a series of bars above, with open spaces between, substantially as specified, with a current or currents of air, substantially as specified, to act on the fibres during the operation of combing, and with the rotating-brush acting on the picker-teeth, substantially as specified.

No. 10,514.—Baldwin & Clark.—*Heating Feed-water for Steam-boilers by the waste-heat of the exhaust-steam.*—Patented February 14, 1854.

The principle of this invention is the employment of the expansive capacity of the steam from the jet, by adapting thereto the height and

relative section of the central tubular space, and the rendering of the auxiliary draught thus obtained operative through the medium of a series of surrounding tubular passages opening directly from the smoke-box into the lower part of the main smoke-pipe.

The claim is, to the arrangement of the exhaust-pipes *n n* with a vertical central passage *b* of large section and surrounding passages *c c* of smaller section, the central pipe and smaller passages being open above and below.

No. 10,515.—Lewis S. Chichester.—*Improvement in Machine for Cleaning Wool.*—Patented February 14, 1854.

This invention consists in a peculiar construction of the ribs *b*, viz: with lateral and inclined slots *h*, terminating in an enlargement or hole *i*, which is placed on the rib at or near that portion of the length of the rib where the fibres begin to be drawn through. It consists, also, in providing the picker-shaft with cards in addition to the picker-teeth arranged between the same. (See figure 4, which is a longitudinal vertical section.)

Figure 1, vertical section; figure 2, top view of ribs; figure 3, cross-section of ribs.

Claims.—Making the edges of the ribs, when combined with the picker-teeth for catching and drawing the fibres through, substantially as specified, with lateral, inclined, or curved slots, terminating in an enlargement or hole, to receive the fibres and guide them away laterally from the picker-teeth to prevent them from being chafed or cut between the teeth and ribs, substantially as specified.

Also, making the lateral slots in the edges of the ribs, substantially as specified, and in combination with the picker-teeth at or near that portion of the length of the ribs where the fibres begin to be drawn through, substantially as specified, whereby the cutting of the fibres is effectually avoided.

Also, uniting the contiguous barbs of any two ribs and extending them down below the points of the picker-teeth, substantially as specified, to prevent fibres from passing without being picked or drawn through, as specified.

Finally, in combination with the ribs having lateral slots, substantially as specified, the employment of card-teeth interposed between the picker-teeth, substantially as, and for the purposes, specified.

No. 10,516.—J. Griffiths.—*Improved Valve-Cock.*—Patented February 14, 1854.

The object of this invention is to obviate irregular wearing of the valve D, and is accomplished by fixing it rigidly to its stem *d*, which moves centrally and truly to and from its seat B, thus causing regular wearing, and consequently is self-fitting. It is raised and lowered by turning the yoke *g*.

Claim.—The combination of the hollow fixed stem C, the solid stem *d*, and the yoked nut E, in the manner and for the purposes described.

No. 10,517.—F. C. Goffin.—*Fire-proof Safes.*—Patented February 14, 1854.

This invention consists in filling the space between the casings of a safe or vault-door with glass or slag.

In the drawing, A represents the external, and B the internal casing of the safe; C the glass.

Claim.—The use of glass or slag in a vitrified state for filling the space between the two casings of a safe or vault-door; the glass or vitrified slag being poured moulten into the space, or inserted in plates, which may be secured to the outer casing in any proper manner, and an air-space left around the inner casing, as herein set forth.

No. 10,518.—Jonathan Knowles.—*Treating Vegetable Fibre for Spinning, &c.*—Patented February 14, 1854.

The invention consists in cutting flax, rotted or not, into proper lengths for staple, and boiling it with a weak alkaline solution of soda or potash until the shives separate on rubbing. It is then bleached by any bleaching chlorine compound, adding, at the same time, borax, salt, saltpetre, Glauber salts, Epsom salts, sal ammoniac, or any other similar salt.

The applicant alleges that these salts do effective service in subdividing the fibres, and softening the same. No illustration.

Claim.—To the method of preparing vegetable fibre for picking, carding, spinning, and manufacturing into fabrics, by such machinery as is usually employed for performing the corresponding operations on ordinary cotton and wool, by first steeping or boiling it in a solution of alkali; second, washing it with water; third, steeping it in a solution of chlorine bleaching compounds, mixed with a solution of splitting-salts, to bleach and split it simultaneously; and lastly, washing it with water, and then drying it, as herein set forth; whereby the reduction of the fibre to its elementary filaments is expedited, and the expense thereof lessened by dispensing with much of the tedious manipulation and treatment heretofore practised, while at the same time the quality of the product is improved.

No. 10,519.—Samuel G. Levis.—*Improvement in making Thick Paper.* Patented February 14, 1854.

The nature of this invention consists in an arrangement and combination of mechanism for simultaneously forming two distinct fabrics of paper, and uniting them into one compound sheet, by a continuous operation, and so that these component fabrics shall be inseparably united, while the thickness of the paper may be increased, and the strength and uniformity of the sheet preserved. Two separate pulp-vats, A and B, are employed, each having a forming cylinder of wire-cloth, C, D, which are furnished with separate and distinct endless felts or blankets. The cylinder C forms its pulp or paper on the felt E. The other cylinder, D, rotates in the opposite direction to C, and

forms its pulp or paper on the felt H. The two endless felts, with their respective sheets of pulp or paper, pass together between the guide-rollers K and K', and then between the squeezing-rollers F F'; the two sheets of paper, being in contact while the felt passes between the squeeze-rollers, are effectually united together, and a portion of the water is squeezed out. The compound sheet thus formed passes down along with the felt H, and through the squeeze-roller L L', which performs to it the same functions as the first pair of squeeze-rollers in ordinary paper-machines. The paper then passes between another pair of squeeze-rollers, and on to the heated cylinder, in the same manner as in ordinary machines. It will be seen that use is made of a second forming cylinder, a second endless felt, and an additional pair of squeeze-rollers, to effect the purposes desired, viz: of making paper of any desired thickness, and of proportionably increased strength. Two layers may be formed at one operation.

The inventor does not desire to claim generally the employment of two forming cylinders, for the purpose of making paper of increased thickness, as cylinders have been thus used before; but what is claimed as new in the invention, is the combination of the two forming cylinders, C and D, the two endless felts, E and H, and the two squeeze-rollers, F F', arranged and operating in the manner and for the purpose substantially as hereinbefore described.

No. 10,520.—Thomas Cook, assignor to Starkie Livesey.—*Improvement in Fire-arms.*—Patented February 14, 1854.

The invention consists in the arrangement of springs in the slotted tubes of the magazine, so connected with a ring moving on the outside of the magazine, that they are pushed forward from the rear, and maintained in their original compressed condition during the successive discharges, whereby the ammunition is pressed forward into the conveyor with the same force as when the tubes were first charged. And this is claimed, whether the effect is produced by the exact means described, or by any analogous contrivance.

Also, the combination of the tube-magazine with the conveyor, so as to be revolved in such manner as to bring each tube of the series, successively, opposite to the hole through which the charge is fed to the conveyor, as often as a charge has been transferred to the barrel, as described.

Also, the combination of the follower i' with the cavity of the conveyor and the lever, for injecting the charge into the barrel, as described.

No. 10,521.—John Standish, assignor to John Standish and Horace A. Miller.—*Improvement in Machines for Pegging Boots and Shoes.* Patented February 14, 1854.

In this machine the shoe is fixed upon a carriage mounted in a peculiar manner, so as to feed the shoe along a line drawn over the middle of the sole, from toe to heel; while above, on either side of the sole,

work an awl and peg-driver, in a stock into which the peg-blanks are fed. The awls and peg-drivers on both sides of the sole receive their motion from one end of the lever-beam above, the other end of which is worked by a crank and connecting-rod. The feed motion of the shoe-carriage is produced by a toothed rack and pinion, driven by a weight and pulley, the motion of which is arrested by a pair of pawls that take into a ratchet-wheel, and are raised and lowered alternately, so as to let half a tooth of the ratchet-wheel escape at a time.

Claims.—1st. The vibrating guides, in combination with the peg-feeding rack, awl, and driver.

2d. The arrangement for feeding up the boot or shoe to be pegged; that is to say, the combination of the boot or shoe, held in a proper clamp, with the traversing frames, and with the irregularly curved rails or guides, as described.

3d. The method of regulating the feed by the rack-pawls and weight or spring, as described; the whole being constructed and operating substantially in the manner herein set forth.

No. 10,522.—Robert Preston.—*Improvement in Dycing Cloth.*—Patented February 14, 1854.

The invention consists in the introduction of adjustable rollers F, near the bottom of the dyeing chamber A, over which the cloth passes, and by which it is elevated or depressed, to keep it a proper distance from the hottest part of the chamber, or so far above the hot plate at all times as to prevent its being injured by the heat.

Claim.—The arrangement for bringing the bottom layer of the cloth within the dyeing chamber to a suitable distance from the bottom of the chamber, so that it may be exposed to a proper and not too intense heat, consisting of the rollers F, which are adjustable by racks and pinions, or their mechanical equivalents, substantially as herein described.

No. 10,523.—Warren Robinson.—*Ship Ventilators.*—Patented February 14, 1854.

This invention consists in so constructing the ventilator, that the movable part B may be raised up to ventilate the ship, by turning the top part or cap B from right to left, and raising it vertically, and again turning it from left to right, when it will be firmly secured in that position by means of inclined planes *e*, *e*, slots *d*, and pins *f*. By reversing the movement the ventilator may be closed securely.

Claim.—The combination of the movable part B, with the two inclined planes *e*, *e*, when the whole is constructed, arranged, and combined, substantially as described. Figure 2, top view; and figure 3, detached perspective view.

No. 10,524.—Jacob Reese.—*Machinery for Rolling Iron.*—Patented February 14, 1854.

The invention, as stated in the claim, is the hanging the fore plate *q* of a rolling-mill on centres placed either above or below the level of the rolls, by adding arms *s s* to the fore plate, working on a bar *t*, or on pivots, for the purpose of removing the fore plate out of the way when the rolls are to be scoured, without detaching it from the frame of the mill.

No. 10,525.—W. G. Sterling.—*Improvement in Planting-Hoes.*—Patented February 14, 1854.

The improvement consists in attaching to the top of the shoe a cylinder C, to be filled with corn through the tubular handle B, and after the ground has been worked with the hoe, to press the seed through the slide H, by simply turning the hoe and striking against the ground lever E, connected with said slide.

Claim.—The connection of the cylinder C with tubular handle B, lever E, and slide H, in the manner described, or any equivalent thereto.

No. 10,526.—Henry S. Williams.—*Preventing Explosions in Steam Boilers.*—Patented February 14, 1854.

Claim.—1st. Opening the water-cock D of the steam-boilers A, for the purpose of letting on water for reducing the temperature and pressure of the steam, and thereby preventing explosions, by means of a plunger L and slotted arm N, operated, when the supply should be let on, by the pressure of the escape-steam of the safety-valve, and by means of a spring M, attached to the boiler and slotted arm, when the supply is being cut off.

2d. Starting the steam-pump or "doctor" running, in case it should not be in operation when the pressure of steam in the boiler rises above the given point, by means of the escape-steam from the safety-valve, when admitted to the steam-chest of the pump through a branch pipe K of that carrying the plunger L, said branch pipe being provided with a valve *a*, which prevents the steam from the "doctor" passing into the boiler when the pump is running, but allows of the steam being admitted to the steam-chest when the pump is not running.

No. 10,527.—Woodruff and Butterworth.—*Improvement in Drop Bridges.*—Patented February 14, 1854.

The dotted lines show the position of parts when the bridge is down. The supports C C fold over, and the floor F sinks, to allow the vessel to pass over.

Claim.—The construction of a bridge or draw which may be dropped below the surface of the water, so as to admit the passage of vessels over the same, substantially as above described.

No. 10,528.—Arcalous Wyckoff.—*Machine for making Links for Chains.*—Patented February 14, 1854.

Claim.—The fixed stud-pin *b* and stud-pin *c*, placed at right-angles to each other, in combination with the wiper and cutter *f* and cutter 7, for the purpose of bending the two eyes of the link of the jack-chains simultaneously.

No. 10,529.—John Webster and Orson Spencer.—*Gas-burner.*—Patented February 14, 1854.

The nature of this invention consists in the construction of a gas-burner so formed, that on each side of it is an air-chamber at right-angles to the slit in the nipple, through which passes the gas from the burner; and on the upper interior edge of the sides of the chambers is a flange, and below it a groove, by means of which the atmospheric air is brought in direct contact with the gas.

The drawing is a perspective view of the burner with the improvement attached: A is the burner; B, the outside surface of the air-chambers; C C, the brackets which support the air-chambers; D, the collar to which the bottom of the brackets is secured; E, the nipple, in which is seen the slit for the escape of gas.

Claim.—Affixing or applying to a gas-burner an oblong or elliptical-shaped tube, so constructed and arranged as to deflect a portion of the gas escaping from the burner into the draught of air, which passes on between the burner and the tube, so as to produce a more brilliant flame and more light from a given quantity of gas.

No. 10,530.—George B. Ambler.—*Improvement in Saddle-trees.*—Patented February 14, 1854.

Claim.—The combination of the crooper-loop in one piece with the water-hook, for the purpose of securing either in their respective positions without the aid of screws or other appendages.

No. 10,531.—F. H. Bartholomew.—*Improvement in Water-closets.*—Patented February 14, 1854.

The general operation of this water-closet is like that of several others that have been described. L is a pipe leading from the hydraulic main. On the person taking his seat, his weight acts on the rod *d*, and depresses the stem E of the double-valve F G, closing G, and opening F. The water from the main rushes through L and M, into an air-vessel *g*, condensing the air before it. On the person rising, the reaction of the spring H opens G, and closes F; and the water in G, under the action of the condensed air, is expelled through the pipes M and N, into the basin *a* of the water-closet.

Claims.—I do not claim the use of the chamber *g*, when combined with the supply-pipe, or hydraulic main, and the basin, by means of the common three-way plug turning-cock, operated by the seat, as such

combination has been before used in the water-closet of Jordan. Nor do I claim the puppet-valve cock, with two valves and three ways, as new in itself; but,

1st. I claim a three-way cock, with parts constructed and combined in the following manner, viz: having one principal chamber through which the water always passes, whether being received or discharged; two openings into which chamber being governed by two valves operated by one stem, so that when one is opened the other is closed by the same action of the stem, the third way being without a valve; when these are combined with a second chamber, for the accommodation of a short continuation of the valve-stem, through which the cock is operated, and one of the ways is placed between the principal chamber and the stem-chamber, as described.

2d. Placing such a cock as described above under the seat, or where it may be out of the way, and may be operated by a single rod, when said cock is connected by a tube with a chamber *g*, for the reception and discharge of water under pressure.

3d. In combination with the double-valve, an eduction way, employable for the double purpose of wasting out the water remaining in the pipes above the cock when not in actual use, and through means of which, or whereby, a communication is provided with chamber *g*, for the purpose of keeping it charged with air by means of a valve, or otherwise, at the same time that the said way is closed by valve G, against the escape of water from the chamber *g*, while the seat is depressed.

No. 10,532.—Jason Barton.—*Improvement in Horse-bells.*—Patented February 24, 1854.

The inventor does not claim the employment or use of two clappers, or balls, in each bell, for they have been previously used; but claims as new—

The hanging or suspending the tongues C within the bell, viz: having the tongues placed over curved holders *a*, which are attached to the pad A; said holders being within the bells, and so arranged that the tongues may be placed over them at different points, and thereby be suspended in the centres of the bells, irrespective of the positions which the pad and bells may have when attached to the body of the animal.

No. 10,533.—J. L. Burdick.—*Improvement in Machinery for Paging Blank Books.*—Patented February 14, 1854.

The invention consists in the arrangement of a vertical cylinder, so as to be adjustable by means of a screw on the periphery of the cylinder; the types, having long shanks, are arranged in rows, so as to admit of their being drawn out by the paging apparatus for the purpose of taking an impression, and then returned to give room for the succeeding type.

The paging apparatus is operated by a treadle, and a rack to operate the inking rollers, and two cranks for operating the hammers to

take impressions of the types; attached to the rack is a cam to operate the lever for drawing the types from the cylinder to give the impression, &c.

The claims cover the general arrangement of the apparatus, with some of the specific devices.

No. 10,534.—JOHN W. HOWELL.—*Improvement in Machines for Stuffing Horse-collars.*—Patented February 14, 1854.

The material for stuffing is placed in a hopper E; one or more piston-rods R, slightly forked at the end, and worked by a crank and connecting-rod, force the material from the hopper through a grating F and a cone O, into the collar M, which is properly clamped to the outer surface of the cone. As the filling proceeds, the carriage upon which the hopper and cone and their fixtures are mounted yields to the pressure of the piston R, carrying with it the weight N, and being prevented from returning by a pawl *h* and ratchet *i*.

Claim.—The construction of the hopper E, with an adjustable grate or crib-bottom F, in combination with the piston R, funnel O, clamps *e* and *d*, and lever *a*, acting thereon.

No. 10,535.—HORACE SMITH and DANIEL B. WESSON.—*Improvement in Fire-arms.*—Patented February 14, 1854.

Claim.—To the arrangement of the percussion hammer, breech-slide H, and trigger-guard lever; so that the hammer may be set to full cock by the pressure of the back action of the slide H, induced by the action of the trigger-guard lever.

Also, to the arrangement of the dove-tailed recess in the front end of the piston-slide a^1, which enables the slide to seize the metal of the cartridge, and to withdraw the refuse metal or cartridge from the barrel by the piston-slide, when next retracted and discharged by the upward movement of the carrier.

No. 10,536.—ALLEN GOODMAN and LYMAN WHEELER.—*Improved Machine for Scraping and Toothing Veneer.*—Patented February 14, 1854.

The principal features of this machine are, a revolving cylinder *f*, which is fitted to receive the toothing as well as the smoothing-knives, as seen at *s*, and the large revolving bed *i*. Around and upon the bed-roll *i* the veneer is bent, and receives the action of the toothing and smoothing-knives successively, and is kept upon it by the spring-plate *t*, while receiving the action of one set of knives; after receiving which, it is fed along by the notched roll *v* to receive the action of the other set, being now held by another spring-plate *u*.

Claim.—A machine for scraping and toothing veneer, which has a large feeding bed-roll, around a portion of which the veneer is bent and held; and a revolving cylinder, with scraping or toothing tools or knives inclined back from the axis of the said cylinder, so as to have a scraping, instead of a cutting, position, substantially as hereinabove described.

No. 10,537.—J. R. BASSETT.—*Pump Valves.*—Patented February 14, 1854.

The invention consists in connecting two discharge openings with each other by a circular guide-duct, so that when the valve is driven by the discharge stream from one seat it is compelled to fall upon the other. The claim is to the method of aiding and insuring the operation of the ball-valve F by means of an intervening or dividing ridge, placed between the openings *f* f^1, and forming part of the semi-annular chamber *g*, by which the valve is made to seek and occupy its appropriate seat when acted on by the discharge water in one or the other direction.

No. 10,538.—F. T. ANDREWS.—*Improved Saw-mill.*—Patented February 21, 1854.

The rock-shaft F receives motion from the piston-rod through the rod *i*, which connects with the crank I. The invention relates more particularly to the arrangement for causing the saw to advance its cutting distance on the downward stroke, and to recede the same distance on its upward stroke. The saw is connected with the driving-beam F by a rocking link *h*, and is guided in its own plane by convenient devices; the upper end being so hung as to allow the lower end to advance and recede the required distance.

Claim.—The method of communicating the advance and receding motion of the saw, and the method of driving it, by means of the half-beam lever F and rocking link *h* with the saw, when operated by a crank, or its equivalent, and pitman, connected at any point between the fulcrum of said lever and the saw.

No. 10,539.—JASON BARTON.—*Improvement in the Mode of Attaching Horse-bells to Straps.*—Patented February 21, 1854.

The inventor claims the attaching of spherical bells C to straps by means of wires or rods B; the bells being attached to the wires or rods, and the wires or rods secured in any proper manner to the other side of the strap.

No. 10,540.—J. W. BLISS.—*Improvement in Window-cord Pulleys.*—Patented February 21, 1854.

A pulley, with its shell and face-part separated and fitted by lugs *b b*, by itself, is disclaimed.

Claim.—The shell and its face-piece in halves, fitting loosely together, when combined in the wedge-formed seat *f* and projecting tooth *s*, so that the pulley may be fitted together and in its place with despatch, and be readily removed and taken apart for the convenience of cleaning, repair, or adjustment of the cord, without detaching the latter; and

whereby the shell, with its pulley, when in their place, cannot be moved outward without raising the sash and its weight; fastening-screws are dispensed with, the chafing avoided, and the entry and removal of the pulley facilitated. Further claim: the combination and arrangement of the back-locking bolt with the wedge-formed seat *f* and projecting tooth *s*.

No. 10,541.—E. G. CONNELLY.—*Window-sash Stopper.*—Patented February 21, 1854.

Claim.—The combination of the gravitating catch or bolt *e* with the metallic case or box, giving said catch *e* the form of an annular segment, or the segment of ninety degrees of a circle, combined with said metallic case of similar form, constructed and applied in such a manner that the expansion of the wood cannot retard or obstruct said catch or bolt *e*, as it inserts itself into the recesses or notches in the frame D.

No. 10,542.—JOHN T. FOSTER.—*Stone-Picking Machine.*—Patented February 21, 1854.

The invention consists in fitting sundry series of rows of teeth F in a cylinder D, secured on the axle of a cart in such a manner as to make them fall back and be concealed in the cylinder, as they successively come in contact with the oblique edge of the discharging-plate J, and to drop out again as they get to the under side of the cylinder, thus securing the deposition of every stone picked up by rake L, in the discharge-plate J, and preventing the wedging or locking of the cylinder by said stones.

Claims.—The use of the cylinder D for picking stone, &c., in combination with series of rows of drop-teeth, and cam and spurs for operating the same; the use of the solid discharging-plate, and its combination with the drop-teeth in a cylinder, and the combination of the drop-teeth with the adjustable rake.

No. 10,543.—WILLIAM PERRY GLADING.—*Oar-Locks.*—Patented February 21, 1854.

The claim is to providing the oar with a cylinder surrounded with a band and bolt forming a row-lock, which prevents the oar from wearing off, and also from slipping out of its place.

No. 10,544.—JOHN B. HOLMES.—*Improvement in Derricks.*—Patented February 21, 1854.

The platform *b*, of the hoisting apparatus, is supported upon a large strong circular collar *e* upon the mast *a*.

The platform is at liberty to turn round freely upon the collar, but is strongly secured or clamped down to it by friction wheels, as upon this chiefly depends the support of the derrick above in a vertical position.

The main mast *a* terminates in a vertical spindle, on which turns freely the mast-head cap *c;* and the latter is connected to the platform by brace or tie-rods *d d*, that support it in its vertical position, and cause it to turn round with the platform. The ropes by which the weight is to be hoisted pass over pulleys on the top of the mast-head cap and over other pulleys at the upper extremity of the derrick-boom *g*. The boom *g* is sustained and governed at the upper end by a rope attached to it and passing over another pulley at the top of the mast-head cap, and thence to a windlass, placed like that of the hoisting ropes upon the platform *b*.

Claims.—1st. The combined arrangement of the collar upon the mast, the revolving platform supported upon it and clamped below it, and the tension-rods from said platform to the revolving mast-head cap, as described, whereby a very light mast is enabled to be used, and guys from the head of the mast to anchors, &c., are dispensed with.

2d. Pivoting the heel of the derrick-boom upon the revolving platform, in the locality substantially such as herein represented and described—that is, upon that portion of the platform which is beyond the centre of the platform, when measuring from the point of suspension of the weight.

No. 10,545.—D. and H. STEARNS.—*Improvement in stretching and drying Cloth.*—Patented February 21, 1854.

This is an improvement on the patent of Erastus B. Bigelow, dated September 5, 1848.

Claim.—The means herein shown for stretching the cloth while wet, and carrying the same parallel while being dried; consisting of the endless belt of tenter-hooks travelling in adjustable ways to accommodate different widths of cloth, which ways are parallel to each other except at the ends, where they converge to allow the cloth to be hooked on, and stretch the same as it is moved forward, as specified. And in combination with the above parts for stretching the cloth, is also claimed converging the ways at the delivery end, to relieve the strain on the cloth and allow the same to pass off the tenter-hooks without tearing, as specified.

Also, the heating-cylinder B, and its adjustable roller *a*, so arranged as to keep the cloth in contact with any desired portion of the cylinder, to heat and partially dry the cloth the amount required before it is stretched on the tenter-hooks.

No. 10,546.—J. M. SCHUYLER and WILLIAM ZERN, assignors to D. L. EASTERLY.—*Improvement in weaving Wire Screens.*—Patented February 21, 1854.

The claim consists in causing the warp and weft wires to bend each other by means of clamps, levellers *d d*^{1}, or their equivalents, operating upon the warp wires each time the lay beats up the weft. Also, in connecting the lay and clamp movements so that the motion of the lay shall give motion to the clamps.

No. 10,547.—Samuel F. Holbrook.—*Improvement in Contrivances for protecting passengers in Railroad Cars.*—Patented February 21, 1854.

The cushions F and E, for the back and head, are attached to elastic bands *d*, to break the force of a collision. The slides *e* allow of the straps being inclined in either direction.

The inventor does not claim the inflexible reversing backs, nor pads arranged on straps passing across the cars.

Claim.—The above described improvement for supporting the back and head-rests, or either, viz: by means of strong flexible bands, or their equivalents, extended from or near to the floor, to, or near to, the roof of the car.

And in combination with the flexible bands, the set of slide-rails or equivalents therefor, made to support the bands at one end of each, and to allow of their being moved from their angular inclination from one side of the vertical to a similar angular inclination on the opposite side thereof.

No. 10,548.—A. P. Hughes.—*Prepared tool for Dovetailing.*—Patented February 21, 1854.

This tool is placed upon the mandrel of any lathe for operation. When the wood is presented, the spiral bit B, the plane bit E, and the saw-teeth D, perform their respective functions simultaneously; the bit cutting grooves (seen at *b*, figure 2,) while the saw-teeth remove the surplus material, and the plane-bit smooths and mitres the piece. Two pieces, A A, figure 2, being thus prepared, receive the key C, and the joint is finished.

Claim.—The combination of the three instruments with an ordinary lathe-chuck.

No. 10,549.—Richard Montgomery.—*Improvements in Machinery for making Corrugated Beams of Sheet Metal.*—Patented February 21, 1854.

The claim covers the method of forming corrugated metal beams by passing a plate of metal through a series of grooves *a*, *b*, *c*, *d*, between rollers A B, and through a series of crimping dies; *l*, *m*, *n*, *o*, show the grooves in the dies.

No. 10,550.—Cancelled.

No. 10,551.—Martin Newman 2d, N. C. Whitcomb, and G. C. Cole.—*Improvement in Whiffletree Hooks.*—Patented February 21, 1854.

What is claimed is the construction of a trace-fastener on the ends of a whiffletree, consisting of a swing latch D, turning on a pin G, detents J, and springs F, in combination with a hook B and catch or detent C, thereon operating in the manner and for the purpose of preventing the accidental displacement of the cockeye on the end of the trace.

The claim is not confined to the use of the socket in connexion with the spring-latch arrangement, as the spring-latch and hook may be used either on a socket, plate, or shank, as occasion may require, or in any other manner.

No. 10,552.—E. Sampson.—*Improvement in attaching Hubs to Axles.*—Patented February 21, 1854.

Claim.—The united band D and tube F secured to the inner end of the hub, combined with the tube G and the axle by means of the single screw *f*, in such a manner as to securely confine the hub and the axle, and also exclude the dust from and retain the oil within the hub.

No. 10,553.—John B. Smith.—*Machine for Slitting Clothes-Pins.*—Patented February 21, 1854.

This machine is arranged to slit the pin after it is turned. The pins are placed in an inclined spout B, which directs them one by one into suitable grooves for receiving them upon a revolving drum C. This drum by suitable mechanism is caused to revolve intermittently a required distance, and the saws *a a* (having their planes so inclined as to cut out the wedge from the pin) advance and recede alternately as the pin is brought into position. The pin is held firmly while being cut by spring-treadles L, and released when the saws recede. The pin drops from the drum on the opposite side by its gravity. Band-gearing is used, and the entire machinery is driven from one or two drums.

Claim.—1st. The sliding saw-frame or frames, operated on adjustable ways, in combination with the movable groove-bed.

2d. The grooved or fluted bed, whether said grooves are parallel with the shaft on which said bed is placed or radiate from its centre.

3d. The manner of setting off the groove-bed by means of a ratchet, or its equivalent, a worm-wheel operating on the nubs of the index; these nubs being the same in number as the grooves in the groove-bed.

4th. The lever-paws operated by springs, or their mechanical equivalents, pressure-rolls, to hold the pin while being slitted.

5th. The application of the gauging spring for driving the approaching pin towards the end of the groove into which it has fallen.

6th. The safety slide for the purpose of preventing the wrong passage of the saws; in short, the construction of a self-acting machine for slitting clothes-pins, by means of one or more saws, making one or more kerfs into the same, or separate pins, at one advancement of the saws, having the same appurtenances and operated substantially in the manner herein set forth.

No. 10,554.—JAMES FOSTER, jr., assignor to PLATT EVENS, jr.—*Improvement in Seal Presses.*—Patented February 21, 1854.

The inventor does not claim substituting percussive force for pressure in presses generally, nor even in seal-presses; nor does he claim returning the piston or die of a press with a spring. But he claims as an invention and improvement in seal-presses, the combination of the following elements or their equivalents, to wit: a frame-work to sustain the boxes and guides for the piston, a spring-piston bearing the die and surmounted by a knob, or suitable provision for receiving the blow of the hand, and guided by the groove and guide-pieces, or their equivalents.

No. 10,555.—JOHN GLEDHILL.—*Improvement for treating Hair for Weaving.*—Patented February 21, 1854.

The nature of this invention consists in raising a bulb or knob on either end of the hair, by heat or mechanical agency, for the purpose of preventing the hair slipping from the notched hook, or other device, by which it is wholly or partly drawn out from the bunch and served to the loom, and insuring its being properly caught and held.

Claim.—Preparing hair for being woven into cloth by raising a bulb or knob at either end, substantially as shown and described, whether by the action of heat or by any mechanical agent, whereby the hair is made capable of being readily seized and as readily relinquished, by a device which secures it to the operating parts of the loom.

No. 10,556.—CHARLES F. PACKARD.—*Improved Machine for Cutting Laths.*—Patented February 21, 1854.

This improvement consists in a series of reciprocating horizontal cutters I, figures 2 and 3, and a reciprocating vertical cutter D, figure 1.

Figure 1 is a front elevation; figure 2 is a plan showing the horizontal cutters and omitting other parts of the machine; figure 3 gives a front view of the horizontal knives I.

The inventor disclaims the knife D working vertically, and also the toggle-joint for working the cutters I, both of which he says are well known. But he claims cutting laths from a log or block by means of the knife or cutter D having a vertical reciprocating motion, and the knives or cutters I having a horizontal reciprocating motion; the cutters I and D being arranged and operating substantially as herein shown.

No. 10,557.—SMITH THOMPSON.—*Improvement in Spooling Yarn from the Cop.*—Patented February 21, 1854.

This improvement consists in making the back-guide F movable, and to hang on the yarn and freely rise and fall within a socket *d*, the ordinary weight or pressure of the guide being adjusted to such draught s it will be safe for the yarn to endure without damage or breakage

therefrom. An increase of draught will cause the back guide to be lifted, and thereby diminish the arc of contact of the yarn with the friction beam D. See drawing.

Claim.—The regulator or guide as combined with the friction-beam, and made to hang on the yarn and be capable of being raised by it, substantially in manner and for the purpose as specified.

No. 10,558.—JOHN ZINK.—*Thresher and Separator of Grain.*—Patented February 21, 1854.

The invention is confined to a combination of the several parts composing the machine; that is, the straw-carrier *d d d* and apron *e*, on the same shaking-frame F with screen *f*, so that the same motion which shakes out the grain from the straw, and carries the latter forward and out of the machine, shall also carry forward on said apron the grain to the screens and blast.

No. 10,559.—RUFUS PORTER.—*Improvement in Machinery for Making Cordage.*—Patented February 21, 1854.

In this machine the several threads from each flyer P constitute one strand O of the cordage. Each strand, after being twisted by the flyers from the threads, from the flyers passes over and around roller *f*, back over rollers *g*, and thence to an aperture in the side of a twist-shank K; and the three strands, being united at the centre of the said twist-shank, pass through an orifice in the centre thereof to the periphery of the drum M. The rollers *f g* are made to rotate on their respective axles, by the tension of the cordage and strands.

Claim.—The arrangement substantially as herein described, and the combination of the flyers, rollers, and drum, by which the longitudinal motion of the strands between the flyers and the laying point are equalized; the said rollers being made to rotate on their respective axles, by the tension of the rope and strand.

No. 10,560.—SOLOMON SMITH, assignor to SMITH & SCHOALER.—*Particoloring Machine.*—Patented February 21, 1854.

The invention and claims consist in:

1st. The improvement of dividing each of the horizontal layers of the dyeing press into two sections, *a* and *b*, and carrying the cloth to be dyed from the lower to the upper sides of such sections, between the contiguous inner ends of said sections.

2d. In combination with the said mode of using sections, and carrying the cloth between them, the improvement of making the end of one section lap by that of the other, so that the same contrivances used to compress the several frames together, or down upon one another, may also operate to compress the two sections together as well as the cloth extending between them.

No. 10,561.—Hiram Tucker, assignor to H. Tucker and Jos. Story.—*Improvement in Applying Colors to Stone.*—Patented February 21, 1854. Patented in England, September 23, 1852.

This improvement consists in combining with the drying-oil used in the baths for marbling stone and other surfaces the gum kauri, or a like substance, in order to impart to the oil-colors the property of not commingling with each other, and to set themselves upon the water-bath, preserving the pattern of the stone to be imitated. No illustration.

No. 10,562.—S. B. Bachelor.—*Improvement in Scythe-fastenings.*—Patented February 28, 1854.

The invention consists in making a long slot *a* in the spotting of the snath, in which is to rest the hook or claw of the shank with the usual ring and wedge; the design being to make a mode of fastening that could be adapted to any length of shank or any claw made.

The claim is, to the combination of the continuous rectangular-slot with the ring D and screw E.

No. 10,563.—John W. Chittenden and William C. Mead.—*Improved Machine for Splitting Hoops.*—Patented February 28, 1854.

The object of this machine is to split from bolts of wood, of a suitable quality, hoops of uniform thickness to the full extent of the number that may have been checked out upon the end of the bolt. The operation is simple: the bolt *j*, being placed between the feed-rollers *h i*, as seen in the drawing—which is a side elevation of the machine—is carried forward to the vertical griping-rollers *o;* after passing which, and while resting on and passing under the anvil and bending-rollers *t* and *u*, it receives the blows of the trip-hammer *c*, which causes it to separate into as many strips as there are checks upon the end of the bolt.

Claim.—The feed-rollers, the griping-anvil, and bending-rollers, or their equivalents, arranged and constructed substantially as described, in combination with a trip-hammer, as described, for the purpose of racking or splitting apart timber (previously checked) for hoops.

No. 10,564.—John P. Conger.—*Salt Kiln.*—Patented February 28, 1854.

The invention and claims consist—1st. In such construction of the kiln as to have two small fires at each end thereof, with short arches P over the fire-grates, instead of one great fire at one end.

2d In leading the waste heat by means of the tubes F through the trough G, to heat the brine previous to its entering the kettles B.

No. 10,565.—Lewis W. Colver.—*Combined Seed-Planter and Cultivator.*—Patented February 28, 1854.

The invention consists in hinging loosely to a common pivot C a row of stocks D, provided with teeth E, and shoes J and K, vibrating each independently from its neighbor, and combining such stocks with a seeding apparatus, for the purpose of mellowing the soil, opening the furrows, and dropping and covering the seed, all at one operation, and notwithstanding the unevenness of the ground, and stones or other impediments in the way of the track.

The claim embraces the combination of the stocks, as described, with a seeding apparatus.

No. 10,566.—Robert W. Davis.—*Improvement in Churns.*—Patented February 28, 1854.

This churn is one of the class which have a tub with a concave bottom, and a dasher revolving on a horizontal axis. The dasher is constructed of a main frame, having diametrical arms B and blades *a*, to which main frame are hung, on excentric pivots *e e*, two secondary frames with blades *b b*, *c c*. When the dasher is turned in the direction indicated by the arrow *i*, in figure 2, in the act of churning, the resistance of the cream throws open the blades into the position shown in figure 2.

In gathering and working the butter the dasher is turned in the opposite direction, and the blades then close together in the form shown in figure 2.

Claim.—The manner herein described of dividing the end-pieces C C, and hanging them excentric to the axis of the dasher, in combination with the arrangement of the blades *a*, *b*, *c*, so that the dasher may be adjusted by the resistance of the cream in revolving through it, so as to present six centripetal cutting or agitating blades to the cream; and then, after the butter is produced, to be adjusted by reversing the motion of the dasher, and through the resistance of the butter, so as to present but two centrifugal gathering-blades for gathering the butter, working it into rolls, and expelling the buttermilk therefrom, substantially as described.

No. 10,567.—A. K. Eaton.—*Improvement in Machines for Pulverizing Ores.*—Patented February 28, 1854.

Claim.—A rotating disk or mortar to hold the ore to be pulverized, and the water, mercury, or other liquids with which it may be advisable to mix the same, in combination with a vibrating rubber, or pestle, which is made to traverse the bottom of the mortar.

No. 10,568.—Abijah Hall and Sylvanus Sturtevant.—*Improvement in Snow-Ploughs for Railroads.* Patented February 28, 1854.

Claim.—So shaping, proportioning, and placing the notched shares *a a* of the snow-ploughs, that they will extend down within the inner

sides of the rails, nearly to the cross-ties, without coming in contact with the chairs; for the purpose of removing snow and ice from the immediate vicinity of the inner sides of the rails, and by means of their mould-boards B B discharging the same at a proper distance outside of the rails.

No. 10,569.—TIMOTHY D. JACKSON.—*Improved Die for making Seamless Tubes.*—Patented February 28, 1854.

The invention consists in forming a die for drawing seamless metal tubes, constructed with an eye whose periphery is formed of a series of narrow friction-rolls *c*, which produce a substantially equable extension of every part of the circumference of the tube being drawn.

No. 10,570.—SMITH W. BULLOCK, assignor to STILLMAN, ALLEN & Co.—*Improvements in Quartz-Crushers.*—Patented February 28, 1854.

Claim.—The application of gear-wheels solely for the purpose of causing the crushing wheels to turn on their axis faster, or make more revolutions, than they otherwise would in rolling around in the trough, the point of contact or pitch-line of said gear-wheels being on a line drawn from their common centre to a point upon the crushing-wheels within its outer diameter or periphery, thereby giving the periphery a slip or sliding motion upon the quartz.

No. 10,571.—MICHAEL M. GRAY.—*Machine for making Railway Chairs.*—Patented February 28, 1854.

The *claim* is to operating the sliding former or mandrel U, upon the base or pedestal N, to keep it firm and cool, and cutting, curling, and swedging the plates of metal to be formed into the chairs while in a stationary position, and at a proper heat on the top of the sliding former, instantly, to produce the chairs uniform in shape, and chiefly of low-priced or red short iron, without fracture.

No. 10,572.—THOMAS D. HENSON and GEORGE ROHR.—*Improvement in Seed-Planters.*—Patented February 28, 1854.

The improvement refers to a stirring apparatus to mix the seeds and plaster, or other pulverulent manures, before they are discharged into drill-tubes, and consists in a revolving shaft extending the whole length of one of the two hoppers, provided with a screw-shaped series of obliquely set beaters *e e e*, and a series of cleaning spikes *f f*, the beaters being designed to feed the compost to the spouts clean and open.

Claim.—The revolving longitudinal shaft, with its beaters and spikes, as described.

No. 10,573.—WILLIAM BURNETT and JOHN ABSTERDAM.—*Fusible Disks for Steam Boilers.*—Patented February 28, 1854.

The *claim* is to placing in a pipe which is connected with a steam-boiler, a fusible plug or disk, said plug or disk L being so far removed from said boiler, but so connected with the water therein, that when the water is sufficiently high, the plug or disk will be in contact or so surrounded with water cooler than that in the boiler, as to prevent the plug from being fused; but when the water in the boiler shall fall below a proper height, the steam will enter and come in contact with said plug, and so surround it as to cause it to melt.

No 10,574.—JAMES RENTON.—*Improvement in Zinc-White Furnaces.*—Patented February 28, 1854.

The improvement and claim consist—

1st. In the combination, with a usual furnace, of any number of ore tubes F F and tubes or spaces M M, placed side by side, and communicating with each other through openings *f f* in their sides; the ore-tubes being exposed to a degree of heat sufficient to evaporate the oxides or other substances contained therein, and make them pass through the openings *f f* into the tubes or spaces M M, these latter being protected from the heat by the ore-tubes, and serving either to collect and condense the oxides or other vapors, or to convey them to any other suitable receptacle.

2d In the hood or trunk N, furnished with suitable openings *i i i*, and placed above the tubes F and M, substantially as described, for the purpose of receiving, leading off, and cooling the oxides or other vapors escaping from the ores.

No. 10,575.—FRANK G. JOHNSON.—*Table to hold Bank Notes while cut and trimmed, &c.*—Patented February 28, 1854.

The table is constructed with short legs, and a cutting-board B B, through which two thumb-screws C, with points E, by means of which the paper is held, project upwards, and are to hold fifty to one hundred sheets of bank notes. A T-ruler is used, and a sharp knife to cut the edges while the paper is held by a clamp.

Claim.—The combination, with a table, of the movable cutting-board B B, and the depressible needle-screws C C, combined together, in the manner as specified, for the purpose of cutting bank notes.

No. 10,576.—A. S. LYMAN.—*Improvement in Air or Gas Engines.*—Patented February 28, 1854.

A specification in this case would be too lengthy to be given here.

The *claims* are thus:

1st. The mode of preventing the waste of the compressed air, liquid carbonic acid, or other driving power, by interposing between it and

the outer cylinder of the engine a reservoir of water, or other suitable liquid, substantially in the manner described.

2d. The mode of applying the heat to the generating power, through the agency of water or other liquid, in the manner substantially specified, thus avoiding the possibility of burning and scaling the metal, and also greatly increasing the extent of heating surface.

3d. The mode of preventing the loss of power otherwise caused by the expansion of the air, liquid carbonic acid, or other driving power, in passing through the repository and refrigerator, and being cooled and condensed before the working piston J has completed its stroke, in the manner described—that is, by moving the generating plunger E downwards as the working piston recedes from it, thus enlarging the heating chamber as fast as the air or other fluid expands.

4th. The combination of the generating cylinders A with the opposite ends of the working cylinder B, direct, thus dispensing with contracted passages and pipes, causing the piston to move as rapidly as the working fluid moves.

5th. The construction of the heat repositories *a a*, and restorers of small glass tubes or glass rods *c c*, arranged substantially as described, for the purposes specified.

6th. The combination of the heater c^1 c^1, the repository, and the cooler c^2 c^2, substantially as described—the heater being above the repository, and the cooler below it, so that, as the heat rises, it does not tend to destroy the effect of the repository, but rather renders it more perfect.

7th. The partial isolation or separation of the upper part of the outer case, containing the heating liquid, from the lower part, containing the cooling liquid, by the introduction of a bad conducting material between them.

8th. The combination of the external heater with the internal heater c^1 c^1, and the combination of the external refrigerator with the internal refrigerator, substantially as specified, for the purposes set forth.

No. 10,577.—William McBride.—*Improvement in Machines for Making Bed-pins.*—Patented February 28, 1854.

The main points in this invention consist in attaching to a common turning-lathe a cutter-stock or sliding-block D, provided with the peculiar devices mentioned, for making the pin and throwing it out when completed. These are, a barrel E, of a tapering shape, enclosing the inclined cutter F, to form the body of the pin; the V-shaped cutter T, to form the head and cut off that end; and the spring-plug G, which moves freely in the barrel E, graduating the length of the pins, and, by means of the spring H, forcing them out the instant they are completed.

Claims.—Attaching to a common turning-lathe a sliding cutter-stock D, and providing said stock with two peculiarly shaped cutters, one stationary and the other movable; the stationary cutter being of such shape that it forms the tapering part of the pin, while the movable cutter is of a proper shape and construction to form a round head on the pin, and simultaneously therewith cut off the pin from the block, ready for being discharged, substantially as herein described.

Also, making all the pins of a set of a uniform length, by employing a spring-plug or gauge, in the manner described, and by the same means effecting their discharge after being turned, headed, and cut off, as herein described.

No. 10,578.—James Pitts.—*Improvement in Cotton-picking Cylinders.*—Patented February 28, 1854.

The invention consists in constructing the cylinder for cotton-gins of hollow, perforated metal, as thick as the fibre of the cotton is long, without arms or ribs, and with open journals, so that suction may be used to draw the cotton through the perforations in the cylinder.

Claim.—The constructing the screen so that the periphery of the metal intervening between any two immediately adjacent orifices shall be of a length equal to, or greater than, that of the staple of cotton, or other fibrous material to be picked, in order that the fibre shall not lap around the said periphery, and become connected, attached, or tied by its ends, as stated.

Also, the improvement of constructing the cylinder-screen of a hollow, perforated metal cylinder, without arms or ribs, and with open, hollow, cylindric journals at its two ends, as stated, in order that the cotton may be drawn out of one journal by the suction draught, and any obstruction removed by a person's hand and arm introduced through the other journal.

No. 10,579.—Joseph Sawyer.—*Improved Bench-hook.*—Patented February 28, 1854.

This invention consists in securing the socket to the bench by the same nut and screw employed to secure the hook to the socket.

Claim.—For securing the hook C to the socket A, by the same screw and nut E which fastens the whole to the bench.

No. 10,580.—William Sumner.—*Improvement in Organs.*—Patented February 28, 1854.

The object of the inventor is to have a stop or stops either for the bass or treble, which will sound only the extreme note on the left or right, without reference to the number of keys that may be touched at one time.

The invention consists in the employment of a wind-chest *b*, having one main passage leading from the bellows *c*, and branches *d*, *d*, *d*, leading therefrom to every pipe *l* in one or more stops, which branches are each governed by a valve *n*, which, when opened to admit the wind from the main passage, will, at the same time, shut off the wind from all parts of the main passage beyond it. Another object of the inventor is to operate the pedals which play the sub-bass, and sometimes

the basses, by the action of the keys *a*, so that the pedal K[1], corresponding to the extreme left key touched, will be operated. This is done by combining a wind-chest with a series of auxiliary bellows f^1, which in turn are combined and connected with the pedals and with the keys, so that on touching the keys, wind shall pass from the main bellows to the improved wind-chest, and thence into the auxiliary bellows to work the corresponding pedal, and sound the required note, the wind at the same time being shut off from all the auxiliary bellows beyond it.

Claim.—For the employment of a wind-chest having a main passage for the wind, and branches leading therefrom, and governed by valves, substantially as specified, and connected and combined with the keys, &c.

Also, in combination with a wind-chest operating on the plan described, the employment of auxiliary bellows connected and combined with the main bellows and pedals, &c.

No. 10,581.—Solyman Bell.—*Improvement in Harvesters.*—Patented February 28, 1854.

The point of the invention consists in the rivet-head projections F on the under-surface of the cutter or sickle B, and a corresponding slot or depression *a* in the guard-fingers E, which are intended to remove the leaves and stalks, and prevent the guards from becoming clogged, so as to obstruct the motion of the sickle.

Claim.—The combination of the projections F with the depressions *a*.

No. 10,582.—George A. Rollins.—*Improved Tool-rest for Turning-Lathes.*—Patented February 28, 1854.

The drawing represents a vertical section through the cutting-tool. A represents the tool-post, B the cutting-tool, C the tool-holder, provided with a mortise *a* for the tool to extend through; D a screw for holding the tool in place; F a groove designed to receive a circular head G formed on the lower end of the tool-holder. This tool-holder is made cylindrical below the tool, and extending through a cylindrical hole made in the tool-rest that works upon the concave bearing *b*, and is fitted to correspond with the convex lower side of the movable block, in order that it may be turned in various horizontal directions, and in different inclinations to the horizontal plane, as partially shown by the dotted lines in the drawing.

Claim.—The improvement of combining with the tool-post and tool-holder a separate rest-block, in combination with making the said rest-block and the post, respectively, with convex and concave vertical bearing-surfaces, the tool-holder with a head or dovetail, and the tool-post with a curved trapezoidal or dovetail groove F, as specified, whereby the cutting-tool may not only be set to any angle of inclination, but the said tool and rests simultaneously confined in position by the downward action of the screw of the tool-holder against the tool, as described.

No. 10,583.—John G. Snyder and Joseph Young.—*Improvement in Seed-Planters.*—Patented February 28, 1854.

The invention consists mainly in the combination of upper and lower valves I and O, having the former three and the latter two discharge-passages, connected together by the tubes *e f g*, intended to render the machine capable of hill and drill planting at pleasure, and to insure the regularity of deposite. There is also in the frame *x* of the hopper A an aperture *k*, which, combined with the inclined bottom-plate B of said hopper, is devised to carry off the surplus grain from the valves and into the bucket S placed inside of the hopper, and thus to prevent any irregularity in the deposite, which otherwise might occur by clogging the valves, passages, or tubes above mentioned, with superfluous seed.

Claims.—1st. The sliding-section *b* in the bottom plate or valve I, in combination with the tubes *e f g*, and revolving perforated plate or valve O.

2d. The aperture *k* in the frame *x*, in combination with the inclined form of plate B, to carry the surplus grain into bucket S, substantially as specified.

No. 10,584.—Linus Yale.—*Bank Locks.*—Patented February 28, 1854.

This invention consists in the arrangement of the pins I I, the sliding-shaft D, the covering of the key-chamber with the broad head D[1], in connexion with the cog L, which prevents their being adjusted and turned by a burglar without the proper key.

No. 10,585.—Jacob Zook.—*Automatic Chuck.*—Patented February 28, 1854.

This invention consists in producing a self-acting carrier for lathes by means of projections *b b* attached to the carrier-plate D of the mandrel, which actuate levers situated and vibrating in an auxiliary plate A and yielding-bar B attached thereto. These levers operate excentrics F, fixed to the same vibrating pivots, and thereby cause them to press against and confine the material to be turned with a force produced by, and proportionate to, that required to hold the piece. This is essentially a self-centering chuck. The excentrics F yield to the piece until, by revolution, it settles or has its axis coincident with that of the mandrel.

Claims.—The combination of the projections on the carrier-plate D with the vibratory arms *m m* and excentrics F F, attached to the same pivots or their equivalents, situated and adjustable in, and combined with, the auxiliary disk A and bar B, arranged and operating substantially in the manner and for the purpose herein set forth.

Also giving a limited elastic play, longitudinally, to the bar B, in the disk A, by means of the slots and springs or their equivalents, in order that the pressure of the excentrics F F, against the article to be turned,

may be equalized, in case their bearing-points should, by the irregularity or excentricity of the article, be at unequal distances from the centre of revolution, which is determined and fixed by the conical point of the driving-shaft.

No. 10,586.—L. Otto P. Meyer.—*Improvement in Vulcanizing India Rubber and other Gums.*—Patented February 28, 1854.

The invention or claim consists in the heating or curing of the material commonly known as the hard compound of vulcanized caoutchouc, or other vulcanizable gums, by means of the immersion of the material in, or under, water or other suitable liquid, heated to about 300° Fahrenheit, during the process of curing. No illustration.

No. 10,587.—James F. Broadhead, assignor to Thomas Ritch.—*Saw-set.*—Patented February 28, 1854.

Claim.—In the forceps saw-set, the movable bed or anvil 1, operating conjointly with the levers 2, 3, enabling the operator to set the tooth of the saw from its point instead of from its base, as is usual in other forcep-sets.

No. 10,588.—Stephen P. Ruggles.—*Improvement in Printing Presses.*—Patented February 28, 1854.

Claim.—In combination with the curved arm L, for carrying the inking rollers to and from the form, the spring-plates with the guides *h*, at each end of the rollers, for causing the roller to pass over the form in a plane parallel to the form, their general motion being in the arc of a circle.

Also, hanging the platen X and the intermediate ink-roller R to the same rock-shaft Z, by their respective arms Y and *u*, so that the vibration of the platen shall throw the intermediate roller, first to the grooved ink-roller Q, and then to the ink-bearer O, for the purpose of receiving and distributing the ink from the ink-trough at every vibration of the platen.

No. 10,589.—William Burnett.—*Fusible Plugs or Disks for Steam Boilers.*—Patented March 7, 1854.

The invention consists in the arrangement of two disks of fusible metal, one of them, J, fixed in a tube within the boiler, being subjected to the pressure of steam on both of its sides; and the other disk, I, fixed in another part of the same tube, without, but remote from the boiler, by which arrangement the pressure of the steam is admitted on both sides of the interior plate.

The object of this invention is to insure that the disks will melt with great certainty, thereby preventing the liability of their being forced from their seats by the pressure of the steam before the fusing point is attained.

No. 10,590.—Isaac Hussey.—*Improvement in Machines for Plastering.*—Patented March 7, 1854.

A mortar box G, shown in section fig. 2, is provided with a piston for regulating the supply of the mortar, a trowel L, and cut-off, moved by the lever O.

The mortar box is attached to an adjustable frame *c*, and the various movements are regulated by the cords, as shown in the drawing.

The figure is represented as arranged for plastering overhead, but can be changed so as to plaster a side-wall.

Claim.—The arrangement of the several parts of the machine substantially as described.

No. 10,591.—Caleb Cook.—*Valve Gearing for Locomotives.*—Patented March 7, 1854.

This invention consists in the arrangement of the open lever G, with two recesses *a* and *b*, and connected to a rocker-shaft E, and applied to, and made to operate with respect to, the excentric and the valve-rods H and C^1, as shown.

No. 10,592.—Warren Gale.—*Straw Cutter.*—Patented March 7, 1854.

The invention consists in fitting an adjustable gauge to the cutting-box. The elevation of the gauge above the fixed knife will vary with its distance from the said knife, so that when the length of the cut is increased, the height of said gauge is increased in the same proportion; and, as the applicant alleges, the tendency of the straw to jam between the gauge and knife is diminished.

In the figures, H I I show the movement of the gauge G to vary its distance from the fixed cutter C, and the action of the movable knife D is also understood from inspecting the figure.

The claim is to the arrangement of the adjustable gauge as described.

No. 10,593.—William G. Philips.—*Improved method of Opening and Closing Gates.*—Patented March 7, 1854.

This invention consists in providing the gate-post or pivot, and the platform, with springs, so arranged that when a vehicle passes upon the platform, in either direction, the gate opens to the extent of one fourth part of the circle, and when it has passed through to the opposite side of the platform, it is carried round to the extent of another fourth. In the drawings, A designates the platform, which supports the whole working apparatus, and is of sufficient width to admit the passage of a carriage on each side of the gate-post B. The gate is hung at its centre, and is kept in its place by a bolt passing from the top of the post B, through the cross-beam D, which is supported by two uprights on each side the platform, and by two friction rollers *c*, that run upon inclined planes on each side of the gate-post, which

planes rest upon a pivot, and extend one-fourth of the circle, while they have play of about one half that extent. Projecting from the bottom of the gate-post is a plate *i*, situated immediately above the end of the lever *g*. When the carriage comes upon the platform, the wheel is caused to press down the lever *b*; and this pressing upon the lever *g*, acts upwards upon the plate *i*, and raises the gate, which places the friction roller *c* upon the upper side of one of the inclined planes, when the gate moves round the fourth of a circle, allowing the carriage to pass; after having done which, it presses upon the other end of the lever *b*, and causes the gate to move another fourth of a circle, and it is then closed.

The gate is also made to act by placing a weight upon the pin *x*, that projects upwards from the gate-post; or it may be done by a crank attached to the same, having a cord and pulley passing over and within one of the gate-posts, so that the cord may be wound around the crank.

Claim.—The double-span rotating gate, opening and closing continually forwards by means of levers and inclined planes, as well as by pulleys and cords, combined and arranged as herein set forth.

No. 10,594.—Joel P. Hracock.—*Improved apparatus for Rounding and Bevelling Barrel-Heads.*—Patented March 7, 1854.

The distinctive features of this machine are, that it rounds and bevels the heads of barrels of any thickness, and all diameters, with perfect accuracy and great rapidity. This is accomplished by means of a V-shaped cutter, properly secured in a two-pronged swinging lever, in connection with semicircular clamping-jaws for holding the stuff. A transverse vertical section of the machine is represented, in which F points out the two-pronged swinging lever, with the double-edged cutter G secured therein. B C represent the clamping-jaws, and D the stuff to be prepared for the barrel. The material of which the head is to be formed being secured, the lever is brought from a vertical to a horizontal position, when all that portion of the stuff that has passed under the cutter is rounded and bevelled. Raising the lever to a vertical, and again bringing it to a horizontal position, by a reverse motion, a similar result follows, and one half of the head is prepared.

Claim.—Rounding and bevelling a barrel-head at one operation, in a very true and perfect manner, by the employment of a double-edged adjustable cutter, secured in a swinging frame, or forked lever, and moved from a vertical to a horizontal position, and *vice versa*, back and forth from one end of the stuff to the other, in combination with the clamping-jaws for holding the stuff in a proper position while being operated upon, substantially as herein fully set forth and described.

No. 10,595.—G. W. Cooper.—*Improvement in Cotton-seed Planters.*—Patented March 7, 1854.

The device consists in a vertical rotary agitator OOO, placed within the hopper A, and combined with vertical saws G G, to carry down the cotton-seed; the agitator and saws being set in motion by the spur driving-wheel M and levers K J.

Claim.—Combination of the saws G G, having a reciprocating rectilinear, and the feeders O O O, having a reciprocating rotary motion.

No. 10,596.—Henry B. Kimble.—*Sash Fastener.*—Patented March 7, 1854.

The invention consists in the combination of the bolt *c*, having the locking notch at *d*, with a weighted lever A.

No. 10,597.—William H. Johnson.—*Improvement in Sewing Machines.* Patented March 7, 1854.

This invention consists in the making of what is denominated the "belaying double-loop stitch," with a single thread, by the employment of one needle, used in connection with a double spring hook, over which the loops are formed, the needle working vertically and having a vibratory side-motion, so that each time it passes through the cloth, or other material to be sewed, the latter is moved forward a sufficient distance for the succeeding perforations; thus constituting a machine which forms the seam by means of a single thread, and feeds by the needle.

The drawing shows the construction of the machine, a description of which would occupy too large a space.

Fig. 1 is a side view of the machine; fig. 3, a front view; fig. 2, a rear view; and fig. 5, a top view of the same: fig. 4 is a detached top view of the lever L.

Claim.—The making of a seam with a single thread, by the combination of a single thread *m*, forked hook *n*, and expanding lever D^1, operating substantially in the manner and for the purpose herein specified; also, the forming or making of a seam from a single thread, by the running of a loop of the thread through the material to be sewed, the running of a second loop through the material and putting the first loop through the second; the running of a third loop through the material and through the first named loop, the carrying of a fourth loop through the material and putting the third through it, and so on; putting the first loop through the second and around the third, the third loop through the fourth and around the fifth, and so on, forming the belaying double-loop stitch herein described, in the manner set forth; also, the feeding of the material to be sewed by means of a vibrating needle, by which the material is moved along as required for the stitch, substantially in the manner herein specified.

No. 10,598.—George C. Hinman.—*Improvement in Sash-sustainers*—Patented March 7, 1854.

An arched rod C, with clogs or bearing-pieces I, presses outwards against the frame and sustains the window *w* in any required position. The thumb-piece G is a lever, working on the projection E of the bracket D; by pressing upon it the inner end increases the bend of C, so as to relieve the side-pressure, and allow the window to move.

Claim.—The above described sash-sustainer, consisting of an arched rod attached to the horizontal part of the window in such a manner that the weight of the sash shall cause the clogged ends of the rod to bear equally on both sides; and also the above described lever thumb-piece for increasing the arch of the rod, and relieving the pressure so as to allow the window to be lowered, the whole being arranged and operated substantially as above described.

No. 10,599.—George Levan.—*Improvement in Reeling Machines.*—Patented March 7, 1854.

This invention consists of a double disk with hinged wings to keep the threads stretched, in combination with a sliding rail to stop any division of the spindle.

In the figure, H is the double disk attached to the spindle B. There are six or more vertical pins J dividing the plates H, and between two of the pins J a thread passes. A wing L operates upon a hinge between two of the pins J, for the purpose of keeping the threads properly stretched; and also when a thread is broken or a bobbin empty, the lever L flies back against one of the pins J, by the revolution of the double disk H, and is brought in contact with a projection M upon the sliding-rail N, which stops the spindles and reel of one division without delaying the operation of the remaining division.

Claim.—The double disk H, as constructed with hinged wings L, for the purpose of keeping the threads regularly stretched, and operating the sliding-rail N, when one of the threads is broken, in the manner described.

No. 10,600.—Samuel Loveland.—*Improvement in Sectional Dry-docks.* Patented March 7, 1854. Antedated September 7, 1853.

A central water-tight tank C, seen in the drawing, is used for the double purpose of ballasting with water and, when empty, for giving access to the keel.

A mere water-ballast is disclaimed, as also a space between separate floats.

Claim.—The transversely placed tank or water chamber, C, of each section of the dock, forming not only a central water-ballast in the float directly under the keel of the vessel to be raised, but, when empty, a dry tank for the purpose of giving access to the keel in repairs.

Also the tank, trunk, or chamber C, in combination with the buoyant chambers or floats A A, hollow guards or chambers B B, or when combined with chambers or floats attached to the end of the trunk or float.

No. 10,601.—Cancelled.

No. 10,602.—L. B. Tyng.—*Improvement in Tail-stocks, for Turning Lathes.*—Patented March 7, 1854.

This improvement consists in a divisional guide-box, made of iron or any other suitable metal, for the tail-stock spindles of different kinds

of turning-lathes. This is represented in the drawing, which is a vertical longitudinal section of a tail-stock of an engine-lathe containing the improvement, by the letters *g*, *g*, *g*, *g*, and is adapted for the use of a round or square spindle, as may be required. They are planed or bored, according to the shape of the spindle to be used, and planed on their edges by one and the same operation; and are then clamped together in pairs, and ground to a finished surface on the spindle, and accurately turned so as to fill the entire cavity previously bored out of the upper portion of the lathe marked B; the closeness of their fit retaining them in their places.

Claim.—Constructing and applying guide-boxes, substantially as herein described, to the tail-stocks of lathes, which make a better, cheaper, and far more durable bearing than those made heretofore for such purposes.

No. 10,603.—R. J. R. Stone.—*Improvement in Machines for Boring and Mortising Carriage-Hubs.* Patented March 7, 1854.

A A indicates a sliding frame that moves longitudinally upon the ways of the lower frame A^1, and is drawn either forward or backward by means of the bevel-wheel S, on the screw Q, that reaches into another bevel-wheel S^1, on the shaft T, put in motion by a crank; to which are also attached the devices for boring and mortising, while the hub to be bored is secured upon the lower frame. The dial plates G, which indicate the number of mortises to be made in each respective hub, are attached to the shaft E, on the lower frame, and are governed by the hand of the operator, by means of the catch F and the guide F^1. The hub to be bored and mortised is placed between the two chucks B B^1, which are forced into the core of the hub, by means of the screw C, which has a crank at one end, and passes through a box in the yoke D, that slides upon the ways on A^1. This being done, the auger H is set in motion by means of the crank on the shaft J, operating a bevel-wheel I^1, that meshes into another bevel-wheel on the shank of the auger. M is a quadrant lever, attached to the guides L L, for the purpose of giving to the chisel any deviation from a perpendicular line that may be required.

Figure 1 represents an elevation of the machine; figure 2, an end view of part of the machine.

Claim.—The combination and arrangement of the chisel and quadrant lever M in the manner specified, for the purpose of beating out the mortise at any desired angle, as indicated by the index, in connexion with the sliding frame A A, in the manner and for the purpose herein set forth.

No. 10,604.—Joseph Sollenberger.—*Improvement in Carriage Brakes.* Patented March 7, 1854.

Claim.—The mode of applying the fore and hind-wheel rubbers by means of the connexion *m*, *n*, applied to the fore rubber *l*, as described; and in connexion therewith, the connexion J, applied to the hind-rub-

bers R, as described, so that the fore-wheel may be acted on in the rear, and the rear-wheel in front.

No. 10,605.—James W. Stoakes.—*Machine for Paying Vessels, Seams or Joints.* Patented March 7, 1854.

This improvement in paying-machines consists in the construction of the rotary mop B, by the combination of the two sectional disks A A, provided with hollow arms or axes C C, through which passes a bolt D, having a nut F, by which the disks are secured together, and the mop retained in place at the periphery.

No. 10,606.—Chauncey D. Woodruff.—*Improvement in suspending Eaves Troughs.* Patented March 7, 1854.

The trough D is suspended by the strap C, fastened to the rod A, and adjustable on it by the screws B B.

Claim.—The mode of suspending and fastening eaves-troughs as herein described.

No. 10,607.—Luther B. Fisher.—*Improvement in Corn-Planters.*—Patented March 7, 1854.

The invention embraces two distinct features—one being the construction of the driving wheel E, of an adjustable twin hub H H', and of a double set of radii R R, by means of which the periphery of the wheel, which for this purpose has an opening, *e e'*, in its rim, may be enlarged or diminished so as to cause the seed in the several hills of every succeeding row to be planted in right lines across the field, as well as in the direction of the planting. The divided hub, H H', is movable longitudinally upon the shaft C, by levers I I' and screw S, so that by the turning of said screw, the circumference of the wheel E can be diminished or increased at pleasure. The second device is a scraper P, made self-adjustable through the connexion of arms *n n* with the levers I I', with reference to the periphery of the wheel, for cleaning the outer rim of the wheel E.

Claims.—1st. Constructing the driving wheels of planters with cut rims and divided hubs, substantially as described; said hubs being made to traverse the driving shaft C, by means of forked levers I I', operated by a screw S, or its equivalent, for regulating the allignment of the hills in a cross direction.

2d. The scraper P, in combination with the pins *p* and *q*, and levers I I', arranged and operating substantially as described, for presenting a given space between the edge of the scraper and the outer rim of the wheel.

No. 10,608.—Jeremiah C. Gaston.—*Improvement in Seed-Planters.*—Patented March 7, 1854.

The improvement consists mainly in an agitating cord, N N, made to vibrate horizontally in the bottom of a portable seed-hopper A, by

means of a slide F, moved back and forth by the carrier. This cord is attached to the slide by the loop P; the roughness is intended to stir the grain about, and to insure the discharge thereof through the adjustable planting apertures D D.

The claim is restricted to the reciprocating agitator N N.

No. 10,609.—Charles Miller.—*Improvement in Sewing Machines.*—Patented March 7, 1854.

This invention relates to the adaptation of the cloth, or other material to be sewed, to receive what are termed the button-hole stitch, the whip-stitch, and the herring-bone stitch; and consists in giving the cloth, or other material to be sewed, a movement laterally to the direction of the seam, and in opposite directions alternately between every two stitches, in addition to the movement commonly given in the direction of the seam.

Claim.—Giving the cloth, or material being sewed, a movement laterally to the direction of the seam, between the successive stitches, or interlacings of the needle and shuttle-threads, for the purpose of receiving different kinds of stitches or seams.

No. 10,610.—Clark Polley.—*Improved method of operating Hydraulic Rams.*—Patented March 7, 1854.

This improvement consists in so arranging a hydraulic ram and an ordinary suction-pump that they shall serve to elevate water to a considerable height, thus overcoming the great expense and inconvenience often incident to the use of forcing-pumps, and resulting in the attainment of a degree of power unattainable in using the forcing-pump alone. The drawing shows a sectional view of the apparatus. The inventor does not claim, in any manner, the pump or hydraulic ram; but the air-tight box or chamber A, having within it, and in combination therewith and with each other, substantially as herein set forth, the hydraulic ram and pump, and having suitable pipes attached in such manner as that when the apparatus is submerged, and the pump worked from above, the ram will be free to operate by the pressure and momentum of the water resting above it.

No. 10,611.—David B. Marks.—*Improvement in Artificial Legs.*—Patented March 7, 1854.

The invention and claim consist in the combination of the rod D, which is attached to the foot C, and moves upwards and downwards within the leg or lower part, B, of the limb; the spring *d* applied to the rod; and the curved bar-plate or way, E, attached to the thigh or upper part, A, of the limb—the whole operating substantially as described—to lock the knee stiff, and control the position of the foot until the ankle is bent on throwing the body forward, and to retain the foot in its bent position at the ankle until the knee is again straightened.

No. 10,612.—Seaman C. Ripley.—*Improvement in Brick-Machines.*—Patented March 7, 1854.

S represents the brick-mould, which is forced under the clay or moulding-box by traversing bar I. P represents the gauge-plate or stop against which the end of the mould strikes when put in its place by the hands of the workman.

The stop turns on a pivot *u*, and allows the bar I to pass freely over it, by depressing the end *v* as it advances towards the clay-box; and on the return of the bar it acts upon the tail *w* of the top, and throws it back to its first position.

The inventor does not claim broadly the use of a gauge for guiding the moulds in entering under the grating, as such a gauge, provided with a weighted lever for throwing it back to its place on the backward movement of the force-bar, has been used in the machine of Collins B. Baker, patented March 26, 1850.

Claim.—Throwing the gauge back to its place by means of a tail or cam, or the equivalent thereof, upon which the force-bar acts on its backward movement, substantially as herein described.

No. 10,613.—Joseph Sawyer.—*Improvement in Machines for Splitting Ratans.*—Patented March 7, 1854.

The principal feature in this invention consists in so dividing the ratan to be used for seats of chairs, &c., that the natural enamel shall not be removed—thus preserving the original strength of fibre to a greater extent than by the ordinary modes of splitting. B B^1 the feeding-rollers, carried by the shafts C C^1, which are driven by the pulleys D D^1, the lower shaft C running in stationary boxes in the frame; and the shaft C of the upper roller having a slight vertical motion in a slot, to enable the rollers to accommodate themselves to the size of the cane. The shafts C^1 have also a motion in slots, and are connected together by the links *b c d*, shown in dotted lines; *c* being pivoted at its centre, and connected at its ends with the other two. E is a spring that bears against the link C, in such a manner as to bring the rollers B^1 together. As the cane is forced in between this pair of rollers, they are allowed each to move an equal distance from the centre of the line; and thus the centre of the cane is made constantly to correspond with that of the cutter F, which is so formed as to split the cane into four or more equal portions without abruptly bending it at any point. G is the cutter-stock, in which F is secured by the screw *g*.

Claim.—The combination of the feed-rollers B B^1 with the cutter, constructed and operating as described.

No. 10,614.—Addison M. Sawyer.—*Improvement in Machines for Splitting Ratans.*—Patented March 7, 1854.

The essential characteristic of this invention consists in a tubular cutter I, of a peculiar form and operation, the cutting edge of which is made annular, and the outer surface provided with a series of spurs

arranged around it, as shown in fig. 3, in connexion with a guide at M, that directs the stick to the feeding-rollers B, and another guide H, that presents the stick centrally to the cutter, so that its circumference shall be divided into separate portions, while the central part passes through the interior of the cutter.

The drawings present a plan, fig. 1; a vertical section of the machine, taken immediately in the rear of the guide-stock H, and through the cutter I, fig. 2; and a transverse section of the cutter, with the standard K, and the fender L, which directs the strands upwards from the under side of the stick. A represents the frame; B B are feeding-rollers, arranged in pairs upon the shafts B^1, and working in boxes attached to the frame, the upper one of which, C, may be drawn together by the helical openings D, pressed upon by the nut *b*, thus forcing the rod *d* downwards, and operating the links *c*, the lower ones working upon pivots to permit the vibration of the shafts B^1, and thus accommodating the machine to larger or smaller sticks. Upon the shaft B^1, and in the lower part of the machine (some of the feed-rollers B being removed,) may be discovered the pitch-wheels E, that correspond in number with the feeding-rollers, take into the endless pitch-chain F, and give to all the feeding-rollers an equal and corresponding motion. This chain is tightened by means of suitable devices attached to the pitch-wheel G^1. *h, h, h, h*, show the position of four movable disks in the guide-stock H, which are arranged in pairs, and in such manner that they have the same amount of movement to and from the centre, and have their faces bevelled on the side opposite to the cutter. These disks are pressed against the stick by the spring *g*, arranged upon the periphery of the guide-stock, one of each pair having an arm that engages with a small balance lever, thus insuring an equal and regular movement.

Claim.—In a machine for splitting ratans or other similar substances as described, the employment of a tubular spurred cutter, or its equivalent, in combination with a guide for holding and guiding the stick thereto, substantially as hereinbefore described.

No. 10,615.—William Wickersham.—*Improvement in Sewing Machines.*—Patented March 7, 1854.

Claim—Consists more properly in so combining with one sewing-machine, having one needle and a thread-carrier, or their mechanical equivalents, another or second needle, and a second hole in the thread-carrier, or the equivalents therefor, that, by the action of the same needle-moving machinery, two needles are made to operate simultaneously, so as to perform at one and the same time two parallel rows of stitches, with separate threads, substantially as hereinbefore specified.

No. 10,616 —Robert W. Andrews.—*Britannia Tea and Coffee Pots.*—Patented March 7, 1854.

The object of this invention is to prevent the projecting ledge at the bottom of a Britannia tea-pot from being melted when exposed to heat, and consists in substituting a projecting ledge, B, made of other metal, which is not melted by ordinary degrees of fire-heat.

No. 10,617.—Jesse Young.—*Improved Joint for Air-heating Pipes.*—Patented March 7, 1854.

The improvement consists in boring out recesses *a a* in the ends of the pipes, which are sufficiently large to receive a thimble, *c*, the thimble being made of more expansible metal than the pipes, and which, upon being heated, will, in consequence of expanding more than the pipes, bind tight against the recesses, *a a*, in which it is fitted, and form a perfectly tight joint.

No. 10,618.—William C. Wright.—*Improvement in Machines for Drilling Stone.*—Patented March 7, 1854.

The drill-stock O is lifted and dropped by a pair of jointed clamp-bars, N, alternating with another like pair of clamp-bars, N¹, these clamp-bars being operated respectively by connecting-rods M M¹ and cranks K K¹. The cranks are geared together so as to revolve with equal velocity, in directions diametrically opposite to each other. Each pair of clamp-bars is unclamped from the drill stock at the end of its lift, by means of a tail, *d*, coming in contact with the top end of a slot, *e* or *e*¹, in an upright, R, the other pair being at the same moment held unclamped at the lower end of its motion, by resting on a fixed stop, S or S¹, and the drill-stock is thus left free to descend. The action of the crank is transmitted to the connecting-rods M M¹, by means of slotted cross-heads L L¹, whose slots are bent in such a manner as to prolong the lift of either pair of clamp-bars, and leave time for the descent of the drill-stock between the unclamping of that pair and the reclamping of the other pair, at the commencement of its lift.

The turning of the drill-stock about its own axis is effected by means of a pawl, *g g*, which catches the tail *d d* of the clamp-bars as it approaches the upper limit of its motion, and causes it to make a slight motion of revolution.

Claim.—The combination of mechanism herein described for operating the drill-bar, consisting of two pair of grippers, N N¹, attached to rods M M¹, having slotted heads L L¹, which receive the wrists, *f f*¹, of two cranks, K K¹, the said cranks being arranged diametrically opposite each other, on a common axis, and the slots in the heads of the gripper-rods being of such form as described, so as not to cause one set of grippers to be always rising, while the other pair are descending, but to cause a cessation of motion before any descent, in order to give time for the drill-bar to fall, as herein set forth.

No. 10,619.—Ashley Hotchkin.—*Improvement in Hinging Gates.* Patented March 7, 1854.

This improvement consists in hinging or hanging a gate, by means of two lower turning pivots or pintles e^1, e^2, working on separate step projections, a^1, a^2, of a box or frame G, the upper end of the gate being steadied and carried by rollers *f*, *g*, *h*, working or travelling in fixed grooves or spaces, so as to admit of the gate opening either way, the

several parts being constructed and arranged essentially as shown. Fig. 1 and fig. 2 show the boxes J and G on a larger scale.

No. 10,620.—Daniel Ryan and John Flanagan.—*Improvement in Water-closets.*—Patented March 7, 1854.

This is one of those water-closets in which the basin is surrounded with an annular chamber at its top, from which is discharged a sheet of water down the basin on all sides, for the purpose of washing it out. The patentee has divided this chamber, by a ring or plate J, into two compartments *d*, *e*, which communicate only by small perforations in the plate J, or spaces at its side. The water is let into the lower compartment *e* in the usual way, by a feed-pipe K; but it gradually finds its way into and fills the upper compartment *d*, and then, on the supply being cut off, it is there retained for a little time, until the valve at the bottom of the basin has been closed, when, gradually making its way through the opening in J, it descends to the bottom, and forms an air-tight water space around the joints of the valve.

The valve described by the patentee consists of a hollow cylinder F, sliding vertically in another hollow cylinder A, and provided with perforations *a b*. When F is raised by means of the lever G, the opening *a* is brought opposite to the pipe C, and the pipe D is cut off from communication with C. The cylinder F receives the contents of the basin, and, on being let down, discharges them through *b* into the pipe D, and closes the passage through C.

The patentee does not claim the chest or penstock I, surrounding the upper part of the bowl-seat, as that has been previously used.

Claims.—1st. Dividing the chest or penstock I into two compartments, communicating with each other, the division being made by means of a flange J, or its equivalent, by which a sufficiency of water is reserved within said chest or penstock after the supply has been stopped, to cover the opening or mouth of the pipe C, at the bottom of the bowl-seat B, and effectually prevent the escaping of effluvia into the apartment.

2d. The sliding-tube F, within the trunk or cylinder A; said tube being constructed, arranged, and operated as shown, by which a direct communication is at all times cut off between the bowl-seat and exit pipe, and at the same time the excrement allowed to pass into the exit pipe at the proper time.

No. 10,621.—Joseph Wilson.—*Improvement in Self-acting Switches.*—Patented March 7, 1854.

The movable rail C¹ is pressed out by the flange of the wheel while the cars are on C¹, and the switch rails *a b* are moved to meet the track C C¹.

The inventor does not claim the spring for restoring the line, nor the locking lever, nor moving the switch by a bar forming part of the track.

Claim.—The precise arrangement of the parts for operating the switch, by means of the lateral pressure of the wheel flanges on the inner sides of the movable and fixed rails, while the cars are on the rails.

No. 10,622.—CHRISTOPHER HODGKINS, assignor to NEHEMIAH HUNT.—*Improvement in Sewing Machines.*—Patented March 7, 1854.

This invention consists in a peculiar arrangement of the eye of the upper or vertical needle, together with a peculiar mode of forming and operating the lower needle, and has reference to machines which sew by the conjoint operation of two needles, one of which passes through the cloth, while the other works on one side of it.

In the figure, A is the upper needle, the eye of which is bored through in a direction parallel to the axis of the driving-shaft; B is the lower or horizontal needle. The upper needle is made to puncture the cloth, and is attached to a carriage C, that is worked up and down by means of a bent lever and a cam, the latter being fixed on the driving-shaft F.

Claim.—Constructing the horizontal needle of the angular form, substantially as described, and making it to operate with respect to the vertical needle and its eye, arranged as set forth, essentially in the manner as hereinbefore explained.

No. 10,623.—THOMAS CLEGG, assignor to THOMAS CLEGG and NATHANIEL STEVENS.—*Improvement in Wire Heddle-eyes for Looms.*—Patented March 7, 1854.

This invention consists in so compressing the wires of which the eyes are made, at the top and bottom of the eye, as to flatten them and bring them to about the thickness of a single wire. This compression may be produced by pressure between jaws, or by a hammer. The object of the flattening is to prevent the eyes from catching the warp threads in the twist. The drawing shows a view and section of the metallic heddle-eye made in the improved manner.

Claim—As an improvement or improved manufacture, a loom harness metallic eye, made of round wires twisted together, and compressed and flattened in the twist of its wires, and directly at the top and bottom of its warp-thread opening, substantially in the manner and for the purpose as described.

No. 10,624.—GEORGE B. FIELD.—*Improvement in Rotary Cultivators.*—Patented March 14, 1854.

The invention is confined to the contrivance of movable scrapers or cleaners A, for every rotating hoe or cultivator-tooth C, which cleaners slide out and in radially on the hoes as the machine progresses, and thus by their gravity keep the tooth clean. To keep the inside of the cylinder formed of the hoes and scrapers clean from the dirt entering into it, and to prevent the clogging of the axle and of the ways on and in which

the cleaners slide, shields P and Q are fixed on the axle L, which lead the dirt out of the cylinder by their inclined position. There is also suspended to the rear of the revolving cultivator, and in advance of a seeding apparatus S, an adjustable harrow B, sustained above ground, which by its rotation breaks and pulverizes the clods falling from the rotary hoes.

Claims.—1st. The construction of the rotary cultivating cylinder, made of cutting-plates or spades C, and interposed pushing or clearing boards.

2d. The arrangement of the shield-plates P and Q, on the shaft L.

3d. The rotary harrow B.

In figure 1 the cleaners and rotating hoes are represented with their slots F; but the axle L, with the shields P and Q, are omitted in this figure, to make the drawing more intelligible.

No. 10,625.—OLIVER LESLEY.—*Saw-set.*—Patented March 14, 1854.

Properly a swage saw-set, for setting and sharpening or pointing chisel-shaped teeth. The invention is one of arrangement only; and the claim allowed covers the arrangement of the triangular gauge C, in relation to the swaging notch F of the set; so that while the gauge rests upon the face or edge of one tooth to steady it, it may also be graduated to make the curved line of the tooth.

No. 10,626.—ORRIN NEWTON and J. A. CREVER.—*Improvement in Excluding Dust from Railroad Cars.*—Patented March 14, 1854.

This invention consists in ventilating railroad cars by supplying them while in motion with a continual current of atmospheric air, previously purified by its passage through water.

This is effected by means of bellows, operated by the engine, which force a current of air into a water-cistern arranged with a series of tubes opening into the cars. In the accompanying drawing, A is the bellows and water-cistern, which are placed under the body of the car; and B the tubes, which lead into and have openings communicating with the interior of the car.

Claim.—The combination of the bellows and water-cistern, connected with each other and with the cars by pipes, for the purpose of ventilating railroad cars, constructed and operating in the manner hereinbefore described.

No. 10,627.—ANDREW OVEREND.—*Machine for Damping Printing Paper.*—Patented March 14, 1854.

This machine has two rollers, L and M, covered with felt or blanket. The lower roller M is made to revolve in a trough of water, which is imparted by means of the felt cover to the upper roller L. The paper is passed from an adjustable table G H, intermittingly between the roller, by means of which both sides are wetted during its passage through the

machine. It is then piled, by means of the fingers P, P^1, P^2, P^3, on a receiving table.

Claim.—1st. The self-acting feed-board, arranged and operating as herein described.

2d The arrangement and combination of the upper and lower felted rollers, for the purpose of saturating the upper roller, in the intervals between the passage of the paper, in the manner as hereinbefore described.

3d. The projections *c c*, for the purpose of breaking the bead as the paper enters.

4th. The combination of the wetting cylinders and fly, substantially as hereinbefore described.

No. 10,628.—Joseph W. Robinson.—*Improvement in form of Scythes.*—Patented March 14, 1854.

The improvement consists in starting the web of the scythe from the middle of the back, instead of from one edge of the back, as is usually the case, thus rendering the scythe stronger, and preventing its being ground through in the line where it joins the back.

The claim embraces the form described, whether the web starts from the centre of the back or elsewhere, except from the edge.

No. 10,629.—Edwin Milford Bard.—*Improvement in Mould-Boards for Ploughs.*—Patented March 14, 1854.

The invention is confined to studding the surface of the mould-board C of a common plough with knife-blades B B B, with the edges looking forward, and the axis of the blade sloped backward, so that while the blades cut and cultivate the under surface of the furrow-slice, they at the same time slide through it without clogging.

The claim is restricted to the device precisely as described.

No. 10,630.—James Berry.—*Improved Method of Constructing Moulds for Making Printing-Blocks.*—Patented March 14, 1854.

The nature of the invention consists in forming moulds into which the printing-blocks are to be cast, of rectangular or other shaped prisms of a suitable size, and of two different lengths. These types, or prisms, are set up to form the moulds in such a manner that the short ones shall form the sunken parts of the mould, and the long ones the raised portions, so that when the material of which the block is to be formed is cast into the mould, the elevated portions of the mould shall form the depressed portions of the block, and the depressions in the mould shall form the raised or figured portions of the block.

The blocks may be of any suitable composition, such as type-metal, plaster of Paris, clay, or mixture of shellac and fine sand, vulcanized India rubber, or gutta percha.

Figure 1 is an isometric view of the mould, as set up preparatory to casting a block.

Figure 2, the two-sized types of which the mould is formed.

Any number of patterns may be produced from a small quantity of type in a comparatively short space of time, and with great economy of material.

No. 10,631.—R. D. Bartlett.—*Machine for making Shovel Handles.*—Patented March 14, 1854.

The drawings in this case are so numerous and complicated, the description so extended in detail, and the model having been divided to apply to two applications, as to preclude in this place any clear representation of the invention.

The claims are to such a combination of stationary and rotary cutters as will completely finish the hand-part of shovel handles.

Claims.—1st. The combination and arrangement of the bed M, the rotary holder O, one or more vertical movable cutters V W H^1, and one or more stationary cutters I^1 K^1, as made to operate together, and form the D or head part of the shovel-handle, substantially as specified.

2d. The combination of the curved knife *o*, and the arc knife *p*, so applied together as not only to allow them to be separated for the purpose of being ground, but to enable them to cut out the opening of the shovel handle as specified.

3d. The combination applied to the shaft of the rotary holder and gear-wheel A^1, for the purpose of operating the holder; the said combination consisting of the cam-blocks C^1 M^1, the arm L^1, the spring-bolt N^*, its cam P^1, and the two studs e^1 and h^2, the whole being constructed and made to operate together, substantially as specified.

No. 10,632.—Charles W. Billings.—*Improvement in Seed Planters.*—Patented March 14, 1854.

The invention consists—

1st. In the combination of an adjustable draught-pole F with a covering sledge G, in such way as to regulate simultaneously the depth of the furrow cut by the share I, through the position imparted to said sledge G by the arms *g*, which connect it to the draught-pole F.

2d. In a pair of mutually mashing toothed disk-segments B B, having a vibratory movement for the operation of the slides *b b*, admitting the seed from the hopper A into the tube C.

3d. In the mode of keeping the pivots of said segments B B at their centres of motion by means of a jointing-pin *x*, with projecting ears or lips, and by forming the joint-hole of a key-hole shape, (fig. 5,) thus admitting of an easy detachment of the segment whenever needed.

4th. Slides *e f* placed under the seed-distributing slides *b b*, for the purpose of keeping them in place, and preventing clogging.

Claims.—1st. The linking or otherwise equivalently attaching the pulverizing gauges G to the draught-bar F, in such a manner that the gauges are raised or lowered to regulate the depth of furrow to be cut, by elevating or depressing the draught-bar F to its proper pitch or height for the draught at the given depth of furrow, and whereby the draught-bar and gauges are simultaneously raised or lowered.

2d. The combination of the vibrating seed segment slides B B, geared together by cogs or teeth on their peripheries, and operating in unison, as described.

3d. The manner of pointing, pivoting, or jointing the vibrating segments at their centres of motion, by constructing the jointing-pin with projecting ears or lips, and forming the joint-hole of a key-hole shape.

4th. In combination with seed-distributing slides, the employment of the double-acting spring clearing-slides *e*, arranged so as to be capable of lateral movement in either direction, and made self-adjusting to their original positions, substantially as, and for the purposes, specified.

No. 10,633.—Joshua Cross.—*Improvement in Faucets for Measuring Liquids.*—Patented March 14, 1854.

The peculiar advantage of this article arises from its combining a measuring-vessel with the valve of a faucet, in such manner that when the former is placed in one position, it shall be in communication with the interior of a barrel, or other vessel, whose contents are to be discharged and measured; and on being turned in another direction, the communication with the barrel shall be cut off, and the measure emptied. A indicates the shank of the faucet, which is furnished with a sleeve or valve B, upon which to screw the measuring vessel C. The shank has two apertures, *d*, *e*, which are opposite to each other, and are separated by the diaphragm *f*, that passes diagonally between them. The sleeve B is kept in its place by the nut C.

Claim.—The construction and arrangement of a measuring-vessel, and the valve of a faucet, substantially as herein described.

No. 10,634.—Frederick Espenschade.—*Movable Nozzles to the Exhaust Pipes of Locomotives.*—Patented March 14, 1854.

The claim allowed in this case is to the employment of movable tapering nozzles, *a*, *b*, *c*, of various sized orifices; so arranged, that either of the said nozzles may, at will, be brought over the mouth of the waste steam-pipes B, B, to vary the draught in the furnace of the locomotive.

No. 10,635.—E. S. Haskins.—*Improvement in Spring Clamps for Clothes-lines.*—Patented March 14, 1854.

Claim.—The inventor does not claim uniting the two parts of a clothes-pin by a hinge, and closing the jaws by introducing a spiral or other spring between the opposite ends of the levers.

But he *claims* the combination of the barrel C, the groove D, and the elastic band *g*, of India rubber or other suitable substance, by which means the different parts of the clothes-pin are held together securely by the same spring which closes the jaws, instead of requiring a separate device for the purpose, as has heretofore been the case.

No. 10,636.—Elbridge G. Hastings.—*Improvement in Machine for Dressing Stone.*—Patented March 14, 1854.

The cutter-stocks I K, carrying the cutter *m*, extend the whole width of the stone to be dressed, and slide on inclined ways G G. These ways are confined, by straps *l*, to a fixed, strong, metallic cylinder E^1, about which, however, they are at liberty to turn as a centre of motion, so as to vary their angle of inclination at pleasure. The cutter-stock is grooved out at *e*, so as to fit the cylinder E^1, which thus serves as a stop to gauge and limit the motion of the cutter, and that equally for every degree of inclination of the ways G. The gauge can also be raised and lowered by means of the set-screws F F. The stock is raised and let fall by a screw-cam N, working upon an adjustable stud projecting from the stock. The stone is mounted upon a carriage fed along beneath the cutter, and is dressed down to a plane surface determined by the stop cylinder E^1. The stock is divided into two parts, I and K, which can be either keyed together so as to act like one, or left separate, so that I only will be lifted from its place and dropped, while K receives its blow.

Claim.—Making the cross-head E^1 of cylinder-form, and the tool-stock K with a corresponding concavity, substantially as shown; so that the ways or guides, which carry and give direction to the motion of the said tool-stock, turn freely on the said cross-head; and the said cross-head serves as a rest or stop at whatever angle the said ways or guides may be adjusted, and thus always determines the depth of the cut, and causes a perfectly true surface to be produced on the stone.

No. 10,637.—Albert Hock.—*Process for Gilding or Plating Fibrous Substances.*—Patented March 14, 1854.

This invention consists in coating silk, or other thread or yarn, tapes or bands, with gold, silver, or other metal leaf, by first coating a cylinder or roller with the metal-leaf intended to be used, and then winding thereon the silk or thread which is to be coated; after which, metal-leaf is to be laid on to the surfaces of the silk or thread which has been wound on the cylinder; when, by pressing the metal-leaf with dry cotton, the silk or thread will be coated with the metal-leaf.

The vapor of soap-suds is found to be sufficient to cause a slight adhesion of the metal to the rollers. The thread must be coated with a more adhesive preparation. No illustration.

No. 10,638.—J. B. Larwill & J. Cross.—*Improvement in Faucets for Measuring Liquids.*—Patented March 14, 1854.

This improvement, the drawing of which gives a longitudinal section, consists in so constructing faucets as to make them capable of measuring any given quantity, and shutting off the supply from the cask simultaneously with the discharge of the same from the faucet, and *vice versa* when it is desired to measure another quantity, and of speedily converting them into constant runners when this is necessary. A designates the faucet, made with a measuring chamber B of any

given dimensions; C is the handle; D, E, F are three passages communicating with the chamber B; the two former receiving the fluid, and the latter discharging it. The two hollow cylindrical valves G H, which control the entrance and discharge of the fluid, placed at each end of the faucet, are connected by the rod I that passes through its centre; the valve G serving to cut off the supply from the cask after the faucet has been filled, and at the same time opening the discharge passage.

Claim.—The manner of constructing faucets, whereby they are rendered capable of measuring any given quantity, and of shutting off the supply from the cask when it is desired to discharge the contents of the faucet, and of closing the discharge of the faucet when it is desired to measure a fresh quantity, and susceptible of being converted into a constant runner when desirable, substantially as herein described.

No. 10,639.—Eldridge H. Penfield.—*Metallic Grummet for Sails.*—Patented March 14, 1854.

This invention consists in making the metallic grummet of three or more pieces of metal—A, figures 1, 2—raised to the proper shape, when the several parts are constructed and arranged as here shown, the line *g* indicating the sail-cloth to which the grummet is attached.

No. 10,640.—O. C. Phelps.—*Improved Stop-Cock.*—Patented March 14, 1854.

In this cock the aim has been to adopt the conical plugs, and, at the same time, overcome the objection to which it is liable in cold weather, of having the plugs sunk too far into the socket; thus becoming jammed, requiring a blow to get them loose again, and sometimes even bursting the cock. The inventor thinks that he has overcome the difficulties and objections referred to by furnishing the cone at its base with a flange, which is made to bear upon a suitable ledge in the body of the cock, that prevents the plug from sinking too deeply in the socket; and also in constructing the conical plug in such manner that an air-cushion may be placed therein, for the purpose of neutralizing the effect of the water-hammer. A is that portion of the cock which is soldered to the water-pipe, and is secured to the body B by means of a screw at *a*. C is the eduction-pipe, to which the filter is attached by the screw *b*. D is the conical plug, having an opening at *c*, corresponding with the delivery-pipe C. There is a flange at D upon the conical plug, for which there is a corresponding recess in the body B. The springs at *f* may be formed of wire, or any other suitable substance. It is acted upon by screwing the piece A into its place. *g* is a plug or disk, of India rubber, that is forced into the plug D beyond the hole C, which confines a portion of air, *h*, beyond it, and counteracts the effects of the water-hammer.

Claim.—The flange *d*, in combination with the conical plug, constructed and operating as described, for the purpose set forth; and the air-cushion within the plug, constructed and arranged in the manner and for the purpose substantially as described.

No. 10,641.—Ezra Ripley.—*Improved Faucet.*—Patented March 14, 1854.

This improvement consists in the employment of adjustable clamps, or jaws, combined with a faucet-tube, for the purpose of opening and closing at pleasure the discharge orifice on one side of the tube. The figures give a perspective, and a transverse sectional view, taken through the clamps and discharge-orifice. A shows the situation of the tube; B B, the adjustable clamps; C, the screw by means of which the clamps are relaxed or tightened; D D, shoulders or guides for keeping the clamps in place while the faucet is being operated; E, the discharge-orifice; F, a packing of any suitable material for effectually stopping the discharge when desired.

Claim.—The adjustable clamps or jaws B B, in combination with the faucet-tube A, for the purpose of closing and opening the discharge-orifice E, when drawing fluids, constructed and operating substantially in the manner and for the purpose as described and shown.

No. 10,642.—Gerard Sickles.—*Improvement in Rotary Engines.*—Patented March 14, 1854.

This invention consists in making a tight fit between the cylinder and the revolving head which carries the pistons or slides, without packing, by making the revolving head with a flange on one side, which flange has its inner face fitting to a suitable surface within the cylinder, while that face of the main portion or hub of the head opposite the flange fits close to the bottom end of the cylinder, admitting steam to act on the sides of the revolving head thereby, and packing up the head to the cylinder.

Claim.—To the method of making and maintaining a perfectly tight fit between the ends of the cylinder and the revolving head, which carries the slides or pistons, by admitting a pressure of steam outside of the flange of the revolving head, substantially as herein set forth.

No. 10,643.—Nathaniel Smith and Asa Crandall.—*Improvement in Machines for Grinding Card-Teeth.*—Patented March 14, 1854.

An emery roller traverses back and forth from one end of the card cylinder to the other, and simultaneously therewith describes vertical circles, thereby operating in a parallel line with the carding cylinder upon the whole face of the card, and gradually and effectively grinding the teeth of the same to a perfect uniformity of length, and giving them the proper finish.

The claim is to a narrow emery card grinder A, carrying a weighted forked lever or shifter D, and keyed loosely on an endless or right-and-left screw B, which, in combination with the forked lever or shifter D, gives a continuous back and forward traverse to the grinder, and serves also as a shaft for it to hang or move upon while grinding the cards.

No. 10,644.—Welcome Sprague.—*Improvement in Seed-Planters.*—Patented March 14, 1854.

The improvement refers to planters in which the conveyance and deposite of seed in the earth is effected by the rolling of a wheel on the ground. It consists of a hub C, containing the seed in its chamber *c*, from which it is distributed as the wheel proceeds, through two oppoposite tubular radii E E, and forced out by a piston G in each cup, the piston being worked by cams *e*, in a chamber H of hub C.

Claim.—Combination of the hollow grain reservoir C with tubes E F, and piston G, operated by the cam grooves *e*, or equivalents, on the diaphragm H.

No. 10,645.—James H. Swett.—*Hanging the Griping Jaws of Spike Machines in Weighted Levers.*—Patented March 14, 1854.

The fulcrum of the griping jaw is at *c* (see fig.), and that of their levers at E. The levers are provided with weights F to prevent the griping jaw from yielding in the least, until it is prevented from making its usual vibration by the failure of the delivery apparatus to throw out the finished spike before the blank comes into the dies, which accident, with the great rapidity of the working of the machine, will happen occasionally.

The *claim* allowed in the case is, the hanging of the griping jaws B in weighted levers D, or their equivalents, so that when two spikes, or a spike and a blank, come in between the griping jaws at one time, the said jaw may rise and yield to the excess of metal between the dies, and prevent the breaking of any of the parts.

No. 10,646.—Philander Shaw.—*Improvement in Rotary Cultivators.*—Patented March 14, 1854.

The invention is confined to the arrangement and operation of the teeth D in the rotating cylinder C, to be set in motion by steam or otherwise, by crank and belt, or chain I. The teeth are jointed, and have a certain range of motion confined by studs N, and stops *g* and *h*. As they come around on the periphery of the cylinder, they strike vertically into the ground by virtue of the points gravitating thereto, and at the same moment meet the stops, so that as the rotation of the cylinder C proceeds, they rake through and loosen the ground.

Claim.—The described method of hanging and operating the spades D D, they being applied in one or more vibrating sets to a rotary frame C, each spade being hinged to the frame and made to turn through the sector of a circle, and provided with stops *g h*, and a stud N, to act against a stationary cam O, as described; the whole being applied together, and to a carriage or frame A, and made to operate so as not only to dig into and raise earth, but to perform the office of impelling along on the ground the whole machine substantially as specified.

No. 10,647.—Abijah Taylor.—*Improvement in Steam-Engine Faucet Valves.*—Patented March 14, 1854.

Two cylinders, the pistons of which are connected together, have a rotating valve, common to both, for the ingress and egress of steam; the valve having a diagonal partition, which forms the ways, and being connected with the balance-wheel so that each shall rise when there is an excess of steam in the boiler and allow it to blow off.

The *claim* is to the rotating valve E, so constructed, adapted, and arranged, as to perform the functions of a regulating, safety, and pressure valve.

No. 10,648.—Mansel Blake, assignor to Blake, McAllister, and Blake.—*Improvement in Folding-Blinds.*—Patented March 14, 1854.

Claim.—The arrangement of a series of slats *f f* on one set, *a a*, of the parallel bars of a folding-frame of parallel and crossed bars *a a*, *b b*, so that the slats shall not only extend from end to end of their several bars, but be made to overlap one another, and thereby in connection with the folding-frame form a folding-blind or shutter.

No. 10,649.—Westel S. Daniels.—*Improvement in Obstetrical Supporters.*—Patented March 14, 1854.

The invention consists in the use of a loop or ring D, like a martingale ring, in the harness part of the apparatus.

Claim.—Extending the thigh straps A across the top of the knees, and arranging them to run through rings D, or their equivalents, where they are connected with the knee and feet straps F and E, so that they may be seized by the hands of the user and drawn up to increase, or slackened to graduate, the pressure of the back pad B against the back, as desired, without changing the position of the body, legs, or feet, substantially as described.

No. 10,650.—Lewis Fagin.—*Smut Machine.*—Patented March 14, 1854.

The machine is constructed of a double vertical cone base, N, T, P, M, for the beating part, the upper apex expanding into a smaller cone H, but more elongated, and this opening into a cheese-formed blower, I C, on the same shaft A which carries the beater N P. The grain is fed at the top at F, and in descending the throat G, made adjustable by means of screw S, it is winnowed first through the action of the beating-fan P; falling then between the beaters N and K, it is kept rolling in a vertical position with such rapidity that each grain scours the other; which operation is repeated over and over by the action of the draught produced by the fans P and C, which carries the grain over the collar K, and guides K^1 K^2 back again between the beaters, until it passes between P M, to its final delivery. The dust, as soon as detached from the grain, is blown off through the openings in beater K L, the concentric throats, and the fan-case C.

Claims.—1st. The method of arranging a blowing apparatus, where the upper or suction fan C takes the air at the centre, and discharges on the periphery, to precede, on the same shaft A, a scouring mill for the purpose of taking from grain the smut, chaff, &c., before the scouring process is commenced, and afterwards thoroughly scour the same; thus constituting the cleansing and scouring process, the duty of a single machine, substantially as described.

2d. Cylinder D, hopper F, and feed-pipe G, or their equivalents.

3d. Collar K.

4th. Guides K^1 K^2, as arranged, and for the purposes described.

5th. The scouring cones N, O, K, L, M, severally and collectively, with their circular and horizontal grooves, and perforated terraces, or their equivalents, and in combination with the conical fan and beater P, substantially as described, and for the purposes enumerated.

No. 10,651.—ALPHEUS KIMBALL.—*Improvement in securing Window Sashes.*—Patented March 14, 1854.

The window strips are let into their places by means of the mortises *b b*, at the top and bottom; this, by itself, is disclaimed. They are secured in their places by the pressure of the thumb-screw, which at the same time furnishes the means for holding and tightening the sash.

Claim—Confining window-sashes by means of strips, which are raised into deep mortises in the top of the frame a sufficient distance to enable them to be dropped into shallow mortises at the bottom of the frame, the strips being held against the sashes by the pressure of a screw, or other analogous device, in the manner described.

Also, the method of securing and tightening the sashes by means of pressure upon the exterior of the sash-strip, whether it be produced by a screw, in the manner described, or by any other analogous device.

No. 10,652.—DANIEL S. MIDDLEKAUF.—*Improvement in Grain Harvesters.*—Patented March 14, 1854.

The improvements refer—

1st. To the cutting device, which consists of a series of horizontal mutually-lapping cutting disks B B, the edges of which, passing by each other during their revolution, are to form a continuous cutting edge.

2d. To the device of delivering the grain from the platform, which consists of the combination of an oblique reel J with a horizontal reel G, in such manner that the arms *a* of reel G sustain the wings of reel J, and collect the cut grain as it falls against them, until projection N, on driving-wheel K, causing reel G to revolve, relieves reel J, and permits the gathered grain to drop from the platform by its own weight. The catch *b* interrupts the revolution, thus causing reels J and G to stop for the gathering of the successive sheaves.

Claims.—1st. The rotary cutters B B; and, second, the described combination of reels J and G, spring-catch *b*, and projection N.

No. 10,653.—SIMON PETTES.—*Improvement in Machines for Drilling Stone.*—Patented March 14, 1854.

In this machine the drill-stock S is lifted by three wipers, M, on the shaft N, taking under a disk, I, attached to the drill-stock; the grooves on the under side of the disk, and into which the wipers work, being made slightly spiral in form, so as to rotate the drill. In these respects the machinery resembles some of those which have preceded it. The frame-work of the machinery slides freely on the ways A, and is sustained by a rope on the windlass D, passing over a pulley over the top of the ways, and attached to the frame of the machine below, which frame also carries the windlass. The descent of the machine is prevented by a pawl, G, taking into a rachet-wheel E, on the shaft of the windlass. As fast, however, as the drill cuts into the stone, the disk I, at the end of its blows, comes in contact with the pawl G, and releases the ratchet-wheel, and allows the machine to descend a little.

Claim.—So placing on the sliding frame *c c* the windlass D, with ratchet E, whose pawl is acted on by the drill-head I at each descent thereof, and thus feeds the entire mechanism as the work proceeds, substantially as set forth in the foregoing specifications. Fig. 2 represents a section of the machine, the drill-head being in an elevated position. Fig. 3 is a bottom view of the drill-head.

No. 10,654.—JONATHAN BURRAGE.—*Process for Making Varnish.*—Patented March 14, 1854.

The invention and claim consist in the following process, viz: 200 pounds of crude turpentine, exposed to the air till it becomes hard, are mixed with 18 gallons of spirits of turpentine, and dissolved by heat. Having strained the solution, to each 100 gallons 6 pounds of sulphate of zinc are to be added; and after well mixing the mass, the whole is to be exposed to sunlight for from seven to ten days, until in the upper part of the vessel it becomes white, or a pale straw-color, when the varnish may be drawn off by a syphon.

No. 10,655.—J GRAHAM MACFARLANE.—*Improvement in Seed-Planters.* Patented March 14, 1854.

The improvement consists in oscillating seed-slide B B, by means of spring C, one way, and of cams I I and lever D the other way; and at the same time cleaning, by means of scraper J, participating in this movement, the V-shaped groove of wheel G. Scraper K prevents by its weight the transfer of more grain from the hopper into the seed-tube H.

The claim is restricted to the combination of the action of levers B D, cams I, springs C, and weight of scraper J, to clean the wheel G.

No. 10,656.—Victor Beaumont.—*Improved Machine for Distributing Types.*—Patented March 21, 1854.

On a horizontal table, figures 1 and 2, a disk J is made to revolve with an eccentric motion, shown by dotted lines W. A ring K supports the distributing channels between the parts S and T, made to receive the mixed type; and as the disk revolves, the openings suited to the size of the type, when presented to the distributors, are made to receive the type by the action of the springs *l* and slides I, &c.

No. 10,657.—Henry Green.—*Improvement in Grain and Grass Harvesters.*—Patented March 21, 1854.

Improvements and claims consist in—

1st. The V-shaped space or zigzag of the rear of the sickle teeth *o*, or the equivalent thereof, the angles of which press the substances back which collect upon the fingers *m m m*, and prevent them from clogging the sickle.

2d. Extending the rear ends of the sickle-teeth *o* back behind the sickle-bar *n*, whether made as represented in the drawing or broader, or extended back to a point; also sharpening said rear ends so as to cut off any stalks, grass, &c., which may collect upon the fingers *m* between the sickle and the stock B.

3d. Terminating the sickle-stock B at the inside of the rail A, and fastening them together, thereby permitting the sickle and stock to travel near the ground and parallel with it, while the rear of the carriage is carried so high as to clear the grass or grain cut at the previous swath.

No. 10,658.—Ralph Bulkley.—*Compounds for Extinguishing Fire.*—Patented March 21, 1854.

A mixture of sulphur, nitre, and vegetable matter, as saw-dust, tow, &c., is inserted into a tubular fixture *g*, which is placed in an aperture A, provided in the burning object. On applying a match at K, the dense smoke evolved by the ignition of the mixture is intended to absorb the oxygen, thus rendering the spreading of the fire impossible.

Claim.—The application to ships and buildings of a composition of fossil and vegetable substances which will transmute by the action of fire in close places, and produce a predominant smoke that will extinguish common fire, as herein described, using for that purpose the aforesaid compound, or any other substantially the same, and which will produce the intended effect.

No. 10,659.—Daniel Moore, assignor to G. S. Cameron.—*Improvement in Machines for Rubbing Type.*—Patented March 21, 1854.

The invention consists in the use of a supply-plate *n*, from which the type are thrown by centrifugal force through a gutter or trough 15, into a conducting plate, that, by an elastic roller, supplies the type to a series of rotary fingers that carry the types first over a stone, or similar rough surface, that takes off any small burs or feather-edges, which, getting into the cutters, might cause the type to deviate from its course. Next, the type is carried through between a series of two or more cutters, that successively shave the sides of the type; and the type passes finally between brushes, which clean or remove from the type the fibres or shavings of metal which have been cut from the type, and leave it ready for use.

Claims—1st. The centrifugal supply-plate *h*, combined with the conducting-plate *o*, by means of the channel 15, to pass the type.

2d. The elastic roller *e*, moved by the pinion 24, and spur-wheel *q*, to separate the type.

3d. The stones *t* and *v*, or similar cutting surfaces, to operate first on the type.

4th. Two or more pairs of cutters, the lower ones being connected by the bridges 29, to remove the projections and rub the type.

5th. The brushes X and X^1, to clean the type prior to delivery from the machine.

6th. The means of changing the figures by a ring *s* and screw-nut for changing a whole set of the fingers 26, according to the thickness of the type to be rubbed.

No. 10,660.—F. C. Goffin, assignor to A. B. Ely.—*Improvement in Safe-Locks.*—Patented March 21, 1854.

The object of this invention is to construct the parts of the locks so that their relative positions cannot be ascertained from without.

The invention, as claimed, consists in an arrangement of sectors I I, part toothed—the interior ones—and part with plain surface, the outer ones, the last being of greater radius than the inner.

In the arrangement of two levers VI and V (one with a lip) called slot-holder and notch-holder, with the sectors; under which arrangement the toothed lever only engages in the slots of tooth-sectors.

In the arrangement of the levers (they being back of the sectors) and sectors in relation to the keyhole I, the expectation being that by this arrangement the levers cannot be reached with lock-picks.

No. 10,661.—Obadiah Marland.—*Improvement in Iron Safes.*—Dated March 21, 1854.

This invention consists in making the interior of fire-proof safes more secure against the action of fire than heretofore, by dispensing with the use of metal in parts where its presence is not required, and substituting instead a combination-lining of soapstone, or other non-conducting material.

In the accompanying drawing, *i* is the back-board, connected with the lining of the door by means of wooden pins in the lining, which are inserted into corresponding holes in the back-board; *b* is the lining, made of soapstone or other non-conducting material.

Claim.—The combination of a lining of soapstone, or other suitable material, with the internal protecting plate on the inner surface of the door, where the said lining is constructed in the manner described, so as to dispense with any metallic connexion between the outer metallic casing and the internal surface of the door, whereby the heat of conduction passing from the outer to the inner surface of the safe is avoided.

No. 10,662.—R. P. Benton.—*Spoke Machine.*—Patented March 21, 1854.

This machine dresses one side of the spoke at one operation; and by repeating the same the other side is dressed. The patentee only claims the combined devices and movements of the same to finish one half of the spoke at each operation.

The cutter-heads I J, upon a hollow shaft G, being driven by a band and drum L, are caused to advance towards each other by means of the vibrating lever *z*, which is suitably moved for that purpose, as the carriage M passes by the lever Y, which is actuated by the groove *c* in the carriage M.

The cutter-heads J I are connected to the shaft Q, working through the hollow shaft G, and slide to and from the spoke as the carriage passes, as before described. The claim is to the arrangement of the devices mentioned, to effect the result.

No. 10,663.—Jeremy W. Bliss.—*Improvement in Lifting-jacks.*—Patented March 21, 1854.

In the main stock of the jack slides a lifter *b*, filled with cells or perforations, into one of which is inserted a bolt or key *c* just beneath the axle-tree of the carriage. The slide is then raised by a pair of toothed cams A B, operated by a lever *a*. These toothed cams are provided with flattened surfaces *e e*, and a projection *s* at their extremities, which at the end of the lift afford bearings upon both sides of the centres of motion of the cams, affording a permanent support to the load in that position.

Claim.—The combination of the toothed cams A and B with the lifting-frame or slide *c*, arranged and operating together as and for the purposes set forth, when the said cams are so constructed at their finishing extremities *e* as to form a bearing surface on either side of the centres of the axis of the cams, whereby the jack is made self-setting, and is restrained from flying from its set, as specified.

No. 10,664.—Charles T. Appleton.—*Improved Dyeing Process.*—Patented March 21, 1854.

The improvement consists in rotating the rollers a^1 a^2 *b b* of a dyeing vat A, alternately in opposite directions, by suitable gearings E p^1 g^1 m^2 m^3, calculated to carry the cloth wound round said rolle s only a few feet in each direction several times in each minute, thus

enabling the dyer to withdraw the fabric from the liquor at the very moment the exact shade of color is obtained.

Claim.—Communicating to the goods, while in the vat, a reciprocating motion back and forth of at least double the distance from the upper rollers to the surface of the liquor, so as to insure the immersion of the whole material once for each vibration, by which means the whole of the fabric can be given any required number of dips, and the operation interrupted at the instant the desired shade is obtained.

No. 10,665.—A. C. Carey and J. Smith.—*Hydraulic Engine.*—Patented March 21, 1854.

Claim.—The peculiar arrangement of the valves C C^1, and piston-heads D D^1, as herein shown and described, viz: The piston-heads being movable, or hung upon centres, and opened and closed by means of rods F F, and acted upon by pins or studs G G at each end of the strokes of the piston, the valves C C^1 being opened and closed alternately by means of the pins L L^1 on the crank-shaft K, acting against the arms *j* *j* j^1 j^1; by which arrangement the water is permitted to act not only alternately upon the pistons, but also allowed to escape from the trunks or cylinders when the water has forced them along within the trunks or cylinders the required distance or length of stroke.

No. 10,666.—Dexter H. Chamberlain.—*Improvement in Screw Wrench.*—Patented March 21, 1854.

The improvement consists in dividing into two parts longitudinally, or splitting, the bar of the wrench *a b;* the fixed jaw A, as is usual, being firmly attached to the end of the bar, and the movable jaw B held at the position desired by a conical screw-head E, fitting in between the bars or into the split.

No. 10,667.—Thomas Carpenter.—*Improvement in Concaves of Clover Hullers.*—Patented March 21, 1854.

The novelty consists in covering the concave I, of clover hullers, with card-teeth. The claim is restricted to the manner of threshing or cleaning the hull from the berry of clover-seed, by passing the seed between two cards, one being attached to the surface of a cylinder H, and the other to a concave surface I, so that the wires of the cards are in contact, the cylinder being revolved while the concave is stationary; the whole constructed substantially as described.

No. 10,668.—C. H. Fond and T. B. Lyons.—*Improvement in Dredging Machines.*—Patented March 21, 1854.

The levers *r s*, or a cam attached to the small wheel, elevates the tipper S, so as to discharge the load, clear it from the buckets, and return it to its place.

The wheel with buckets across its periphery, and the means of revolving, of elevating, and depressing, are disclaimed.

Claim.—A tilting tipper applied to a dredging machine; said tipper dropping within the outer circumference of said wheel, so as to be in a position to receive the mud discharged from the buckets as herein set forth.

Also, the arrangement for causing the tipper to tilt out of the way, for the full bucket to pass and return again to its position to receive the mud discharged, and for keeping the tipper in gear with the wheel, so that it will always perform its duties notwithstanding the difference in their relative position when raising and lowering the wheel.

Further, the combination of the latch or dog L with the ledge of the bed-plate *m* of the bucket, by means of which the bucket is adjusted and held firm while digging and raising the earth.

No. 10,669.—J. L. GARLINGTON.—*Grain Thresher.*—Patented March 21, 1854.

The machine consists of a disk G, having two series of beaters E and *d*, corresponding to beaters D and C on the concave J, in which it revolves. Said disk runs on a horizontal axis H, with the capability to slip, one end of the axis resting against a spring I, yielding whenever too much resistance is found in the grain fed in at B.

Claim.—The employment of a vertical, revolving, adjustable, and springing disk G, made elastic by means of a spring I, bearing against the end of its shaft H, and adjustable by set-screws *b b*, which pass through the ends of the springs and throw it into action to a greater or less extent; and having a series of beaters E, set tangentially to it axis around its face, and another series *d d* placed radially round its periphery, in combination with a stationary concave J, having a series of stationary strippers D, arranged tangentially to the axis H of the revolving disk, on the inner face of one of its sides, directly under the passage B, where the grain is fed in; and another series of stationary strippers *c c* placed radially for a short distance round its inner periphery F; arranged as described, and for the purposes specified.

No. 10,670.—CHARLES W. HAWKES.—*Improved Nippers for Printing Presses.*—Patented March 21, 1854.

The object of this invention is to remove the sheet from the form after the impression has been given to it. In the operation the platen B is in its lowest position when the paper is laid on, as represented in the figure; then, as the power is applied to the crank L, the platen is made to swing up and carry the paper with it. Just before the platen gets to the form, it strikes the nippers *i* on the plate *a*, and carries them up with it to the form *o*, where the impression is given. One nipper, by the action of the spiral spring *e*, holds the margin of the paper to the platen, while the other grips it between the nipper and the grip-springs. In this position the paper is firmly held while the platen swings down, the force of the spiral springs *e* compelling the nippers to follow the

platen in its downward motion, until the paper is entirely free from the form. The nippers then stop, and the platen, leaving them, falls to its lowest position, again to receive another sheet.

No. 10,671.—PHILIP H. KELLS.—*Improvement in Harvesters.*—Patented March 21, 1854.

The principal feature of the invention consists in placing the cutters *m m* far forward on the frame, and sustaining them in their relative positions in travelling over uneven ground, by means of a small pivoted guiding castor-wheel E, forward of the driving-wheel, and on the gearing end of the cutter-bar H.

Claim.—Laying the cutter-bar *n*, which carries the cutting-teeth *m m*, ranging with the guide-roller E, and perpendicular to its side face, when the axis of said roller is parallel to the axis of the driving-wheel, for causing the cutter-bar to conform to the surface of the ground passed over, and for the prevention of accidents to the cutting-teeth, as herein fully set forth, said bar being on the gearing side of the machine.

No. 10,672.—JORDAN L. MOTT.—*Improvement in Railroad-car Wheels.* Patented March 21, 1854.

The patentee does not claim wheels with two plates, connecting-hub, and rim, nor merely wheels with two hubs.

Claim.—Making railroad-car wheels with the outer face of any of the usual forms, in combination with the inner plate, of a conical or nearly conical form, connected with the axle towards the middle of its length, to brace the rim of the wheel to resist lateral thrusts, and greatly reducing the liability, if not entirely avoiding the breaking or bending of the axle.

No. 10,673.—AMBROSE NICHOLSON.—*Shutter-fastening Hinge.*—Patented March 21, 1854.

The invention consists in the excentric extension a^1 and recess E of the plate A, in combination with the pin c^1 of the plate C, by which, in connexion with the elongated eye b^1 and cylindrical pin d^1, the operator is enabled to move the shutter, and catch it or release it, without giving it any upward or downward motion.

No. 10,674.—J. G. SHANDS.—*Improvement in Machines for Dressing Mill-stones.*—Patented March 21, 1854.

The wiper-wheel H, which operates the cutter-stock D, is hung in a tilting-frame and lever E, and has motion communicated to it by the toothed wheels I and J, the axis of the latter of which is the centre of motion of the tilting-frame. The raising and lowering of the wiper-wheel H, by means of the lever E, held by the pawl R and ratchet S, is a ready way of graduating the force of the blow given by the cutter.

Claim.—Placing the wiper-wheel H, which operates the arbor D and pick D[1], on swinging frame E, as herein shown and described, by which a greater or less length of vibration may be given to the arbor D, and the pick be made to act with a corresponding degree of force upon the stone.

No. 10,675.—C. V. AMENT.—*Hen's Nest.*—Patented March 21, 1854.

The device consists in placing underneath a nest, B, of ordinary form, a cushioned chamber F, the lower portion of the upper part having an opening *b*, to discharge the eggs through valves E E, which close as soon as the egg has passed.

Claim.—Constructing a hen's nest with two peculiarly arranged chambers A F, which communicate with each other through a hole *b*, in the centre of the nest, and self-adjusting false bottom E under the same, the upper chamber B being provided with a suitable nest, and a number of false eggs for the hen to sit upon, and the lower one, F, provided with a soft cushioned surface for the eggs to fall upon, which is made of such shape that the real eggs, as they escape through the false bottom, are caused to roll gradually towards the edge of the bottom, and remain there until removed, the whole being arranged in the manner and for the purposes herein set forth.

No. 10,676.—DAVID A. MORRIS.—*Improvement in Anti-friction Boxes.* Patented March 21, 1854.

Friction-rollers made to revolve simultaneously by means of an endless chain passing over teeth on each roller.

The use of spur-gear teeth for this purpose is disclaimed, as covered by the patent of J. Harris, jr., February 22, 1848.

Claim.—Furnishing the series of friction-rollers at one or both ends, or at any part of their length, with a series of toothed-wheels D, one for each, and an endless chain *d*.

No. 10,677.—CHARLES T. APPLETON.—*Dyeing Apparatus.*—Patented March 21, 1854.

The invention consists in forcing the dyeing liquid through the holes *a* of a hollow perforated cylinder H, passing at the same time the goods to be dyed over the surface of said cylinder, thus causing fine streams of dyeing liquid to force out the globules of air contained in the pores of the cloth, and taking their place to dye the cloth.

The liquid may be forced into the cylinder by a force-pump P, or by its own weight, being placed in an elevated trough D. The goods are passed lightly over cylinders H, by means of additional rollers, M, O, L.

Claim.—The combination of the perforated cylinder H, constructed as described, with the force-pump P, or its equivalent, operating substantially as set forth.

No. 10,678.—D. A. CAMERON.—*Method of adjusting the Tension on Belt-Saws.*—Patented March 21, 1854.

This is merely hanging the upper carrying pulley D in the block W, which is free to slide up and down, and is so connected with the lever L, that by weighting L more or less, the saw is more or less tightened or relaxed. A sliding collar on drum D, provided with adjusting screws, serves to bring the saw forward, and to make it project beyond the edge of the drum.

The circumference of the drum is provided with conical pins to catch into holes in the belt-saw.

No. 10,679.—THOMAS DAUGHERTY.—*Improvement in Shoe-Lasts.*—Patented March 21, 1854.

This last consists of a hollow metallic body furnished with a wooden sole E, screwed to its bottom, the wood being so cut as to present the end of the grain to the pegging awl. The shank of the last is armed with lead or other soft metal J, to prevent the dulling of the shoe-knife against the harder metal.

Claim.—The mere construction of a last of wood and metal is not claimed; but the construction of a last consisting of a metallic shell or casing enclosing wood placed end-wise upon the sole, and having soft metal pieces J J upon the sides of the last, for the purposes set forth.

No. 10,680.—G. W. LIVERMORE.—*Barrel Machinery.*—Patented March 21, 1854.

The blank strips are passed through a double series of rollers B D, and C; one set being toothed or serrated, the other set concave pressure-rollers. This forms and finishes the two surfaces of the stave. It is then clamped, or any number of them, to a carriage I, to be jointed and cut to proper lengths. As this part of the machine is a "Daniel's planer," except the saw N, which cuts them to a length, no further description is necessary.

The *claim* covers the mode of dressing the two surfaces of the stave, and the peculiar construction of the carriage I, in combination with its well known parts.

No. 10,681.—SAMUEL MCKENNA.—*Portable Punch for Railway Bars.* Patented March 21, 1854.

This is an improved hand-punch for punching the notches required in the flanges of rails near their extremities to secure them to the railroad chairs.

Claim.—The arrangement of the tongue A, connected jaws C C, stirrups S, punches O O, dies, levers, and excentric B.

No. 10,682.—David and Herman Wolf.—*Improvement in Seed Planters.*—Patented March 21, 1854.

The improvement consists in the construction of the under surface of seed distributing disks, which were usually made plain all over heretofore, furrowed obliquely in the part near the border, and having the seed apertures in every other furrow as represented in the drawing, and intended to conduct off all dirt, chaff, crushed grain &c., which otherwise would lodge between said disks and the stationary part of the hopper.

The claim is restricted to the combination of annular revolving perforated plates *e*, with curved grooves on the under side thereof, substantially in the manner and for the purposes described.

No. 10,683.—Alexander Wilbur.—*Improvement in Machines for Jointing Staves.*—Patented March 21, 1854.

The operation of this machine is thus—

The stave to be jointed is placed under and against the lip *e* and shoulder *d*, and the operator, by his hand, presses the swinging-frame F, and stave in it, towards the jointing-wheel B. As the edge is cut away, and the swinging-frame continues to descend, the rod *f*, in the inclined staples *g*, draws back the swinging-frame; the slot *c* admitting the axis *a*, of the said frame, to move back in the plane of the wheel, thus constantly changing the point of action on the concave, so that whether the stave be wide or narrow, it has its requisite bilge without any loss of material.

Claim.—So hanging the swinging-frame F, which feeds up the stave to the jointing-wheel B, that staves of variable widths may be dressed with the bilge necessary for such widths.

Also, in combination with the swinging frame F, the guides *j j*, which move with it for the purpose of firmly holding the stave to the jointing-wheel or cutters, substantially as described.

The engraving presents a side elevation of the machine.

No. 10,684.—Alexander Wilbur.—*Improvement in Crozing Machines.* Patented March, 1854.

The barrel, after being set up, is firmly clamped in the rings F F^1; the levers N are then drawn towards each other, which drives up the cutter-wheels into the ends of the barrel. By its rapid rotation, each dresses one of the ends, and does the chamfering. The levers L are now drawn towards each other, which throws out the crozing tools *b b*, which finishes the dressing. The levers are then turned back, and the base B^1 run back, when the barrel is released and the machine is ready to receive another barrel. The rotation of the cutter-wheels is constant, and does not interfere with the removal or replacing of the barrel, and much time is consequently saved.

Claim.—So combining the crozing tool with the cutter-head as that said crozing tool may be thrown into or out of operation, whilst the cutter-head continues its rotation by means of the centre pin, or its equivalent, substantially as described.

No. 10,685.—Heman Gardiner—*Improvement in Quartz Crushers.*—Patented March 21, 1854. Patented in England July 5, 1853.

The ends of the fork E, which hold the axis of the crushing ball, move on the reversed and inclined guides I^1 I^2.

Claim.—The crusher-trough B, having on each side-rail reversed inclined planes I^1 I^2, for the purpose of giving the ball, as it is propelled backwards and forwards in the trough, a twisting motion.

No. 10,686.—Jeremiah W. Brown, assignor to Samuel M. Folsom.—*Rotary Smoothing-Iron.*—Patented March 21, 1854.

This is a hollow smoothing-iron, having two smooth faces, A and C, and hangs in its handles or journals so that it can be turned over and either face brought downwards at pleasure; and while the ironing is being done with the under face, the reheating of the upper face may be going on by the flame of a lamp within, as shown in the drawing.

Claim.—The revolving smoothing-iron, heated by means of a spirit or gas lamp internally, or its equivalents, in the manner and for the purpose substantially as herein set forth and described, the whole forming a combination for the purpose of economy in time and a saving of labor.

No. 10,687.—E. Valentine and A. Bradway.—*Stone Jointer.*—Patented March 28, 1854.

An endless belt passing round cylinders E, having on it a stop or catch *m*, forces the stone along a bed, on each side of which are fixed knives *d*, which joint the two edges.

The circular saws *i, l, e, f*, remove the superfluous material. The stone is kept to the knives by springs *c*, which also so press it as to cause its taper to be given as it passes through the pathway of the cutters.

The claim covers this arrangement of devices.

No. 10,688.—Elbridge Webber.—*Improvement in Ship Blocks.*—Patented March 28, 1854.

The improvement consists in making the shell *b c* of cast or wrought metal, and fitting therein the wooden cheeks *a a* and the shelves *f*, as one case fits into another.

No. 10,689.—Ellsworth D. S. Goodyear, assignor to The New York Rubber Company.—*Improvement in Processes for Treating India Rubber.*—Patented March 28, 1854.

The improvement refers to the manufacture of hollow articles from India rubber, and consists in filling such ware, as balls, &c., to a certain extent, with water, which being, during the process of vulcanization, converted into steam, exercises the necessary inside pressure to impart any desired pattern to the exterior face of the article.

Claim.—The introduction of water or any other liquid into the interior of articles which require expansive force for their perfect formation against the interior surface of moulds, said liquid to be converted into steam, substantially as, and for the purposes, specified. No illustration.

No. 10,690.—Robert H. Harrison, assignor to R. H. Harrison and John S. Gallaher.—*Improvement in Churns.*—Patented March 28, 1854.

This churn consists of a hollow metallic winged dasher E, revolving on a vertical axis, and which can be filled with water for regulating the temperature of the cream. Two stops *h h* are fixed to the interior of the churn-tub.

Claims.—1st. The construction of a churn-vessel with hollow or solid, double concave, adjustable, detachable side-gatherers *h h h h*, specifically as shown in the drawing.

2d. The construction of a churn reservoir dasher E, having curved or deflective radial chambers, of a concavo-convex form, *k k k k*, with direct radial wings or flanges *g g g g*, and the using the same combined with the double-concave gatherers *h h h h*.

3d. The double application of warm and cold water, or ice, in combination with the dasher E, and the double-concave gatherers *h h h h*, substantially as set forth.

The application of hot or cold water solely, in the process of butter-making, is not claimed, as the same have been employed separately or distinctly heretofore, as is well known.

No. 10,691.—A. J. Cook.—*Improvement in the Discharging Apparatus of Harvesters.*—Patented March 28, 1854.

The device consists in carrying the cut grain, by means of apron *i*, upon table *z*, and delivering it therefrom in parcels sufficient to form a sheaf upon the ground by means of a shovel *y*, set on arm *x*, which is fixed upon bar *w*, vibrated one way by arm *v*, and the other way by weight z^1.

Claim.—The combination of table *z* with arm *v*, at the end of reel *p* and apron *i*, for the purpose set forth.

No. 10,692.—H. G. Ellsworth.—*Improvement in Belt-clasps for Machinery.*—Patented March 28, 1854.

Claim.—The patentee does not limit himself to the special modes of construction of the plates described, as these may be varied within the range of his invention; but claims, as his invention, the method of uniting or splicing belts end to end by means of metal plates riveted or otherwise secured to the outer surface of and near the ends of the belt, and clasping or interlocking, in manner substantially described, and for the purposes specified.

No. 10,693.—Benjamin G. Fitzhugh.—*Grain-Harvester.*—Patented March 28, 1854.

The invention consists—

1st. In providing the fingers *h* of the cutting apparatus with a blade *y*, which being fastened on one side by a point fitting into the angle h^1 of the finger *h*, and on the other side by a screw, can readily be removed for sharpening or any other purpose.

2d. In the curved form of the cutting apparatus *h*, *g*, *y*, which not only affords a draw cut for the sickle *g*, but contributes to the efficacy of the further devices, viz:

3d. The curved beaters of reel *p*; and

4th. Revolving sweep-rake *i*, i^2.

Said devices are intended to have the grain laid on the platform *i*, with the stalks converging towards the axis i^2 of the rake, which latter, by its revolution, collects them and leaves them on the ground as a sheaf in the most favorable condition for binding.

Claims.—1st. The removable blade *y*, in the fingers *h*, arranged and secured in place in the manner and for the purposes set forth.

2d. Combination of a curved reciprocating knife *g*, with a curved row of fingers *h*, and a curved platform *c*, as described.

3d. Constructing the reel *p* with curved beaters, in the manner and for the purposes set forth.

4th. The combination of a continuously revolving sweep-rake *i* i^2 with a revolving reel *p*, which disposes the grain upon the platform, substantially as set forth.

No. 10,694.—Luther B. Fisher.—*Seed-Planter.*—Patented March 28, 1854.

This is a seed-planter in the form of a triangular harrow on three wheels, F D D, with seed reservoirs cut in the side timbers, and a continuous seed-valve plate *y* y^1 running through the whole of each timber, the latter being provided with seed apertures *m m*, and reciprocated by rods *i i*, set in motion by hook *h* of the plate *f*, a recess of which plays into the cam G of wheel F. The front wheel F is connected to the main frame of the machine by bridle C and pin *d*, set loosely in its lower part; which contrivance permits its being drawn back or forth by the action of lever Q and bar *p*, for the purpose of lifting the point of connection, and thus lifting the drill-tubes F whenever desirable. The said pin *d* and bridle C serve also the purpose of interrupting the action of cam G upon rods *i*, and, consequently, upon the seed-valve plates *y* y^1 during the time of turning the machine, by the simple fact of the position of bridle or beam C at right-angles to the hook *h* during this time.

Claims.—Are restricted to—

1st. The combination of the rod *p*, lever Q, clevis C, and pin *d*, when the latter is movable in a longitudinal slot for raising the teeth T from the ground, as herein fully set forth; and,

2d. The attachment of the rods *i* i^1 operating the slides *y* y^1 to the

hook *h*, as described, so that the slides will remain at rest during the turning of the implements, as herein fully set forth.

No. 10,695.—Beniah Fitts.—*Steam-boiler Feeder.*—Patented March 28, 1854.

This improvement consists in the arrangement of a water reservoir E, two steam and water chambers A N, with chains around them, a faucet cock or valve H, which is opened and shut alternately by the expansion and contraction of the chains, as steam is admitted into one of the chambers, and cold water into the other, and *vice versa*.

No. 10,696.—Richard Jones.—*Improvement in making Zinc White.*—Patented March 28, 1854.

The point of novelty consists in forcing a blast out of the retort-exit C, and in the zig-zag constructed condensing tubes F F.

Claims.—1st. The method of cooling, conveying, and oxydizing the vapor of zinc by means of a jet of air introduced into a closed retort A, substantially as described in the specification.

2d. Constructing the conduit pipes F F, so that every portion of them shall be inclined in such manner as to prevent the accumulation of matter to clog them, and to direct the current of vapor downwards on entering the condensing chambers E E; the conduits thus constructed and operated being arranged over the collecting or condensing chambers, substantially as described.

No. 10,697.—Seymour Ketchum.—*Smut-Machine.*—Patented March 28, 1854.

This machine consists of a terraced cam *i*, vertical cylinder B, with the concave A, constructed of loose staves *m m*, capable of adjustment, so as to increase or diminish the openings *o* at will of the operator. The staves have on their inner face longitudinal steps *s s*^{1}, inclining outwards, backwardly in relation to the travel of the runner B, whereby the openings *o* may be larger than the wheat, and still retain the latter.

Claim.—The concave A, constructed, as described, of loose staves *m m*, so fitted to or connected with the heads *n n* of the concave, as to be capable of circular adjustment with facility and despatch, substantially as specified, for the purpose of varying the number and widths of the escape openings between the staves, the said staves being formed on their inner face with a longitudinal step or steps *s s*^{1}, as described, whereby the width of the openings between the staves may be made larger, so as to form a ready escape for the smut and dust, and other extraneous matter, without letting out the grains of wheat there through, and whereby the clogging of the escape openings by damp smut is avoided, essentially as herein set forth.

No. 10,968.—C. P. Bailey.—*Portable Head-rests for Chairs.*—Patented March 28, 1854.

This head-rest consists of a light lath *a*, having at its upper extremity a pair of jointed arms *b b*, that carry a strap *d*, to support the head; and at the lower extremity another pair of arms *e e*, with a strap *f*, arranged to act upon the back of the sitter, as shown in the drawings.

Claim.—The apparatus above described, consisting of a back plate with arms for supporting the band or cushion upon which the head rests, the whole being sustained by the hips, which hold it in place, at all times disconnected with the back of the seat, but resting against or upon it, so as to be at once taken away without injury to the seat, and folded up in a portable form—the whole being constructed and arranged substantially in the manner and for the purpose described.

No. 10,699.—Anson Balding.—*Improvement in Sub-marine Scoops.*—Patented March 28, 1854.

An ordinary scoop is attached to the sled B B. The drawing represents it in condition for excavating; when full, and required to be drawn over the bottom, the cord is pulled, which causes the levers E E to open the springs C, and release the catches *d*, when the scoop falls upon its bottom.

Claim.—The combination of the scoop and sled as described, for the purposes set forth.

No. 10,700.—Thomas W. Chatfield.—*Hot-air Furnaces.*—Patented March 28, 1854.

This invention consists of a furnace surrounded by an outer and inner wall. The ash-pit of the furnace is surrounded by a frustrum of a cone E, with which are connected rectangular passages D D, for the admission of cold air to be heated. The air passes up through the annular passage between the frustrum E and ash-pit, thence through apertures made in a series of radiators F G, above the fire-pot. These radiators F G are divided in their interior by plates with apertures for the passage of hot air and the products of combustion. The hot air is conveyed to the apartments to be heated in the usual manner.

No. 10,701.—Joseph Marks, assignor to William Whiting.—*Improvement in Machinery for operating Car-Brakes.*—Patented March 28, 1854. Patented in England November 23, 1852.

The object of this improvement is to give the engineer the control of all the brakes of a train, so that he may operate them either simultaneously or separately, and with speedy effect, the rubber blocks being closed by the action of springs.

The patentee does not claim any mode of forcing the brakes of one or more cars against their respective wheels by any mechanism brought into action by a power generated on an axle of the engine.

Owing to the space requisite for an intelligible exposition of the details of this somewhat complicated mechanism, only the claims can here be given.

Claims.—1st. The adjustable clip or clips *x*, in combination with the pawl-lever or levers, and the draught-rope *v v* thereof, and as applied and made to operate, substantially in the manner as specified.

2d. In combination with the cord extending from the locomotive to the brake-shaft *d d*, and the pulley *h*, the travelling nut *q*, screw *r*, stud *t*, and pins *s s*, in the manner and for the purpose substantially as specified.

3d. The combination of the lines and the mechanism for operating the same, as described, whereby the several brake-springs of a train of cars may be wound up simultaneously, or one or more of them at a time, as required, in combination with the line and the mechanism for operating the same, so that by adjustment of the spring clips the several brakes of the train may be either simultaneously, or one or more at a time, put in action to retard or arrest the motion of the cars.

4th. Finally, and generally, the combination of main-springs for pressing the brakes against the wheels, mechanism for winding up the springs so as to remove the pressure from the brakes, and to hold the springs in a state of tension ready to apply pressure on the brakes instantly on being released, and mechanism to release the springs and allow them to act, (both the mechanism for winding up, and that for releasing the springs, being so constructed and arranged that it can be operated on either the locomotive or on the separate cars,) and also capable of such adjustment that the brakes of all the cars can be either simultaneously or one or more at a time, and in any required order of succession, put in action. No illustration.

No. 10,702.—JOSEPH MARKS and JOHN HOWARTH, assignors to WILLIAM WHITING.—*Improvement in Machinery for operating Car-Brakes.*—Patented March 28, 1854.

A detailed description of this improvement would require much more space than can conveniently be allowed, and accordingly only the claims are presented.

Claims.—The improvement of so adjusting the relative lengths of the relieving branch lines of a train of two or more cars, by means of adjustable pulleys, and connecting these lines by a single main line, that all the relieving mechanisms of such train may be put in operation in such manner that the brakes of the several cars of the train may be either simultaneously or in succession thrown out of action on the wheels, or relieved of the pressure induced by the main-spring or springs, as hereinbefore specified. Heretofore, the main-spring coil, bar, or plate, has been constructed of metal, which, being necessarily of a high temper, in order to give it sufficient strength and prevent it from setting, is liable to break from a variety of causes—among others, sudden changes of temperature; and, when broken, the apparatus is entirely disabled, and the lives of those depending upon its efficiency thereby endangered. To such a spring as this no claim is made, neither

to a spring simply composed of two or more bars or plates of metal; but the combination and arrangement of a series of independent springs with the mechanism for applying the force produced by their tension to press the brake-rubbers upon the wheels; this mechanism being put in action either from the locomotive or from the separate cars by the engineer or other person having it in charge, or automatically, and with certainty and promptness to detached cars whenever one or more of them become detached from the train, either by design or accident, in such manner that each spring will act with its whole force independently of all the rest, so that, in case one or any number less than the whole of the springs shall break, the mechanism will not be thereby disabled, but merely rendered less efficient; and as even the minimum degree of efficiency thus left may be sufficient to prevent an accident to the one on which the apparatus is placed, and would in any case lessen the damage, if it did not prevent the accident, the safety of railway travelling is thereby increased.

Also, in combination with the main-spring shaft and the frame, the apparatus by which the power of the main-spring is prevented from acting too suddenly, or so as to rupture or injure the brake-chain, when the slack of it is taken up as stated; meaning also to claim the combination of parts or elements constituting such apparatus, the same consisting of the wheel f^1, the rubber g^1, the lever h^1, spring k^1, catch-lever l^1, slide n^2, with its stud p^1 o^1, spring q, and the tripping cam s^1, as hereinbefore specified.

Also, the mechanism for disengaging the retaining pawl of the ratchet—that is to say, the tubular-shaft or sleeve *n*, and its oblique end *q*, acting as a stop in combination with the windlass-shaft *o*, and its oblique end *p*, to act in connexion with the oblique end of the sleeve, so that, in case the shaft *o* should be turned back by the movement of the spring with too much force, its screw may not bind in the screw of the sleeve, and thus prevent the apparatus from working.

Also, the improvement of so combining the windlass-shaft c^1 with the fusees or apparatus by which it is put in rotation, that it may be disengaged therefrom in order to relieve the car-wheels from the pressure of the brakes without rendering it necessary to do so by rewinding the springs.

Also, the combination of the key or feather k^2 and the locking-arms s^1, or their equivalents, with the shafts *n* and z^1, the same being for the purpose hereinbefore specified.

Also, the improvement by which each windlass or pulley-shaft *o* or z^1, and its main line *y* or z^1, is connected, viz: by a branch line *y* or a^1, loose pulley, and friction-screw, or contrivance, as combined together, and with the main line and windlass-shafts, and made to operate in manner substantially as specified. No illustration.

No. 10,703.—JOHN ABSTERDAM and W. B. MERRILL, assignors to J. A. WOODBURY and W. B. MERRILL.—*Fixed Device for Tonguing, Grooving, and Tapering Boards.*—Patented March 28, 1854.

This invention consists in arranging devices to cause the rotary cutters *k k* to advance or recede so as to operate upon a tapering board.

The conical pulley *o*, driver *q*, and shaft *r*, which gears, by a bevel wheel, with a vertical shaft carrying a cog-wheel *v*, which gears and feeds by rack *w* the carriage *x*, carrying the oblique bar *z*, in the under side of which there is a groove *y*; an arm d^1, fast to the sliding cutter-head K, has a pin which fits in said groove.

The machine being put in motion, the cog-wheel *v* moves the rack *w*, and causes the oblique bar *z*, by means of its groove *y* and the pin on the arm d^1, to advance or withdraw the cutter-head according to taper of plank. It must be remarked that the bar *z* is adjustable, and its degree of obliquity is determined by the taper of plank. The screw e^1 sets this.

No. 10,704.—Richard D. Mott.—*Improvement in Stereotype Pans.*—Patented March 28, 1854.

The peculiarity of this improvement on stereotype pans consists in the substitution and use of the casting plate C, with its adjustable bevelled attachments D, D, D, having chisel-like cutting edges 1, 1, 1, 1, on their ends, for cutting and trimming the single-faced plaster moulds as they are forced between them, one plate only being used, but having both its sides fitted with the cutting-edged attachments, and the platen held down near the middle height of the pan in a horizontal position during the process of casting, thus securing a full and perfect face, and an even and regular back, to each stereotype plate; and whereby, also, greater facility is afforded both in casting and removing the stereotypes after the cast becomes cool.

No. 10,705.—N. G. Norcross.—*Method of Regulating Feed-motion to a gang of Saws.*—Patented March 28, 1854.

A drawing is unnecessary in this case. The claim is merely to a method of regulating the feed-motion for sawing-machines, and consists in placing a disk on the end of the shaft carrying the feeding cog-wheel, in such a position that another disk, adjustable on a shaft passing near the former disk, may be made to roll on the face of the former disk, at a greater or less distance from its periphery. This, of course, imparts to the shaft on which is the feeding disk any required differential velocity.

No. 10,706.—David B. Rogers.—*Machine for forming Cultivators' Teeth.*—Patented March 28, 1854.

One fixed die A, and one movable die D, a cutter E, passing through the upper part of the movable die. When the body of the tooth has been swaged and is held between the dies, the cutter is moved forward, and cuts off and gives form to the cutting edge of the tooth. The claim allowed is to the arrangement of the cutter and dies, whereby the cutting edge of the tooth is cut and formed by the cutter while the tooth is held between the dies.

No. 10,707.—William H. Seymour.—*Improvement in Harvesters.*—Patented March 28, 1854.

The improvement is confined to the devices for working the rake *c* on a segmental platform C, to accomplish the same purpose as that accomplished in a former patent by the same party, of July 8, 1851, without exposing the gearing to be clogged or obstructed by the entanglement of the grain crowding into it; and to the attachment of rake *e* to arm I, by means of screw *r* and joint *q p*, admitting of a secure fastening thereof at any desired elevation from the platform *b*.

Claims.—1st. The combination of the shaft E^1 for rotating the pinion F, the shaft I for turning and carrying the rake *e*, and connecting mechanism, constructed and arranged as described, whereby the rake is turned up and down and firmly held in either position in a simple and convenient manner, without producing an undue strain upon any part of the driving-gear.

2d. The adjustment of the rake at varying heights from the platform in its elevated and depressed pos tion, by means of the device herein described, or the equivalent thereo ; t e driving-gear being transferred from the outer rim of platform C to the outside of the inner rim thereof at B.

No. 10,708.—Joseph Smart.—*Pumps.*—Patented March 28, 1854.

The inner and outer cylinders B A are closed at the bottom; the induction pipe C connects with these cylinders through the pipe G to the inner, and through F to the outer. The inner cylinder being open at its top, the piston being put in motion, it thus operates:

On the upward stroke the water enters, by valve 1, the inner chamber through G; and is forced, on the downward stroke, valve 1 closing up, through valve 2, into discharging pipe H. On the descent of piston a partial vacuum is formed in both the outer and inner cylinder; and, as these connect through pipe F with induction pipe C, the water will flow into the outer chamber A, and on re-ascent of piston it will be forced back through F, up through valve 4, into discharge pipe H. The claim is to the mode of arranging the outer and inner cylinders, in connection with the valves, to effect this result.

No. 10,709.—H. C. Smith.—*Shingle Machine.*—Patented March 28, 1854.

The block is placed on shelf *x y*, and the frame K L caused to ascend; the knife *w* rives a shingle from the block during this ascent, and it drops, by its weight, into a proper receptacle, W, below. On the descent of the frame K L this shingle is driven between two knives *a b*, which are caused to gradually approach each other, giving the taper by springs *n m*, by means of a wedge attached to the descending frame.

No. 10,710.—T. G. Stagg.—*Machine for Tenoning and Wiring Blind-Slats.*—Patented March 28, 1854.

This machine tenons and wires blind-slats thus: The slat *p* being placed on rest G, the lever M being moved, causes the clamp H to seize and hold it, and at the same time causes the pricker L to pierce it for the eye. This movement of lever M also causes the two rotary cutters to advance, and, being in motion, cut the tenons. The cam J actuates all these at the same time, drawing the rotary cutters by rods *j j*, and operating the clamp H and pricker L, by impinging against two levers extending down from them. By moving lever M in the opposite direction, the slat is released and the machine relaxed, ready to receive another slat.

Claim.—The arrangement of the devices mentioned to effect the tenoning and pricking.

No. 10,711.—Jonathan G. Trotter.—*Furnace for Zinc-White.*—Patented March 28, 1854.

The furnace has three chambers—an upper, K, middle, H, and lower, L. The fire built at one end, B, delivers the lighter vapor into the upper, and the heavier into the middle chamber; the latter of which passes out at the chimney J, while the former, after traversing the length of the furnace, descends in two passages h^3 to the lower chamber, where, after having traversed twice the entire length, it enters the discharge-chimney M.

Claims.—1st. The combination and use of the upper and lower discharge or passage ways h^3 and g^2, from the fire-place B to the furnace H K—that is, the upper passage way g^2 for discharging or carrying off the lighter gases from the fire-place by the reverberatory flue K and the return flues L to the chimney M, and the lower passage-ways $h^3 h^3$ for discharging the flame from the fire-place direct upon the mass of ore on the bed H of the furnace, and thereby reducing or subliming it more effectually and with less consumption of fuel than ever before accomplished.

2d. The combination of the alternating series of bridges or brakes N N in the return flues L L^2, with the reverberatory flue K and double-arched conformation of the roof of the furnace, and the upper passage-way g^2 and the lower passage ways h^3 h^3 from the furnace, for the purpose of working zinc ores for making white oxide of zinc, substantially as herein set forth.

No. 10,712.—George Trott.—*Oil Cup for Steam-Engine.*—Patented March 28, 1854.

The cup A has an upper opening to the atmosphere, and a lower one to the steam-chest or cylinder, &c. Both openings are guarded by valves on the same stem C, a coiled spring *m* being around the stem, which keeps the upper valve in contact with the upper opening, except when it is forced down by the act of filling the cup. The lower opening is always open, except when the upper one is as above; and when the upper one is open, the lower one is closed.

Claim.—The arrangement of a double valve *a b* and the passages for feeding and discharging (*d*) the oil, in the manner and for the purpose described.

No. 10,713.—William Webster.—*Machine for Bending Sheet-Metal.*—Patented March 28, 1854.

The improvement consists in the arrangement of a non-axle cylinder B in relation to the usual rollers C D, and mandril E, of sheet or tin tubing, or sheet-metal bending machines; the advantages of this arrangement being, that metal may be bent upon the exterior or interior of a non-axle cylinder.

No. 10,714.—R. A. Wilder.—*Improvement in Railroad-car Wheels.*—Patented March 28, 1854.

Claim.—The groove in the wheel near the flange, and, in combination therewith, the convex form of the tread.

No. 10,715.—Edward H. Ashcroft.—*Improvement in Track Cleaners for Railroads.*—Patented March 28, 1854.

The car being in motion, the wheel D will be revolved by the contact of its picks with the snow, etc., in the grooves of the rails; the several pickers cut these masses to pieces, and the following mould-boards take them off and carry them from the track.

Claim.—The method of cleaning snow or ice or other like obstacles from grooved railroad rails, by means of a picker D and mould-board or scraper F, substantially as shown.

No. 10,716.—Joseph Leeds.—*Improvement in Cooking Stoves.*—Patented March 28, 1854.

The nature of this invention consists in forming the fire-box of a series of vertical tubes, through which air passes from a chamber below separated from the ash-box, and becomes highly heated, and passes up underneath the top plate and around the oven for cooking purposes; and in so arranging the oven into which hot air may be introduced, if required, that more of its sides shall be in contact with the products of combustion, but surrounded by hot air.

In the figure A an air-chamber, provided with a register, is formed underneath the stove. The fire-box D is composed of a series of tubes E, which connect the chambers A and F. The air passes from chamber A, through tubes E, into the chamber F, and from thence around the oven G. The products of combustion pass through the flue which surrounds the hot-air flue.

Claim.—A fire-box formed or composed of a series of vertical tubes, through which air is to be introduced to be heated, in combination with the air space under the top plate and around the oven, substantially as described.

Also, so arranging the oven that it shall not be in contact with any of the plates which are directly in contact with the heated products of combustion, but be heated by hot air substantially as described.

No. 10,717—Henry Underhill.—*Improved Hand Printing Press.*—Patented March 28, 1854.

It is stated, as an imperfection of power presses, that when, from any irregularity in the supply of sheets of paper to be printed, inconvenience is experienced, as the types are liable to injury from the action of the platen without an intervening sheet of paper.

The inventor has for his object the remedy of this evil, which he claims to have accomplished by operating the platen by hand intermittently in connection with a reciprocating double-frisket carriage, whose movement is derived from a continuous rotary motion, whether produced by hand or power, so that as the carriage brings the frisket of each end alternately under the platen, the latter may be made to descend at the will of the attendant, and independently of the movement of the carriage, so that its depression may be omitted if a blank sheet is not placed over the form.

No. 10,718.—Ephraim Sizer, Titus Sizer, Emerson Sizer, and Amos Halladay.—*Improvement in Sacket's Braiding Machine.*—Patented March 28, 1854.

In the braiding machine of Sacket, of which this is an improvement, the racers are obliged to cross singly from one carrier to another, forming stitches with but a single thread. The object of this invention is to obviate this defect, and construct the machine so that the operator can form stitches of two, three, four, or more threads. The defect above stated arises from the use of the fly guide, which is dispensed with in this invention, using, instead, stationary spring-guides, together with tail-guides upon the racers.

The main features of the machine are the same as in Sacket's invention. The racer, which in the drawing is represented by *a*, has the same construction as Sacket's, except the tail-guide *b*, by the addition of which to the racers they are enabled to run in trains of two, three, or more; *c c* are the carriers similar to those of Sacket. The spring guides *d* are attached to the frame A by the bolts *e*, in the position given to the fly-guides of Sacket, above and below the carriers, between each alternate pair.

Claim.—The construction of the racers with the tail-guides *b*, substantially as described, for the purpose specified. The combination of the spring-guides *d* with the flanges *f* on the carriers *c c*, substantially as and for the purpose herein set forth; guiding the racers by means of spring and tail-guides operating either on the interior or exterior of the shell or circle, substantially as herein set forth.

No. 10,719.—James Baxendale, assignor to J. Baxendale and James Ferguson.—*Improved method of operating the Doctors of Calico-printing Cylinders.*—Patented March 28, 1854.

The object of the invention is to produce an irregular traverse motion of the doctor of a calico-printing cylinder, in order to prevent the usual injury to the engraved surface that results from the usual regular traverse movement.

On three stationary journals D E F, projecting inwards from the inner surface of the plate B fastened to it, three spur gears, G H I, are made to revolve; the centres of their journals are arranged respectively in the vertices of an equilateral triangle, and they are each placed a like distance excentrically to the centres of the gear-wheels. The pinion gear K is made to engage with the three excentric wheels G H I, and thus a compound traverse motion is produced.

No. 10,720.—Solomon Andrews.—*Drop and Bed-die Machine for Forging and Punching.*—Patented April 4, 1854.

The *claims* allowed indicate the invention, and cover, substantially—

1st. Lifting the punch or drop by a pinion E, fitting into deep notches *b*, in the stem.

2d. A hollow stem *g* and punch *o*, for holding cooling liquids.

3d. Secondary stamp H, between stamp and die G, acting as a follower to cut off the blank, and as a releaser.

4th. Combination of devices for elevating the movable centre of the bed *r*, the cam lever t^1, and the arc z^1, to lift up the nut after it has been punched.

5th. The wedge lever F, in connection with the spring *f* and its lever or arm; for effecting the complete disengagement of the clutch-teeth.

No. 10,721.—Bernard J. La Mothe.—*Improvement in Railroad Cars.* Patented April 4, 1854.

An improvement in car-bodies made of straps of metal crossing each other, consisting in increasing the number of straps so that at least three shall meet at each intersection.

Claim.—The construction of the frame of railroad cars with continuous elastic steel bands, or equivalent material, in the manner and for the purpose set forth in the foregoing specification, namely: The transverse bands in pairs, each of one single piece, to extend from one side of the frame to the other, at equal or respective distances, bent to the proper shape of the car, and the longitudinal bands to pass single

between the above, forming with them rectangular squares; and the three bands repeatedly in such position to be firmly secured together by means of rivets or screws in each intersection of the rectangles formed by them; thereby obtaining with said material, and from such an arrangement, combined with lightness, far greater strength and elasticity than the cars now in ordinary use possess, and consequently affording far more protection to life in cases of accidents in railroad travelling.

The inventor does not claim the frame of single transverse and single longitudinal bands, but limits his claim to the use of single, double, triple, or multiplied longitudinal bands, combined with single, double, triple, or multiplied transverse bands, so that there shall not be less than three bands, while the number may be increased ad libitum, in each intersection of the angles formed by them, the whole being constructed and used in the manner and for the purpose above mentioned.

No. 10,722.—Benjamin A. Lavender and Henry Lowe.—*Improvement in treating Cane Fibre for Paper and other purposes.*—Patented April 4, 1854.

The improvement and claim consist in breaking down woody fibres of cane and other like plants, and dissolving the gummy and other foreign matter therefrom, by means of muriatic or sulphuric acid, of the strength of 10° Baumé, or thereabout, preparatory to making hemp for bagging, rope, paper-pulp, &c., in the manner substantially as set forth.

No. 10,723.—Rodney Miller.—*Improvement in Carriage Tops.*—Patented April 4, 1854.

The lever C, jointed to the lower end of F, can be depressed by the foot and raise the top. It is supported in any required position by springing sidewise into notches.

Claim.—The combination and arrangement of the rods or straps H, E F, either separately or combined with the cranks D^1, and the arms I, in the manner specified, and operated by the lever C, for the purpose of raising and lowering carriage tops, in the manner set forth.

No. 10,724.—Oldin Nichols.—*Improved Chain-cable Stopper.*—Patented April 4, 1854.

This improvement consists in the arrangement of the pawls B and D, with studs *a a* on the roller-shaft A, and teeth *b b*, so that every link is held.

No. 10,725.—Oldin Nichols.—*Improvement in Chain-cable Stoppers.*—Patented April 4, 1854.

This improvement consists in having a ridge *a* in a circular groove, by which each link is so far turned as to bring it in a proper position for being held by a pawl.

No. 10,726.—Elijah Roberts.—*Water Wheel.*—Patented April 4, 1854.

The *claim* consists in the arrangement of the rods D, which slide through the gates *a a*, so that all of them may be opened or closed simultaneously, or allowed to close by the pressure of the water when not obstructed by foreign obstacles.

This is effected by turning the shaft J, which, by means of cogs *e* and worm *f* on shaft, revolves the driver E; this actuates the rods D, and turns the gates *a* about pivots *s s*, thus closing or opening them as stated.

No. 10,727.—David A. Wells.—*Improvement in process for obtaining cellulose from vegetable substances.*—Patented April 4, 1854.

The improvement and claims consist in removing coloring and resinous matters from cleaned and dressed flax, hemp, and other equivalent textile and fibrous materials designed to be spun, felted, &c., by means of weak acid of about 3° Baumé; also, in the employment of caustic alkalies, as specified, to obtain cellulose from vegetable substances for the manufacture of paper and other purposes, in combination with the use of alkaline earths, substantially as specified, to preserve or restore the caustic state of the alkalies; and finally, in combination with the process stated, subjecting the products thereof to the action of a solution of efflorescent salts, substantially as and for the purposes specified. No illustration.

No. 10,728.—William H. Akins, assignor to Samuel J. Parker.—*Improvement in Cops for Sewing Machines.*—Patented April 4, 1854.

The nature of this invention consists in forming a cop or bobbin without spindle or spool, in combination with a shuttle, when the thread is drawn or fed out from the inside of the cop, by which means a uniform tension on the cop-thread is secured as it is drawn from the shuttle.

The cop is a spirally wound mass of thread, recurring at each end alternately until it is wound large enough to fill the shuttle, when a few circular windings are given upon the whole mass preparatory to securing the external end of the thread.

In the figure, A is the cop or bobbin, and B the external end of the thread emerging from the inside by a hole at one end.

Claim.—The use of a cop or bobbin, without spindle or spool, in combination with a shuttle, or what is equivalent thereunto, when the thread is drawn or fed out from the inside of the cop or bobbin, by which means a uniform tightness or tension on the cop or bobbin thread is secured as it is drawn or fed out from the shuttle, as described.

No. 10,729.—L. D. Goodwin.—*Water Wheel.*—Patented April 4, 1854.

The first part of this invention is the self-regulating gate *a*, which is hinged across the flume at a^1; a lever or handle *v* is weighted as a steelyard. This arrangement allows more or less water to pass, as the increased or decreased labor of the wheel may require.

The second part relates to the peculiar construction of buckets, which will be seen in claim.

Claim.—The form and proportions of the buckets as specifically set forth, commencing in a true circle at a tangent to the outer periphery, and terminating in a straight line, fifteen degrees in length, at the inner curve, and at a tangent thereto, as herein fully explained.

Also, the self-regulating gate to the scroll, constructed and arranged in the manner and for the purpose set forth.

No. 10,730.—Willis Humiston.—*Improvement in Machines for making Candles.*—Patented April 4, 1854.

The novelty in the apparatus is restricted to the devices for the control of the wick-spools *d*, and of the guides F, to keep the wicks in the centre of the moulds C during the casting.

Claims.—1st. The wick-tightener E, so arranged that the wicks may be uniformly stretched before the material is run into the moulds; and the friction or strain be removed therefrom before the candles are drawn from the moulds, to prevent the breaking of the wicks, substantially as specified.

2d. In combination with the wick-stretchers E, the centering-bar or plate F, with its stop or guide G, for first properly centering the wick at the top of the mould before it is stretched and held, substantially as specified.

No. 10,731.—Eastman R. Ball.—*Improvement in Bedstead Fastenings.* Patented April 4, 1854.

This fastening consists of a bracket *a*, attached to the bedstead post, and carrying a vertical cone *v*, which is to be received into a conical hole in the under side of the bedstead rail, as shown in the drawing.

Claim.—Fastening the rails to the posts of a bedstead by means of the combined sustaining brackets and conical fastening-pins *a v*, secured to the posts, and the conical holes in the under sides of the rails, arranged and operating with each other substantially as herein set forth.

No. 10,732.—Solomon G. Booth—*Improvement in Machinery for Corrugating Sheet-metal.*—Patented April 4, 1854.

The invention consists in making the base strips of the bed-dies and of the cam-shaft adjustable, so that the dies may be used for corrugations of different depths.

The claim is to the construction and arrangement of the dies so as to adjust them to any depth of corrugation and thickness of metal, by having the pieces C, C^1, C^2, separate from the parts D D^1, so that they, as well as the cam-shaft, can be raised and lowered to make a deeper or shallower corrugation, the whole being combined and arranged substantially in the manner and for the purpose set forth.

No. 10,733.—Benjamin Eakins.—*Hydrant Cock.*—Patented April 4, 1854.

The specification in this case merely names the parts composing a complicated apparatus, and affords no assistance to understanding its peculiar advantages.

Claim.—The peculiar construction of the valve, with the manner of opening and closing the same, herein described and represented.

No. 10,734.—A. K. Eaton.—*Improvement in Amalgamating and Washing Gold and Silver.*—Patented April 4, 1854.

The improvement consists mainly in the use of zinc plates in the form of a perforated Venetian blind *b b*, or of a trough *d*, in the separation of gold, by means of mercury, from ores containing sulphur, in order to preserve the bright surface of the mercury, and thus increasing its affinity for the precious metal, the affinity of zinc for sulphur being greater than that of mercury; as well as for the purpose that the minute particles of gold, which often float away, be caught and more readily amalgamated.

Claim.—The employment of an alloy of mercury and zinc, instead of pure mercury, in the process of amalgamating precious metals, substantially as herein set forth.

No. 10,735.—Henry W. Farley.—*Improvement in Railroad Frog-Guards.*—Patented April 4, 1854.

The guard B is cast together with the chairs D, for supporting the rail A.

Claim.—The supporting of the track-rail opposite the frog on the projecting base of the frog-guard, so that, without the intervention of bolts or other fastenings liable to become loose or deranged, the guard is held down by the track-rails. No claim is made to supporting the frog-guard and adjacent track-rail in a common chair, as that is neither new nor capable of affording the security against accident which this invention is to afford.

No. 10,736.—Phanuel Flanders.—*Improvement in Cranberry Winnower.*—Patented April 4, 1854.

This is a machine for winnowing cranberries, presenting some peculiarities not found in grain cleaners, namely: the cushioned hopper or separator chute K, exposed to a blast created by fan B, the inclined separator or cleaner D having the slats constantly wider apart as it

descends, to separate rotten and defective berries; also, the lever arms I, with the slotted head, to give a sudden jerking motion to the separator D: the whole set in motion by gearing J, H, G, F.

Claim.—The cleaner D and the arms I, or their equivalents in substance, and the separator K, when the same is made and operated substantially as set forth and specified, for the purpose of cleaning cranberries.

No. 10,737.—W. Gates and H. J. Harwood.—*Match Machine.*—Patented April 4, 1854.

This machine completely finishes the match and discharges it. An endless apron A, fig. 1, carries a series of clamps *f g*, fig. 4 and fig. 3, which, as they pass the cutting-tool at M, fig. 1, seize a row of sticks just as they are cut from the block, and carry them on, dipping their lower ends in the sulphur at P, and then in the igniting fluid at R. As these clamps pass the discharging spout P, fig. 1, a hammer U descends and drives the row of matches out of them into a proper receptacle.

Claims.—1st. The employment or use of the endless chain A, formed of a series of clamps constructed and arranged substantially as herein shown, for the purpose of receiving the match-sticks from the cutting-tool and conveying them to the sulphur and igniting compounds, with which their lower ends are covered, as shown and described in the body of the specification.

2d. The peculiar form of the cutting-tool D, as herein shown and described, viz: said tool being formed of a series of circular cutters *l*, connected by semicircular cutters *m*, by which form the match-sticks are placed in the clamps of the chain A, at a sufficient distance apart to prevent their lower ends from being connected together when immersed in the sulphur and covered with the igniting compound; said tool also, by being constructed as described, cutting the match-sticks smoothly and easily from the block.

3d. Opening or parting the clamps of the chain A at the proper time, or when each clamp is directly over the cutting-tool D, by means of the wedge H, operated by the cam J, or its equivalent, for the purpose of allowing the match-sticks to enter the clamps as the cutting-tool ascends to the top of the block, as herein shown and described.

No. 10,738.—Charles Goodyear.—*Improvement in treating Vulcanizable Gums.*—Patented April 4, 1854.

The improvement and claims consist in the method of manufacturing compounds of caoutchouc, gutta percha, and other gums susceptible of vulcanization, in sheets, by covering the surface or surfaces of the sheets of gum with sheets of paper or cloth, or the equivalent thereof, and then confining the same during the process of vulcanization by pressure between plates of metal or their equivalents, or otherwise, substantially as described. No illustration.

No. 10,739.—Carmi Hart.—*Veneering Machine.*—Patented April 4, 1854.

Claims.—1st. Cutting veneers or other thin stuff by giving to the shaving knife *c* a rectilinear movement towards and through the log, at the same time that a rectilinear movement is given to the log, either transversely or diagonally to the movement of the knife, so as to produce a long continuous drawing cut, as described, whether the said movement of the knife and log are produced by the precise arrangement of mechanical means described, or any other substantially the same.

2d. Making the ways N N, upon which the log-carriage moves, adjustable, as described, relatively to the ways *a a*, A A, in which the knife and cutting-table move, for the purpose of giving more or less of a drawing action to the cut, as the nature of the stuff to be operated upon may require.

3d. Attaching all the necessary appendages for holding the log and feeding it to the knife to a turn-table L, (Fig. 2,) capable of being adjusted circularly within the main frame, or part K, of the log-carriage, as described, for the purpose of presenting the grain of the stuff at any desired angle to the edge of the knife or direction of the cut.

4th. Suspending the log or block above the knife, by griping it with clamps Y Y, which form part of a suspending-head, which supports the weight of said log or block and prevents its dragging over the edge of the knife during the backward movement of the latter, and only allows it to be lowered under the control of suitable feeding mechanism.

5th. Setting the lever handle *x*, which holds the clamps upon the log, free from the notch-bar 12, by which it is secured for that purpose by means of the bar 33 and the inclined block 35, of which the former is attached to the suspending-head, and the latter to some fixed point on the turn-table of the log-carriage; and the former is made to slide by coming at a proper time in contact with the latter in such way as to raise the lever-handle, as herein described.

6th. Making the slots in the clamps which receive the bar *m* and screw *n* of such length that, after the clamps are arrested by coming in contact with the proper part of the log-carriage or turn-table, the motion of the follower and the other parts of the feed-motion may continue till it is desirable to stop them, as herein described.

7th. The mechanism herein described for rendering the pawl 15 of the feed-motion inoperative, and thereby stopping the descent of the suspending-head and the feed of the log at the proper time, to wit: the bar 24, pin 26, spring 27, rod, arm, shaft, feather 31, and angle-piece 32, the whole being combined and applied substantially as herein set forth.

No. 10,740.—Stephen Hedges.—*Combined Table and Chair.*—Patented April 4, 1854.

Claim.—The manner herein described of rendering a table of ordinary construction susceptible of being combined with a chair, and of being used as a smaller stand or writing desk and chair combined, by

constructing the table in two sections, and jointing said sections together, one of which forms a chair with a flap or removable top; and the other a stand, smaller table, or writing desk, with a stationary top, having the flap of the chair hinged to it; one end of each section being jointed together by a hinge upon which the chair turns when it is desired to use the table as a stand, or writing desk and chair combined, or after it has been used as such, substantially as herein described and set forth.

No. 10,741.—L. Otto P. Meyer.—*Improvement in treating Caoutchouc and other Vulcanizable Gums.*—Patented April 4, 1854.

The interposing between sheets of gum, &c., to be cured, sheets of flexible material, when the series of sheets thus piled are confined between plates of iron during the process of vulcanization, being disclaimed, the improvement and claim are restricted to covering the surface of what is known as the hard compound of caoutchouc with tin foil, or other equivalent substances, to preserve the form previously given by embossing or moulding, the contact of the tin foil during the curing process having the effect to preserve the form and the surface without pressure or moulds. No illustration.

No. 10,742.—Morris Mattson.—*Improvement in Syringe.*—Patented April 4, 1854.

The invention is confined to a removable brace *d*, passed through head *b* of piston B, to rest the thumb upon while drawing up the piston, and thus enabling the patient to use the syringe with only one hand. Also, to the perforations *r r* around the lower extremity of tube K, by means of which a single loose disk *h* is performing the part of a reciprocating valve.

Claims.—1st. The combination of the thumb or finger rest *d* with the barrel A and piston B, for the purpose essentially as specified.

2d. The upper ring-valve seat *i*, and the perforated tube K, in combination with the disk or valve *h*, and its seat and chamber, the same being made to operate substantially as described.

No. 10,743.—John Nesmith.—*Machine for making Wire Netting.*—Patented April 4, 1854.

This invention consists in certain devices for revolving the wires at the same time that they are being twisted.

Claims.—1st. Revolving the wires by the means substantially as described, for the purpose of keeping them parallel to each other, so that they cannot get entangled during the process of netting.

2d. Vibrating the wires alternately from right to left, and from left to right, before or after, or at the same time of twisting them, the said wires, together, by means of the cams R and U, the shippers S S and V V, connected with the cams by the levers T T.

3d. The jaws or clamps G G, for the purpose of drawing the wire through the machine.

4th. The two planes *d d*, and their mechanical equivalents, with the cams and levers for operating the same.

5th. The wire-reels D and movable reel-stands I, with the friction-springs for the reels, and holes through either end of the said reel-stands for admitting, protecting, and guiding the wire, or the mechanical equivalents, of said reel and reel-stands.

6th. The feeding and twisting gears J E X, with their centres perforated to admit the border or warp wires passing through the same, and the said gears having slots cut in them for the receiving and guiding the ends of the stands and wires in the same, substantially as set forth, &c. No illustration.

No. 10,744.—Abiel Pease.—*Improvement in Metal Drills.*—Patented April 4, 1854.

This improved drill is designed for boring heavy metal, and has in view the directing of the drill longitudinally.

Claim.—Constructing a drill with a notch *a*, with two cutting edges, which leave a guiding cone in the centre of the hole as it is bored, which is cut down as the drill advances, in combination with the bevelled edges of the lips A B, substantially as specified.

No. 10,745.—Joseph Sollenberger.—*Improvement in Training the Grape-Vine.*—Patented April 4, 1854.

The improvement consists in furnishing the training-posts for grape-vines with wire hooks, fitted by their form and elasticity to hold the vine in place when inserted into them, thus dispensing with tying the vine, as practised heretofore.

Preceded by a disclaimer of the post in itself, and a wire hook in itself, the claim is restricted to a training-post composed of a staff and hooks at proper intervals on the staff, for the purpose of rapidly training and dressing vines in the manner described, and at proper season, the staff and hook being prepared and located all ready for instant action, when the season for vine-dressing arrives; the whole being combined and used substantially in the manner and for the purposes described.

No. 10,746.—Jacob Edson.—*Improvement in Pumps.*—Patented April 4, 1854.

The design of this improvement is to prevent the accumulation of air within the cylinders of double-acting force pumps. The drawing represents a vertical section through the upper portion of the pump, taken through the centre of the eduction pipe.

Claims.—The cap M, with its valve *f*, constructed and arranged in the manner described, and for the purpose set forth; the cap being

cut away upon one side for the accommodation of the valve, and packed at the points C, to prevent the return of the water from the passage K to the cylinder E, the valve being made to bear immediately upon the upper end of the cylinder; by which construction and arrangement of parts the inventor is enabled to force out from the cylinder, each time the valve *f* is raised, any air which may have collected above the piston G, and thus effectually avoid the air-cushion above the piston.

No. 10,747.—James McCarty.—*Mode of manufacturing Wrought Iron Tubes.*—Patented April 4, 1854.

The invention consists—

1st. In heating the skelps for welding in a reverberatory furnace, and on a sand bottom, with raw coals, either anthracite or bituminous, as fuel, its combustion being excited by means of a forced blast. The fuel is burnt upon a grate, separated from the sand bottom by a bridge, whose construction is such as to produce a horizontal reverberation of the flame, which, in connexion with the reverberation downwards, which is produced by the crown of the furnace, insures a more thorough and equable dissemination of the heat among a quantity of skelps than can be produced by any means heretofore known.

The claim is to the method of operating as described, namely: heating the skelps in a furnace, constructed substantially as herein set forth, with raw coal as fuel, whose combustion is maintained by a blast of air forced into the furnace, under pressure, as set forth.

No. 10,748.—W. S. Loughborough.—*Bench-Plane.*—Patented April 4, 1854.

This invention consists in a convenient arrangement of the cap *l* which slides in grooves on each side of the opening in the stock, in combination with an adjustable bit *r*, and screw *d*.

The construction and the mode of adjusting and operating the plane is sufficiently shown in the drawing. The claim is to the combination of the adjustable cap *l* with the screw *d*, by which it is operated, and to the manner of connecting the said cap *l* with the stock of the plane.

No. 10,749.—George W. Livermore.—*Crozing Staves.*—Patented April 4, 1854.

This machine crozes and chamfers the staves as follows: a number are placed in the hopper *r*, and by their weight descend upon two endless belts *s s*, which revolve by means of drums *m m*; on these belts stops *n* are placed, and as the belt moves simultaneously, one stave at a time is moved to its position under the pressure bars *w*, and remains there until the cutters V V croze and chamfer each end; the belt, at the next move, drops the finished stave.

The claim is to the combination of hopper *r*, bars *w*, drums *s*, and knives V.

No. 10,750.—Tyler W. Lafetra.—*Improvement in Drying Tobacco.*—Patented April 4, 1854.

The tobacco to be dried, in accordance with this invention, is spread upon a wire grating attached to a frame, and is confined to its position by a flap or door, carrying pins or studs, which press upon the leaves. Neither the rotation of the wheel, nor the currents of air forced into the case or cylinder, in the process of drying, displaces them. A fan-blast may be used, or other convenient methods.

Claim.—To the drying tobacco by forcing currents of air through it, in combination with the confining thereof, by means of the chambers or cells, formed and constructed as described; or by any other mode that is substantially the same, and will produce the same result.

No. 10,751.—John C. Ogden, assignor to Charles S. Ogden.—*Railroad-Chair Machine.*—Patented April 4, 1854.

The claim is the making chairs for railroad rails by passing the hot-milled bars direct from bar rolls, out of which chairs are to be made, without reheating, and, by the same working hands usual at roll-train, between a pair of rolls, constructed and operating on the principle substantially as herein described and illustrated; the punches and dies for punching and forming the chairs being secured around the peripheries of said rolls, substantially as described.

No. 10,752.—James MacGregor, Jr.—*Improvement in the construction of Tea and Coffee Pots.*—Patented April 4, 1854.

This invention consists in surrounding the lower portion of tea-pots with an outer case, having a mouth-piece for the introduction of water between the outer case and the tea-pot.

The water space should be of sufficient capacity to prevent evaporation from reducing the water below the bottom of the pot. The mouth-piece is always kept open when the pot is exposed to heat, thereby allowing free escape to the steam made between the two cases, and thus preventing the water in the pot from becoming over-heated.

In the drawing, A is the cover of the spout, B is the cover to the pot, C is the space for tea or coffee, D is the water space, E is the mouth-piece.

Claim.—Having the pot where the tea or coffee is prepared air-tight, and so regulating the heat that is applied to the heating of the same, that a small pressure by the covers prevents it from boiling, and, consequently, from evaporation, while the tea or coffee is being prepared, in the manner and for the purpose substantially as above set forth.

No. 10,753.—Elbridge Marshall.—*Improvement in Seed Planters.*—Patented April 11, 1854.

The seeding device in this planter consists of known revolving hoppers U, perforated at the bottom for the transmission of the seed; they

are, however, acted upon, whatever their number may be, by one single vibrating bar H, which not only rotates them by means of the pawls S, but serves also as a valve, its perforations *m* (fig. 3) passing alternately under the perforations *j*, causing the seed to drop into the seeding line W. Another improvement consists in the device to control the precise moment of the vibration of the bar H aforesaid, and thus to control the distance of one dropped seed from another. This is accomplished by suspending or accelerating the movement of lever F, vibrating bar H, and being in its turn vibrated by cam C, on the driving roller B, by means of turning crank O backward or forward; this crank O being, by gearing N, M, K, J, G, made to determine the distance of cams C from the cams E, and thus to determine the movement of their passing each other, and, consequently, to determine the movement of the vibration of lever F.

Claims.—1st. The cams C E, having two rows or sets of inclined planes upon their faces, said inclined planes being placed oppositely on concentric circles, for the purpose of creating an equal pressure upon the cam E, and connecting said cam E with suitable gearing substantially as shown, whereby its position upon the shaft D may be changed, and the seed dropped at a greater or less distance apart, whenever the crank O is operated or turned by the hand, as herein shown and described.

2d. The bar H performing, in combination with the circular plates V underneath the hoppers U, the office of a valve, and simultaneously rotating said hoppers by its vibrating motion; the above parts being arranged and operating substantially as described.

No. 10,754.—William Ball.—*Improvement in Mills for Grinding Ores, &c.*—Patented April 11, 1854.

The grinding balls D are propelled by a weighted shaft and driver C, giving an oblique pressure. The step of the shaft is loose, and yet prevented from getting out of gear by the projections P, so as to allow of a rocking motion when the balls pass over large pieces of ore. The sieve X for the powder is perforated only on its under side, so as to screen upwards and prevent choking by coarse matter.

Claims.—The mode, substantially as herein described, of applying pressure to the balls—that is to say, making the pressure diagonally or obliquely to the line of axis of the pressing shaft, or obliquely to the vertical diameter of the balls, as a distinct feature from that which is known as the turn-table machine, where the pressure is on the top of the balls; this oblique pressure being effected by the curved central driver, or its equivalent, as herein set forth.

Also, the rocking step in combination with the oblique pressure upon the balls, in the manner and for the purposes set forth.

Also, making such screen with a conical head, having the lower or conical surface the screening part, for the purpose specified.

No. 10,755.—Thomas Carter.—*Improvement in Seed-Planters.*—Patented April 11, 1854.

The device consists of a double hollow conical wheel C, which is a reservoir for the seed, and mounted in a seed-barrow frame *a*, and has a range of peripheric seed-tubes *g g*, the external mouths of which are covered by spring valves L, shutting up said mouths while the tubes *g* are preparing the holes for the seed, and as the wheel revolves opening as soon as the tubes have left the holes, to give passage to the grain into them.

Claim.—Seed-discharging apparatus in the periphery of the seed-wheel, the tube or apparatus *g*, the escapement wires *i i*, and the protecting spring valves L, in the manner and for the purposes described.

No. 10,756.—Stephen Colwell.—*Improvement in Iron Buildings.*—Patented April 11, 1854.

Claim.—The mode of constructing the skeleton-walls of buildings of any desired thickness, by placing vertically upon each other rectangular frames or hollow squares of cast iron, and sections of the same, like bricks or blocks of stone, but not breaking joints as in laying brick or stone, the said frames being connected together and levelled, substantially as above described, the skeleton-wall being separate from the covering of the building, but adapted for receiving on its exterior or interior surface a covering of plates of iron, or other material, removable at will.

No. 10,757.—Samuel J. Parker.—*Improvement in Sewing Machines.* Patented April 11, 1854.

The nature of this invention consists in placing the axis of the eye of the needle parallel to the line of the feed-motion, thereby avoiding the bias of the stitch. In the drawing, E is the point where the needle pierces the material to be sewed, T T the line of the feed-motion; P is the feed-wheel; O is the shuttle in its race N.

Claim.—That combination that secures the relative position in which the needle's eye is placed to the movement of the material or feed-motion, and the position of the shuttle and its race, resulting therefrom, when the needle is straight and the table on which the material to be sewed is horizontal; said relative position meaning the longitudinal axis of the shuttle and its race at right-angles to the feed-motion, and the consequent position of the needle's eye therefrom, so that a line drawn through the needle's eye when in the act of passing the centre of the material sewed, shall coincide with the line of feed-motion, and not be at right-angles therewith; and this, for the purpose of rendering the stitch more nearly perfect and straight than it otherwise would be, the combination and purpose substantially as described.

No. 10,758.—Hiram Stafford.—*Improvement in Rat-Traps*—Patented April 11, 1854.

The peculiarity of this trap consists in the arrangement by which the entrance always remains open until the caged animal attempts to escape by the passage through which it entered. The operation of the trap is as follows: The animal enters between the bars, which are standing as represented at I, and steps on the tilting-board B, when, by a special arrangement, the bars I are thrown towards each other and close the entrance; when the animal leaves the tilting-board, the weight C causes it to rise, and thus open the entrance again. This operation is repeated every time the animal attempts to escape; but at all other times the trap remains open and admits of other animals entering like the first, but equally prevents their passage out again.

No. 10,759.—Thomas E. Seay.—*Improvement in Brick-Machines.*—Patented April 11, 1854.

A represents the common pug-mill, from which the mixed clay is delivered down inclined planes into a receptacle E, on each side. H H is a pair of pistons connected together in a single carriage, made to traverse back and forth by a toothed wheel *d*, and a toothed rack *c*. At the extreme limit of their motion, one of the pistons H leaves a free communication between the receptacle E and the pressing-box G, into which latter the clay passes, and from which, on the return of the piston, it is forced into the moulds *f*, placed in a recess to receive it, as shown in the figure. The mould, being thus filled, is raised out of its recess by lifters T, while it is separated from the clay in G by the descent of a cutter O. The lifters T T also carry with them another cutter, or rather gate, K, to follow the moulds and confine the clay in G. The cutter and lifters T T are both operated simultaneously by depressing the foot-lever L, which acts upon T T by means of a pair of levers R R, pivoted at *n*, and at the same time draws down a cross-bar *l*, attached to vertical sliding-ways *n n*, that carry the cutter O with them.

The receptacle E communicates with an open box F, outside the pug-mill, and across it run a series of grate-bars *a a a*. These bars serve to arrest stones or other bodies; which are then, by the action of the passing clay, gradually worked along the bars into the box F, from which they can be removed.

Claim.—The combination of the tilting-board with the swinging forks and their apparatus, precisely as shown in the drawings, and for the purpose and in the manner substantially as herein set forth and described.

No. 10,760.—William A. Shaw and George Parker.—*Improvement in the Apparatus for Street Gas-Lamps.*—Patented April 11, 1854.

This invention consists in substituting for the stop-cock to prevent the flow of gas, a cap to be placed over the top of burner. The cap corresponds on its inner surface with the shape of the burner, and is lined with a band of vulcanized rubber, so as to fit air-tight over the mouth of the burner.

Claim.—As a substitute for the stop-cock to stop the passage of the gas, the above described cap, lined with vulcanized rubber or other proper material, which cap fits air-tight over the mouth of the burner, as above set forth.

No. 10,761.—Henry Sigler.—*Improvement in Fish-Hooks.*—Patented April 11, 1854.

This invention is to improve "Sockdologer" fish-hooks, whereby they are rendered more simple in their construction, perfect and sure in their operation, and less dangerous to handle while baiting.

The improvement consists in making the top portion B of the main hooks elastic, and so attaching them to the vertical guide-pieces C D that they will be made to serve as springs for giving action, and forcing them together, and, with two levers E, or toggle-arms, form a toggle-joint for forcing the hooks apart, and retaining them set. A common bait-hook G is attached to the lower extremity, F, of a regulating slide, and so situated that its end will be some distance above the ends of the spring-hooks A, between which the fish must place its head to get at the bait.

No. 10,762.—Charles Leavitt, assignor to Sterling R. Cockrill.—*Improvement in Machines for Cleaning Cotton.*—Patented April 11, 1854.

The nature of this invention consists in a method of cleaning cotton and freeing it from motes, dust, and impurities, previous to ginning it; the latter operation having a tendency to incorporate the dust and impurities intimately with the fibre. By preceding the ginning operation by this method of cleaning cotton, it presents a better appearance, the fibre being less bruised, rendering the cotton more marketable and of a superior quality.

The longer sides of a frame *a* are enclosed by boards *v* sufficiently high to embrace the concave screen *c*, and low enough to touch the ground. Circular openings are made in each side *v* to admit air to the wind-wheel *f*, and large enough to give access to the heads of the revolving screen *g*. The screen *c* is made of open wire-work fastened to armular heads *h*, which are secured to the sides *v*. The concave is supported on the outside by ribs *i*, fastened to the heads *h*, and these ribs are furnished with teeth projecting inwardly through the wire-work, and at sufficiently wide distances apart to pass between corresponding teeth or similar ribs on the inside of the revolving screen *g*, which projects outwardly through the wire-work thereof. The concave screen *c* has a suitable opening at *j* for the admission of the cotton above the hopper bottom *k*, and for its abduction below the hopper by the revolving stripper *l*, which lies athwart the same end of the

frame. The revolving screen *g* is attached to a head *m*, which is driven by the power used to operate the machine. The stripper and wind-sheet are driven at high velocities, while the revolving screen is driven at comparatively low speed, so as to carry the cotton slowly without breaking the seed or the fibre, giving the wind-wheel an opportunity to blow out the impurities as the toothed ribs of the screen loosen the fibres. An ordinary rake X is used and fixed to the machine for the purpose of cleaning the stripper of the cotton as it gathers from the screen.

Claim.—The method of arranging the several parts involved in extracting the motes, dust, and other impurities from cotton previous to, and preparatory for, ginning the same, substantially in the manner and for the purpose described; that is, combining a wire and screen concave with a revolving wire screen cylinder, or their equivalents, and a wind-wheel or fan revolving within the cylinder, both cylinder and concave being armed with teeth, set in ribs so distant apart with regard to the teeth, as to permit the cotton-seed to pass while the fibre alone is loosened, the revolving screen running slowly, in comparison with the wind-wheel, which is driven at great velocity, thereby adapting the machine to the particular purpose specified, viz: freeing cotton from motes, dust, and other impurities, while attached to the seed, previous to ginning the same.

No. 10,763.—James Harrison, Jr.—*Improvement in Sewing Machines.* Patented April 11, 1854.

This invention consists of a contrivance for tightening that part of the stitch which is formed by the needle-thread. The needle bar is furnished with a spring, a roller, and a screw, so combined and arranged as to hold the needle-thread secure at a point between the spool which carries it and the needle, to prevent its delivery from the spool except during such a portion of the latter part of the needle's upward motion as may be desirable. This contrivance produces any degree of tightness that may be desired. The invention also consists of a contrivance for tightening that part of the stitch which is formed by the shuttle, by means of a drag-bar attached to the shuttle, which checks the delivery of the thread from its bobbin, except during such a portion of the back part of the shuttle's movement as may be desirable, when it is allowed to release the thread by the action of a liberating piece projecting on one side of the shuttle race. This liberating piece is adjustable, and may therefore be made to lengthen or shorten the delivery of the thread, and thereby control the tightness of the stitch. The invention further relates to a method of constructing the shuttle whereby great facility is afforded for the removal and reinsertion of the bobbin, and for the passing of the end of the thread through the eye.

The drawing shows the construction of the machine.

Claim.—The combination of the spring Q, the roller S, and the screw or adjustable pin T, operating in the manner described, to prevent the delivery of the needle-thread for the successive stitches until each preceding stitch is drawn to the desired degree of tightness, and then to

cause sufficient out for the next stitch, thus regulating the tightness of that part of the stitch formed by the needle-thread. Also, the combination of the drag-bar T, attached to the shuttle, and containing the eye J, through which the thread passes therefrom; the spring K, for throwing the said bar into a position to prevent the delivery of the thread from the shuttle; and the adjustable, liberating piece V, operating as described, for the purpose of preventing the delivery of thread from the shuttle until after each stitch is finished, and then allowing only the quantity desired to be given out, whereby the tightness of that part of the stitch formed by the shuttle-thread is perfectly regulated.

Also, constructing the shuttle in two parts, viz: the sheet and cap, of which the latter is inserted into and withdrawn from the former endwise, as described.

No. 10,764.—Jose Toll.—*Improvement in Rat-Traps.*—Patented April 11, 1854.

The object of this improvement is to provide a receiving vestibule or chamber, which shall exhibit no signs nor taint of the animals caught, and in which the weight of the rats shall act with the power applied to remove them into a cell below. To effect this, the weighted cord *m* is wound up, and the hook *h* baited. The rat is supposed to enter by the opening *u*, and pulling at the baited hook disengages the catch *j*, and the partition *e*, in consequence, is suddenly moved forward, and the rat is imprisoned between the walls *e d*, and carried forward by the action of the weight *l*, until, brought over the aperture *v*, it falls by its weight into the cell *c*, immediately below. The weight draws the entrance chamber back to its original position, where it is held by the catch *j*, until sprung by another rat.

No. 10,765.—George W. Thayer.—*Improvement in Truss for Iron Bridges.*—Patented April 11, 1854.

A series of arches made to interlock by means of shoulders, as in figure 2.

Claim —The combining or arranging together a series of interlocking and overlapping metallic arched beams, or series of vertical suspension tie-bolts, extending from the lower chords to the crowns of the arches of the metallic arched beams, and a series of struts or tie-bolts extending from the lower to the upper set of chords; the whole, when combined and arranged, substantially as set forth, constituting a truss having great strength and advantages, as stated, and made with one long arched beam to extend over and embrace two or more of the arches.

No. 10,766.—Nathan Thompson, Jr.—*Life-Car.*—Patented April 11, 1854.

This invention consists in the use of webbing or sacking with wood or metal-bottoms and guide cords, so that the sack or bag extends when used, below the bottom of the boat.

Claim.—The extensible bottom, which may be stowed within the boat, or, when in use, drop below either side of it, constructed and applied to a life-boat, substantially in the manner and for the purposes herein described. Also, in combination with such an extensible bottom, the diagonal bracing cords, applied in the manner and for the purposes substantially as described.

No. 10,767.—JOHN WEBSTER.—*Lubricator.*—Patented April 11, 1854.

By means of a three-way cock G, a plug F, with a curved way J, in combination with the passages or channels B, E, D, and the cups A and C, the oil is forced by the steam into the cylinder.

The oil being poured into cup A, the plug F is turned so that its curved channel shall communicate with cup C. The plug F is now reversed so as to communicate with the steam and cup C. The lower plug G is then turned so as to allow the oil to pass into the cylinder, the steam being above it.

Claims.—The combination of the divided chamber with a three-way cock, one position of which admits oil to the chamber, but shuts off the steam; the other position shuts off the oil and allows the steam to pass from one partition of said chamber to the upper surface of the oil in the other, for the purpose substantially as described.

No. 10,768.—H. ALLEN.—*Boring and Mortising Machine.*—Patented April 11, 1854.

This machine is suited particularly to cutting elongated mortises. The material is secured to a carriage C, which is moved by the revolving shank cutter at H, this cutter having two edges cutting in planes at right angles with each other. After the cutter has entered to the required depth, the carriage is moved back or forth, as the case may be, until the mortise is finished. Stops *f f'* are moved by a treddle; these enter recesses in the lower side of the carriage C, and regulate the position and dimension of mortise. The cutter receives vertical adjustment, by means of its sliding frame O and set screws.

Figure 1, side view; figure 2, front view; figure 3, sectional bottom view of the machine.

Figures 4 and 5, detached views.

Claim.—The mode of stopping the piece and limiting the dimensions of the mortise; also the combination of an adjustable catch *x*, with a gauge *n*, having a recess *r* and screw *s*, for readily centering or adjusting to position the boring-tool.

No. 10,769.—FRANCIS ARNOLD.—*Improvement in the construction and combination of Foot-Stoves and Lanterns.*—Patented April 11, 1854.

The nature of this invention consists in the peculiar method of combining, for many practical purposes, a lamp-heating foot-stove and a lantern, constructed in such a manner that it will answer the purpose

of a foot-stove or a lantern, and convenient for heating or cooking any article placed upon its top.

In the accompanying figure, A represents the handle and grate when down as a foot-stove; B, a movable grate attached to the handle, to prevent the foot coming in contact with the top plate when used as a foot-stove; D the lid to be taken off for cooking purposes; E, glass panels.

Claim.—The movable grate attached to the handle, in combination with the foot-stove and lantern, constructed substantially as described, and for the purposes specified.

No. 10,770.—STEPHEN P. BROOKS.—*Improved iron-frame upright Pianoforte.*—Patented April 11, 1854.

The claims to novelty in this piano are for the construction of an upright instrument, in which the iron frame that receives the strings is curved or arched so as to prevent the breaking or springing of the iron frame by the strain of the strings, and so arranging the iron frame as to make it serve also for legs to support the main parts of the instrument.

Also, for placing the whole of the action below the level of the keys, giving the blow to the hammer, and then holding it after the blow is struck, by means of the triangular piece *k k*, and its notch *q*, operating with the rod *p*.

No. 10,771.—JULIO T. BUEL.—*Improved Attachments for Fish-hooks and Artificial Baits.*—Patented April 11, 1854.

This invention relates to a device for preventing the points of fish-hooks catching in snags and weeds while trolling. It consists of a small spring rod C, which is attached loosely to a hook or artificial bait, and provided with a stay or support B, for it to rest and bear upon while sprung against the inner side of the point of the hook A. The spring, by reason of its elasticity, remains in connection with the point of the hook until it is struck by a fish, when it disconnects itself and allows the hook to perform its duty.

No. 10,772.—LEWIS S. CHICHESTER.—*Improvement in Dressing Flax and Hemp.*—Patented April 11, 1854.

The object of this invention is the production of a machine which will perform in succession, and at one continued operation, the actions of beating out the broken woody particles, and then scutching to clean out the tow; and for this purpose, two sets of blades or beaters are spirally formed, and the two sets revolve with equal velocities, but in opposite directions, and strike the fibres alternately on opposite sides, the spiral form causing the edges of the blades at the lower or feeding end to strike nearly at right-angles to the length of the fibre, to beat out the woody particles, and as the flax or hemp is driven towards the other end, gradually changing the direction of the blows, and increasing them until they perform the scutching operation by striking nearly in

the direction of the length of the fibres. The beaters are enclosed in a casing, with a slot in front to admit of feeding the machine, and the rear part is provided with a discharge-spout; the form of the casing, together with the spiral form of the blades, inducing a current of air from the scutching towards the discharge-spout at the beating end, so that as the flax or hemp is drawn towards the scutching end against the current of air, the dirt, woody particles, and impurities, are blown out through the discharge-spout.

In the accompanying drawing, *a* represents the frame, and *b b* two parallel shafts, geared together by two cog-wheels, so that they shall turn with equal velocities in opposite directions. Each shaft is provided with heads *d d*, to which are secured the spiral blades *e*. At the feeding end *f*, the edges of the beaters are rounded, and from thence towards the other end are gradually brought to an edge. In front there is a casing *h*, enclosing the beaters and having a feeding slot *i*, and at the back the beaters are enclosed in a casing *j*, with gutter *k*, and a discharge-spout *l*, at the back of the feeding end, for the escape of impurities. By reason of the twist given the blades and their inclination, when the material is introduced it is struck by the blades nearly or at right-angles to the fibres, and alternately on opposite sides; and as the bench is moved along towards the other end, the direction of the blow gradually changes until near the finishing end, where the blade strikes the fibres nearly in the direction of their length. The under surface of the blades at the feeding end is made nearly flat, and gradually assumes a curved form, so that during the scutching operation the ends of the materials will fly over and lie close to the curved face, thus enabling the scutchers to act with stronger force.

Claim.—The combination of the series of twisted or spiral and conical-shaped blades on the two rotating stocks, substantially as specified, which, by reason of the twist and conical shape, perform a beating action on the fibres at one end, and gradually change, until they perform a scutching action at the other end, as set forth.

Also, in combination with the rotating, twisted, and conical-shaped blades, the casing which surrounds them, with the discharge-pipe at one end, to confine and direct the current of air which is induced by the rotation of the twisted blades towards the discharge-spout, substantially as and for the purpose specified.

No. 10,773.—Albert G. Corliss.—*Improved Swell-mute Attachment for Piano-fortes.*—Patented April 11, 1854.

The invention consists in the employment of clamps D D^1, so arranged within the instrument, and so controlled by the levers I, J, H, that the performer may at pleasure cause them to press upon both sides of the bridge, and hold it in such a manner as to control the vibration of the sounding board, and thus regulate the tone.

Figure 1 is a plan of the invention. Figure 2 is a sectional elevation.

No. 10,774.—John Elgar.—*Improved Hinge.*—Patented April 11, 1854.

The invention consists in making the joint a series of varied inclined planes or curves, which accelerate and retard the movements of the door in closing by its own weight.

Claim.—Making the joint of door or gate hinges a series of varied inclined planes or curves, which accelerate and retard the movement of the door or gate, in closing by its own weight.

No. 10,775.—Richard Henry Emerson.—*Improvement in Earth Cars.* Patented April 11, 1854.

The figure shows a section of the car.

The patentee disclaims hinged straps and mode of working them, also the levelling plate or scraper, as old.

Claim.—The construction of a long car, arranged as described, with two sets of doors in the bottom, of different breadths, which, in combination with the chains, axles, and crank-shafts, and the attached levelling plate V, enables to discharge and spread nearly one-half of the load without discharging the whole, and to equalize the quantities of earth dropped by discharging the different sets of doors, which could not be done if the doors were of equal width, and only one-half of them dropped at one time.

No. 10,776.—Alexander Hall.—*Improvement in Piano-forte Actions.*—Patented April 11, 1854.

The patent is for a peculiar arrangement of the strings, bridges, and action of the piano-forte, by which the performer is enabled to introduce the upper octaves in addition to the normal notes while playing upon the instrument. In the construction of the instrument, in addition to the usual bridges *a* a^1 for the normal strings, extra bridges *d* d^1 are used to give to the octave strings their appropriate length; but one hammer-head is employed to strike each string and its accompanying octave; that part of the hammer-head b^1 which strikes the octave is made of a harder texture than the part *b* which strikes the normal strings; the action is made shifting by means of a movable key-board, pivoted at the point a^2.

Claim.—1st. The arrangement of the bridges of the upper octave strings in combination with the shifting action, so that the nodal points of these strings may coincide with those of the normal strings, in the manner set forth.

2d. The mode of shifting the action by pivoting the key-board, in combination with the employment of upper octave strings, in the manner set forth.

3d. Making the hammer-heads of hard and soft material, for the purpose of playing with effect upon the upper octave and normal strings with the same hammer-head.

No. 10,777.—Stephen Ustick.—*Improvement in Brick Machines.*—Patented April 18, 1854. Antedated November 15, 1853.

The main features of this machine are described as follows:

The mould-box *a* is made to slide freely on the ways A A, and works over a fixed piston *p* and a movable piston *e*. The latter piston derives its pressing force from a cam *m*, which revolves with, and is driven by, the vertical shaft *n*, and acts upon a friction-wheel g, and the piston is drawn back a little way after the pressure is completed by an adjustable cam *i*, revolving with the same shaft *n*, and acting on the friction-wheel g^1. The motions of the mould-box *a* are governed by cams *d d*, also revolving with the shaft *n*. The clay is fed into a hopper or receptacle c^1, immovably fixed to the ways A A. The mould-box is first thrust to the outer limit of its motion, in which position the perforation a^2 opens a free passage for the clay from the receptacle c^1 into the mould R, into which it passes and fills it, the capacity of R having been measured by the previous withdrawal of the piston *e* to a point determined by the adjustment of the cam *i*. The mould-box *a* is then drawn inward towards the centre of the machine, until R is entirely enclosed and cut off from c^1. The piston *e* then advances and makes the pressure, the mould-box being, however, at the same time made to move outward with half the velocity of *e*, at least in the last stages of the pressure, so that the two pistons *e* and *p* virtually have equal motions relatively to *a*, and the two sides of the brick are equally pressed. After this the mould-box is drawn still further inward until it leaves the pressed brick clear, and the latter on being relieved from the pressure of the piston drops upon a movable table *q*, ready at the proper moment to receive it. The mould-box next returns to its first position to receive another charge of clay, as above described.

The figures show only one half of the machine, the other half being exactly similar.

The patentee does not claim, in general, the combination of the reciprocating mould-boxes with the stationary and movable pistons, nor merely feeding the clay through the side of the mould-box at right angles to the line of motion of the piston, as these features exist in other machines.

Claim—1st. The arrangement, substantially as herein described, of the mould-box with the fixed and movable pistons, whereby, by its motion in the line of motion of the piston, it is made to perform the function of feeding the clay between the pistons, shutting it off from communication with the hopper, and discharging the brick.

2d. The apparatus for receiving and delivering the brick, consisting of the hand *q*, table *t*, and finger *x*, arranged and operated substantially as described.

3d. The arranging on the cam-wheel *a* the oil-boxes *u*, for lubricating and cleaning the faces of the pistons.

4th. The withdrawing the condensed air from the mould while the pressure is produced by a groove and scraper b^1, or other equivalent devices, substantially as hereinbefore set forth.

No. 10,778.—Stephen Waterman.—*Improved Circular Sawing Machine.*—Patented April 18, 1854.

The principal feature in this machine is the mechanical arrangements by which a log is cut into boards, scantling, &c., by means of a single circular saw, the shaft of which is hung in bearings that constitute a swinging frame moving round a stationary axis; the saw cutting half through the log from one side, and afterwards half through from the other side, thus effecting the division without the aid of a saw upon the stationary axis, as heretofore employed, in combination with such swinging saw.

Claim.—1st. Dividing the log by means of a single circular saw, whose shaft is hung in bearings in arms D D, which constitute a swing frame moving round a stationary axis; when such swinging frame is so arranged and operated, as herein described, that the saw is made to cut half through the log from one side, and afterwards half through it from the other side; and thus effect the division without the aid of a saw upon the stationary axis, as heretofore employed, in combination with such swinging saw.

2d. Raising the saw-shaft, by any mechanical means analogous to those described, to bring the collar and nut, or other device by which the saw is secured thereto, to a fixed position above the level of the plane of the top of the carriage, and close under the unsquared portion of the log during the cutting of the slabs from the log, so that the slabs may be cut from a much larger log than when the saw-shaft, or the collar and nut, or other device for securing the saw thereto, remains below the level of the plane of the top of the carriage.

3d. Controlling the tension of the driving belt J, so that it shall be tight when the saw-shaft is in position for cutting either above or below the log, but slack at other times, by means of the three guide rollers M M^1, N, of which the first two are hung on axes *d* d^1, in arms *e e*, e^1 e^1, secured firmly to the rock-shaft; and the latter is hung on an axis h^2, in swinging arms *g g*, which are held in proper position when the belt is tight, by contact with fixed arms *h* h^2, on the shaft; the whole operating as herein set forth.

4th. A dog U, of the lever-form described, attached below each or any of the slides V, by which the log is moved laterally, so that its tooth will project beyond the face of the said slide, and under the log, and controlled by a screw through the slide, by which its tooth may be forced upwards into the log when desired, as herein described.

No. 10,779.—Moses T. Rowlands.—*Improvement in Tailors' Measures.*—Patented April 18, 1854.

This invention consists in securing several scales to the body of the person to be measured, with fixed points and pivots in the scales, which points and pivots form the points of imaginary base lines from which a series of triangulations are taken, which determine the dimensions of the body with great accuracy, so as to insure the garments to fit perfectly upon deformed as well as upon the most perfectly formed persons.

After the measure is taken, the scales are removed from the body and applied to the cloth, so as to repeat the triangulations taken upon the body upon the cloth, where, with the aid of a square and sector containing a series of scales adapted to the several parts of the garment to be cut, it is marked out with mathematical certainty, so that it may be made up at once; thereby saving the trouble, delay, and expense of basting the garment and trying it on the person by tailors who use the old system of measuring and cutting.

Claim.—The front side and back scales, or their equivalent, constructed substantially as described, and used in conjunction, for the purpose of taking the measure of persons, and cutting garments to fit them, substantially as described.

No. 10,780.—J. A. Roth and J. Lea.—*Improvement in Machines for Bleaching Flax.*—Patented April 18, 1854.

The improvement refers to an apparatus for bleaching the flax before its being manufactured into yarn or woven fabrics, and consists chiefly in combs, fig. 1, provided with hinged bars *d d*, to hold the flax firmly on the spikes *t t*, during the bleaching operation in frames, fig. 2, provided with recesses *m m* and spring clasps K, for the reception and ready removal of the combs aforesaid, and in an apparatus fixed on the top of the usual bleaching vats, fig. 3, by means of which the rollers, fixed alternately on the two frames R R^2 and L L^2, sliding one above the other, are made to change their respective distances from each other by working the rack-gear T *u*, thus admitting the introduction between them and into the vat filled with the bleaching preparation of the frames charged with flax, and squeezing the same flax while the frames charged therewith are lifted up from the vat.

Claim.—1st. To the employment of a series of combs for the purpose of sustaining the fibres, constructed and arranged in the manner substantially as herein described.

2d. To the flax or yarn frame and method of arranging the combs in combination therewith, substantially as hereinbefore described.

3d. To the combination of flax or yarn frame and vat, substantially as hereinbefore described.

No. 10,781.—Matthias P. Coons.—*Improvement in Iron Fences.*—Patented April 18, 1854.

This improvement consists in so combining a spring-bar B with the rails a^1, or their equivalents, of metallic fence, in the manner set forth in the specification, as to obviate the injurious effects resulting from too great a degree of contraction and expansion, arising from sudden changes of temperature. The drawings show a longitudinal elevation of the fence with the improvements, a side elevation of one of the posts, and a side view of the spring-bar.

Claim.—The spring-bar, in combination with the other parts of the fence, for the purpose specified.

No. 10,782.—Thomas P. Forsyth.—*Improvement in Machines for Winding and Folding Cloth.*—Patented April 18, 1854.

The object of this invention is to roll cloth or dry goods of any width, expeditiously and evenly; and also, to remove any creases in the article rolled by stretching it out before it is rolled.

The machine consists of a frame connected by cross-pieces; *b* is a flat table, over which the cloth is to pass on its way to the board on which it is to be stretched and wound. At either end of the table is a roller *g* g^1, designed to facilitate the passage of the goods; *c* c^1 are two slides, near the four ends of which a circular hole is made communicating with slits extending to the front end of the slides, to allow the shaft *s* to be passed to its place. The design of the slides *c* c^1 is to form a guide for the cloth to be wound, in order to keep the edges uniformly even; j^1 j^1 are two guides, placed each immediately above one of the slides *c* c^1, and parallel thereto. The guides j^1 j^1 are adjusted with slides to the width of the fabric to be rolled, and the ends of the guides j^1 j^1, entering into the slots at either end of the table, serve to keep the article to be wound straight as it passes over the table to the winding shaft *s*. The stretcher to prevent creases consists of two strips *l l*, placed between the guides j^1 j^1, so as to form an angle. A hinge connects the strips *l l*. The guides j^1 j^1, being placed at the proper distance apart for the width of the article to be folded, by adjusting the slides *c* c^1, the stretcher *l l* is removed by drawing out the pins or loosening the hinge which fastens it to the guides j^1 j^1; one fold of the cloth is then laid between the guides, and a thin stick is laid over it at the end of the guides; the cloth is then doubled over the stick, and another fold carried by hand back over the table *b*. The cloth is then doubled over the stick, and another fold carried back; a similar stick is then laid at the other end of the guides over the cloth, &c.

Claim.—The stretcher *l l*, in combination with the adjustable guides j^1 j^1, and slides *c* c^1, and the winding shaft *s*, substantially in the manner described.

No. 10,783.—Garret Meldrum.—*Improved Turning-Lathe.*—Patented April 18, 1854.

This is a machine by which several pieces of wood, or other material, (intended each to have the like several curved and uniform sides,) may all, at the same operation, have one of their sides shaped uniformly to the same pattern; and each of the remaining sides may in succession have the same form imparted to it.

Claim.—1st. The chucks I, and pinions J, with their mandrels passing through the bosses in the chuck-plate E, in combination with the central spur wheel K, substantially and for the purpose as herein described.

2d. The pawls R, and their ratchet notches, in combination with the chucks I, substantially and for the purpose as herein described.

3d. The screw-bolt L, in combination with the excentric slot M, in the centre wheel R, and the indicator N with the regular divisions, or

their equivalents, marked on the wheel, substantially and for the purpose as herein described.

4th. The adjustable tail-rest plate S, having bosses to correspond with the corresponding bosses in the chuck-plate E, in combination with the screw mandrels and their jam-nuts T, the said tail-rest plate being adjustable on the main shaft F, substantially and for the purposes as herein described and illustrated.

No. 10,784.—Fowler M. Ray.—*Improvement in Spiral Springs for Railroad Cars.*—Patented April 18, 1854.

A flat spiral spring, between two conical surfaces. As the spring descends into the lower cone, support is given to part of its length, and the active spring shortened; the coils also bear against each other.

Figure 1 shows the spring at rest; figure 2 when in action.

The patentee disclaims the use of a flat spiral, irrespective of its peculiar action as set forth.

Claim.—The employment of a flat volute or coiled spring with the outer coil supported by the outer case, substantially as specified, when this is combined with the application of the weight or force to the inner and outer coils in lines parallel, or nearly so, with the axis of the spring, &c.

Also, the employment of one or more conical surfaces, or the equivalents thereof, as specified, in combination with the coiled spring, for the purpose of reducing the active length of the spring as the weight or force applied is increased.

No. 10,785.—John D. Seagrave.—*Improvement in Machines for Paring Apples.*—Patented April 18, 1854.

This invention consists of a wooden stand, which sustains the working part of the machine, to which a cog-wheel B, with a handle, is attached for turning the same, the teeth of which connect with an intermediate cog-wheel C, which connects with another one D, from the centre of which projects the fork E, which sustains the fruit to be pared. F is a movable sheath, capable of being pressed forward so as to cover the fork. In a groove in the outside of the sheath, a wire G is fastened to spiral spring H; when the spiral spring is at rest, the sheath is drawn back so that the fork remains uncovered for the fruit to be placed on it. Teeth on the cog-wheel B also connect with a cogged semi-circle J, in which is placed a projecting pin K long enough to strike and turn the wire G when it is reached in the revolution of the wheel J. The semi-circle of cogs J is connected with L, a half gear with cog teeth, from which an arm M projects, forming a part of this half gear, and in M there is a slit for the play of the knife-handle. The half gear is fastened to a wire axis, which rotates through holes in two uprights N and O in the stand. A wire is coiled around part of this axis, between N and O, so as to keep the half gear when not turned by the action of the cog-wheels, close to the cog-wheel at the semicircle of cogs J. The knife P is placed at the end of another wire Q which plays through the slit in M, the arm attached to the half gear L. This wire Q is fastened to the axis by a hinge at its extremity S.

The patentee does not claim in general the device of combining with a paring machine, in which the paring-knife moves automatically over the apple, a sliding piece moved automatically in regular alternation with the movement of the knife, in such manner as to push the apple from the fork at the completion of the paring, because such device has been used before in the apple-parer of Charles P. Carter, patented October 16, 1849.

Claim.—The specific mechanical arrangement invented for said device, viz: the sheath F, made to slide upon the spindle or axis of the fork, and operated by the wire G, which is impelled, at the proper moment, by the pin K on the wheel J, substantially as herein set forth.

No. 10,786.—G. B. Dixwell and J. A. Dorr.—*Improvement in Gas Regulators.*—Patented April 18, 1854.

The improvement is intended to prevent the inconveniences experienced in the use of gas regulators, resulting from the disturbances created by the varying pressure in the main; by disconnecting from the regulating gasometer the surface which is interposed between the main and the branch, contrary to the course pursued heretofore, where, as for instance in Clegg's regulator, surface V was connected with the regulating gasometer G, and therefore exposed the latter to all the disturbances to which it was exposed itself. The drawing illustrates one of the forms in which the principle may be developed. The surface V appears here supported on an adjustable standard S, and disconnected from the regulating gasometer G. The pressure of the gas in the main, however irregular, cannot disturb the gasometer; this pressure not acting directly on it through V, but through the means of the intervening inlet pipe H, which, being connected by braces *c c* and rod R with gasometer G, can only rise or fall vertically in proportion to the pressure in the main, and thus approach or recede from the diaphragm E, so as to close or open the aperture *a*, but never can be disturbed in any lateral direction.

Claim.—An improvement on the forms of gas regulators herein before described as Clegg's and other similar gas regulators, by disconnecting from the regulating gasometer thereof the surface which is interposed between the main and the branch, and upon which the disturbing pressure of the gas in the main operates, and which in those regulators is connected with the regulating gasometer, and connecting the regulating gasometer with a tube or its equivalent apparatus, which is not disturbed by the varying pressure of the gas in the main, substantially as herein described.

No. 10,787.—George Aulick.—*Improvement in Car Couplings.*—Patented April 18, 1854.

Claim.—Constructing a metallic box with vertical grooves *s s*, and an inclined trough or slide chamber *g g*, and using in combination therewith a vertically operating valve-like catch *c c*, formed with a convex or oval side, and a bevel-like flap on projection *a*, together with a gravitating or self-acting bolt or sliding latch *f*, specifically as described.

No. 10,788.—Ari Davis.—*Improved Box Machine.*—Patented April 18, 1854.

This improvement consists rather in the mode of securing the corners of boxes, than in the machinery by which the material is prepared for being thus secured, though both the machine and the article manufactured are included in the patent.

Figure 1 presents a front elevation of the machine.

Figure 2 shows the form of the piece of metal for securing the corners.

Figure 3 is a perspective view of the finished box.

Scores are made in the ends of the boards by the circular saws *e* and *f*, which are hung, one perpendicular to the surface of the board to be scored, and the other at an angle of 45° to the plane of its surface. Pieces of metal are bent to the proper shape for insertion in the scores, and the box is then put together.

Claim.—The corner fastened in the manner described, by forming a mitre joint and scoring the outside of the box in the manner described, and fastening the two parts at the corner by the angles of metal, as herein specified, without the use of nails or screws therefor. Also the combination of saws and cutters for forming the joint, as above described.

No. 10,789.—Samuel T. Field.—*Improved Apparatus for Painting Window Blinds, &c.*—Patented April 18, 1854.

The blinds having been dipped in the trough H, containing the paint, are taken out, and then placed one each side of the shaft C, with one still resting in one set of notches of the clamps. The loose clamps are then tightened upon them, and the lid of the cylinder B^1 being closed, rotary motion is given to the driving pulley, which communicates it to the shaft C and disks D D, causing the blinds to be whirled rapidly within the cylinder, and all the superfluous paint is driven off. The revolution may then be stopped, and the blinds taken out and touched up with a brush at the parts where the clamps have been in contact with them.

No. 10,790.—James L. Cathcart.—*Mode of Attaching Propellers.*—Patented April 18, 1854.

This invention consists in placing the universal joint of the propeller shaft between the stern-post and the rudder.

Claim.—Attaching the propeller, secured to a short shaft which passes through the rudder to its main or driving shaft by a universal joint placed between the stern-post and the rudder, by which attachment the propeller is moved laterally with the movement of the rudder.

No. 10,791.—G. M. Conner.—*Improved Water-Wheel*—Patented April 18, 1854.

This improvement consists in the means employed for enlarging and contracting the vent or discharge orifice, whereby said vent or discharge orifice may at all times be of such capacity as to correspond to the inlet orifice, or to the distance the gate is opened; thus avoiding the loss of power occasioned by any back action of the water upon the buckets, and at the same time obtaining the full effect of all the water which enters the scroll upon the buckets.

The drawing presents a view of the under side of the wheel, showing the device by which the discharge orifice is enlarged or contracted. In these drawings A represents the scroll, J the gate or inlet orifice, D the discharge orifice, which is at the centre of the bottom plate of the scroll, indicated by E.

Claim.—Enlarging and contracting the vent or discharge orifice D, so as to correspond to the inlet passage, by means of the ring formed of three sections *d*, *e*, *f*, attached to each other as shown, and connected to the crank arm *p* of the gate J by the lever I, as herein set forth.

No. 10,792.—George W. La Baw.—*Machine for Cleaning Blinds, &c.* Patented April 18, 1854.

This machine is designed for cleaning and rendering smooth and uniform the entire surface of doors, shutters, blinds, and panel-work generally, after it has been put together; which process is now performed by hand, with much labor and a great expenditure of time.

The machine is supplied with knives or cutters, sufficiently long to reach the entire width of the door, or other object to be finished; and these are followed by a sanded cylinder of the same length, that revolves rapidly and smooths the work.

The figure shows the carriage, feeding, and reversing gearing; also, the cutters and the sanded cylinder.

Claim.—This machine as original; and the application of it for cleaning doors, blinds, shutters, and panel-work generally.

No. 10,793.—William Boggett and George B. Pettit.—*Improvements in Heating, Warming, and Cooking.*—Patented April 18, 1854. Patented in England, October 22, 1851.

This invention consists in applying the combustion of gas to the purposes of heating and cooking. The method pursued is directly the reverse of that heretofore followed in the combustion of gas for light and heat. The upward current of air produced by the rarefying in-

fluence of the heat is caused to oppose the discharge of the gas, and to force the air to impinge as much as practicable against the gas at the point of discharge, or, by checking the upward movement of the gas, cause it to press laterally, and thus avoid the precipitation of unconsumed carbon; thereby preventing smoke, and at the same time heating the air and the vessel through which the gas passes to the point of ignition. The burners used to effect these objects consist of a hollow ball, perforated on its under side for the purpose of allowing the gas to issue therefrom, and commingle with the oxygen of the atmosphere. The gas, during ignition, will envelope the ball and make it red-hot, causing it to give out an intense heat in addition to the heat of the flame. Any number of these burners may be used by securing them on lateral supply-pipes, as in the figure.

Claim.—Making gas-burners for heating and cooking purposes, with minute apertures from an inverted or inclined surface or surfaces, substantially as herein described, so that the upward current or currents of atmospheric air shall be made to impinge and act on the issuing gas at the point or points of issue, on the principle and for the purpose specified.

Also, combining with burners, constructed and operated on the principle specified, a chamber through which the gas shall pass to supply the issues, and so located that the flame shall impinge against the surface thereof, for the purpose and in the manner set forth.

No. 10,794.—Charles De Saxe, assignor to Thomas H. Bate.—*Improved Landing-Net for Anglers.*—Patented April 18, 1854.

This invention is for making the hoop or mouth of the net with joints or hinges, that the hoop may be folded up in a small compass, and thus be rendered more convenient, while, at the same time, its strength is not diminished. The arrangement will be readily understood on reference to the figures. Fig. 1 represents the net open and ready for use; fig. 2 represents it closed.

No. 10,795.—Charles De Saxe, assignor to Thomas H. Bate.—*Improvement in Fishing-rods and Floats.*—Patented April 18, 1854.

The nature of the invention consists in inserting in, and combining with the rod, a secure and convenient box for carrying various implements of fishing tackle, and in constructing a float so that a very slight bite or nibble will spring the hook and secure the fish.

The cavity in the rod, which holds the box, is represented at A. The float is constructed with a cavity, containing a helical spring D, surrounding a standard *d*, attached to a lever E, which, by means of a hook *h*, is held to a catch *g*, when set for use; a pull at the line *e* disengages the hook *h*, and the lever E immediately flies up and the fish is secured.

Claim.—The combination of the tackle-safe with the rod, so that the whole forms but a single article, compact, safe, and convenient; also, the peculiar construction of the float, by which the slightest touch at or

interference with the hook causes the line to be suddenly moved or jerked, as if by a quick motion of the hand, and the fish to be thereby hooked, and whether the float is used with the combination before set forth or separately therefrom.

No. 10,796.—J. H. Fairchild and Sylvanus Richardson.—*Improvement in Potato-washing Machines.*—Patented April 18, 1854.

The machine is constructed of a slatted cylinder C, within a close or tight cylinder B, the space *e e* intervening between and containing a spiral partition E, running from end to end. The potatoes or roots are placed in the slatted cylinder C, with the proper supply of water, and the cylinder is rotated in an inclined position. The dirt passes into the space *e e*, and from this, guided by spiral E, to the outlet *f*, and by the effect of the centrifugal power generated through the revolution, while the clean roots are discharged at *c*.

Claim.—The manner herein described of constructing the machine with an outer solid revolving cylinder B, for containing water and catching the dirt removed from the roots, and with an inner slatted cylinder, which is secured fast to the outer cylinder, and revolves with it, for removing the dirt and foreign matter from the roots, and discharging them in a clean state at one end of the machine, in combination with the spiral or screw-thread, placed in a spiral manner between the two cylinders, for the purpose of separating the dirt from the washed roots, and effecting its discharge simultaneously with the discharge of the roots at the opposite end of the machine, through the passage *f*, substantially as herein fully set forth and specified.

No. 10,797.—Thomas Armitage.—*Improved Portable Ladder, or Fire-Escape.*—Patented April 18, 1854.

This is an extension ladder, which may be folded up within a very small compass, and, in case of fire, may be rapidly extended, so as to afford a safe and reliable means of escape from the upper rooms of edifices.

Claim.—Constructing an extension rescue, or ladder, by means of a series of knee-shaped pieces, and a series of rungs of unequal and graduated lengths, combined and operated in the manner described.

No. 10,798.—Philos Blake.—*Oyster-Knife.*—Patented April 18, 1854.

The improvement consists in combining with the oyster-knife two lips, C and D, secured to the shank, near the heel of the blade B, between which lips the nose or thin end of the oyster may be inserted, and, by a twisting motion, broken off, in order to present an opening for the blade.

Claim—to the combination of the cheeks or lips with the knife in one instrument, whereby the opening of oysters is accomplished with greater ease and expedition.

No. 10,799.—James Ballard.—*Improved Slitting-Gauges.*—Patented April 18, 1854.

This invention relates to a new and ingenious method of preventing the slitting-gauge used by carpenters, cabinet-makers, and others, from running off the board, or cutting in the direction of the grain of the wood, and thereby spoiling the article to be operated upon. It also relates to a new and useful method of securing the cutter in the stock of the gauge; and likewise of securing the head to the arm, or bar, on which it slides; and further, to a new arrangement of the friction rollers, for taking off the friction from the face and bottom of the gauge, in moving from one end of the board to the other.

Figure 1 is a perspective view of one of the gauges, with the improvements applied to it, and in operation.

Figure 2 is an inverted plan of the same, showing the arrangement of the rollers, and the two positions which the gauges are capable of assuming—figure 2 representing one position, and figure 3 the other—the one when cutting with the grain, and the other when cutting against it. A A^1 represents the gauge-head in two parts, united by the fulcrum-pin B; C the arm passing through the head on which it slides; D D^1 are the back stops attached to the upper section of the head; E E^1 are the set screws for regulating the set of the upper section of the head; F G are eccentric levers for locking the slitting cutter and gauge-head in their places; H I J are the friction rollers; L is the centre stock, in which is inserted the cutter.

Claim.—The slitting gauge-head, made in two sections, with or without friction rollers, when said sections are united together at the centre of their length, by a pin B, or its equivalent, substantially as and for the purpose herein described. Likewise the arrangement of the friction rollers H, I, J, for the purpose herein described.

No. 10,800.—R. M. Bouton.—*Improved Faucet.*—Patented April 18, 1854.

The figure represents a perpendicular, longitudinal section through the axis of the water-way *w*, showing the internal structure. In this figure, S is the shank, V the valve, P P^1 the piston or valve porter, R the adjusting screw, C the cam, L its lever, O the outlet or mouth, F the fulcrum or centre pin of the cam, and M the cam-mortise in the faucet and piston.

Claim.—The combination of the piston, cam, and lever, substantially as described and represented, with or without the toggle-joint, for the purpose of closing the valves of liquor faucets.

No. 10,801.—David and Samuel Flanders.—*Improved Fly Trap.*—Patented April 18, 1854.

This trap has a horizontal, circular, rotating disk B, divided on its upper surface by four upright ledges into sections *b b b b*, which, as the disk rotates, pass in succession underneath a portion of a circular cover, or top, of a box C, which contains a wiper D that sweeps the interior

of the sections *b*, and throws the flies into the box behind the wiper, from which they fall into a glass of water represented at I. The sections *b* are suitably baited to attract flies, and the apparatus is moved by suitable clock-work, to insure a steady and equal motion of the disk and wiper.

No. 10,802.—Martin Hallenbeck.—*Improvement in Grass-Harvesters.*—Patented April 18, 1854.

The improvement and claim is confined to the peculiar construction of the fingers *d*, having ribs K at their lower part, and vertical slots *l l* passing through them on each side of the ribs, with inclined plates *j* attached to them, and ledges *k* at each side. The plates *j* prevent the sickle from clogging, and the ledges *k* prevent the grass from being thrown out from the fingers by the action of the teeth.

No. 10,803.—Julius C. Hurd.—*Improvement in cleaning Cotton and other Fibrous Substances.*—Patented April 18, 1854.

This machine is used for picking, seeding, and cleaning either wool or cotton, as well as for picking and reducing to threads fabrics made of wool, flax, cotton, silk, hemp, or jute, or any fabric composed of coarse thread, so that the same may be again carded and spun. Hot air is also introduced into the machine, by which a greater uniformity of the numbers of the yarn is obtained, and the material is better cleansed.

The figure represents a longitudinal section of the machine. The teeth of the combing-beater D are curved, so that if their surfaces were produced, a cylinder would be formed concentric with the cylinder to which the teeth are attached. A grating, *b*, is applied immediately under the combing-beater, each slat of the grating being furnished with independent springs, whereby the motes, as they fall upon the grating, are instantly knocked through the spaces between the slats, the latter yielding to permit the impurities to pass between them.

Claim.—The use of the peculiar combing-beater herein described; the teeth being so curved as to bring the beater very near the feed-rollers, and united with each other at their bases in the manner of saw-teeth, for the purpose set forth.

Also, the peculiar method, herein described, of applying springs to the slats of the grating beneath the beaters, each slat being furnished with independent springs, whereby the motes, as they fall upon the grating, are instantly knocked through the spaces beneath the slats, and are not carried round by the beater to be again entangled with the material—the slats yielding to permit the impurities to pass between them.

Also, the introduction of heated air into machines for picking and dusting cotton, by which a greater uniformity of the numbers of the yarn is obtained, and the material is more thoroughly and readily cleansed.

No. 10,804.—David A. Hopkins.—*Improved Ticket-box for Railroad Cars.*—Patented April 18, 1854.

A ticket-box is provided for every car-seat, and the original tickets, which stand in account against the conductors, are taken from the boxes by agents at the end of the line; the agents being provided with keys.

Each passenger is to be provided with two tickets, an original and a duplicate; upon taking a seat, the occupant places his original ticket in the space between the back plate *e*, and the glass *c*, and gives the duplicate ticket to the conductor previous to leaving the train. As way-passengers leave the train, and others occupy their seats, the tickets are kept in the order of placement, and so held by a spring *i*.

No. 10,805.—Abram C. Johnson.—*Improvement in Operating Dumping-Cars.*—Patented April 18, 1854.

The car has its front wheels with the flange on the inside, and the hind wheels with the flange on the outside. On reaching the dumping place, the front wheels run down the rail O, and the hind wheels up the rail M, and the load is discharged. On returning, the empty car is passed over the balance beams A, while the loaded car is stopped beneath it.

The patentee disclaims operating by endless chain, or mere double tracks, one above the other.

Claim.—The construction of the balance-beams arranged as described, for the purpose of passing one set of cars over another set, running in an opposite direction on the same track.

Also, the arrangement of the rails M M and O O, in combination with that of the car-wheels, as described, for the purpose of rendering the cars self-dumping.

No. 10,806.—Lawson P. Keach.—*Improvement in Cooking.*—Patented April 18, 1854.

The claim explains the nature and operation of this invention.

Claim.—The method herein described of roasting oysters, or other articles of food having a shell or similar natural covering, by arranging the oysters on supports at a suitable distance apart for the play of the flame of gas, issuing from gas-pipes, or burners, on or against their shells, when the said burners are so arranged that the flame of the one burner, jetting horizontally, or slightly dipping from the horizontal position, impinges and acts upon the top-shell of one oyster and the bottom-shell of another, as herein set forth, whereby the fish is more thoroughly cooked, and one burner serves for two oysters, as specified.

No. 10,807.—George W. Keller.—*Improved Fire-Escape.*—Patented April 18, 1854.

A roller A is fixed in suitable bearings attached to the inside of buildings, opposite a window; on the roller is wound a double chain

D D, united by rungs *c c*, to which are also fastened guard pieces F, of the form shown in the drawing. On the occurrence of a fire, it is intended that a few of the outer links of the chains shall be unwound from the roller A, and thrown out of the window; when, by aid of the weight W, it is expected that the whole safety-contrivance will be carried to the ground, and persons may descend inside of the guards F in safety. E are friction-rollers to insure the descent of the ladder.

No. 10,808.—J. Augustus Roth and Joseph Lea.—*Improvement in Process for Bleaching Flax.*—Patented April 18, 1854.

This process is entirely mechanical, being a vertical agitation by power, and, at the same time, a drawing through squeezing-rollers. The flax or yarn is, for the purpose, hung on combs, so as to pass the teeth through the middle of the hank, or skein, in order to immerse the fibre simultaneously in the bleaching-solution.

Claim.—The process of distributing the flax-fibre, or yarn, upon combs, or equivalent devices, and agitating the same when immersed in chemical bleaching solutions, in the manner and for the purposes substantially as hereinbefore described.

No. 10,809.—Anthony Sohn.—*Improved Machine for Filling Match-Frames.*—Patented April 18, 1854.

The design of this improvement is to overcome the necessity for mere manual labor, in placing match-splints in a position to receive the sulphur or other igniting compound required to be placed upon them.

Claims.—1st. The combination of the bottomless, shaking, or reciprocating-box or hopper C and the fixed bed B, which is grooved transversely to the motion of the box, but longitudinally to the direction of the matches, substantially as described, for the purpose of separating a number of matches, and laying them parallel in a row at a required distance apart.

2d. The reciprocating series of rods O O in combination, as described, with the grooved bed B, for the purpose of pushing the matches longitudinally from the grooves into the frame P.

3d. Placing the match-frame P, for the purpose of being filled, in an upright fixed frame, M M O, which is furnished with a sliding, balanced cross-piece N, containing a moveable step R, which is capable of being protruded through the said cross-piece between the sides of the match-frames, and withdrawn therefrom for the purpose of receiving the slats K K and the matches nearly on a level with the grooved bed, and lowering them into the match-frames until the latter are full, and then being withdrawn therefrom, to leave the matches in the frames, and leave the frames free to be taken from the machine, substantially as described.

No. 10,810.—William H. Towers.—*Improved Machine for Opening Oysters.*—Patented April 18, 1854.

The improvement consists in tightly embracing the oyster to be opened between jointed metallic jaws, made to resemble somewhat the convex sides of the oyster, and forcing and guiding the knife between its shell in such a manner as to divide them, and at the same time cut the eye of the oyster. In operating with the machine, the upper edge of the oyster is first broken off to allow the edge of the knife to enter; it is then clamped between the jaws A A and the knife K set in the proper position, when, by closing the jaws by means of the strap G, the oyster is firmly held, while the lever L is depressed, and the oyster is thus forced open.

Claim.—To the method of opening oysters and other bivalves without injuring the hands, by firmly enclosing them between jaws, and forcing a knife, having spring-guides on its sides, of the form described, between the shells, in the manner herein set forth.

No. 10,811.—William Lapham, *executor of* Seneca Lapham, *deceased.*—*Improvement in Maize-Harvesters.*—Patented April 25, 1854.

The invention is confined to the arrangement of the reel T, the arms U U and W W, which receive the cut maize and deposite it in bundles on the ground by an intermitting rotation created through spring stops W V, worked by the movement of a cam or pin Q on the driving-wheel P, and the lever R vibrated by said pin. The maize, when cut by the cutting-arrangement, which is of ordinary form, falls by its own weight on the reel-arm.

Claim.—Is restricted to the method of arranging and operating the reel; that is, hanging the reel on a frame working vertically in ways, and supplied with suitable stops for receiving and discharging, at intervals, the cut maize, substantially as set forth.

No. 10,812.—Josiah Ells.—*Improvement in Revolving-breech Fire-arms.* Patented April 25, 1854.

This invention consists in the extension G, on the forepart of the rotating-chambered breech, as a prevention of the fouling of the spindle by the smoke in firing; and also as a means of connecting and locking the breech with the barrel, as herein set forth. Also, in the mode of connecting and locking the barrel and breech to the lock by means of a bracket and spring extending in front of the lock-plate, as described, marked *m n*.

Claim.—The extension on the forepart of the rotating-chambered breech, as a prevention of the fouling of the spindle by the smoke in firing, and also as a means of connecting and locking the breech with the barrel, as herein set forth. Also, the connecting and locking the barrel and breech to the lock, by means of a bracket and spring, extending in front of the lock-plate, in the manner described.

No. 10,813.—James R. Stafford.—*Improvement in Distilling and Condensing Apparatus.*—Patented April 25, 1854.

The improvement refers to the separation of oils of different volatility, being the products of the destructive distillation of rosin, bitumen, asphaltum, residuums of gas-works, fats vegetable and animal, &c., by means of a condenser either surrounded by a jacket, or having a pipe or pipes passing through it, into which air or steam is admitted and allowed to escape at the pleasure of the operator, who is thus enabled to control, at every movement, the temperature of the condenser, agreeably to the quality of the material distilled, and to the degree of volatility of the different oils to be separated.

Claim.—The employment, for the purpose of separating the more and less volatile products of distillation, of a vessel B, which has an opening E for the escape or withdrawal of condensed matters; and another opening F for the escape of the more volatile matters, and which has its temperature regulated by the admission of steam or air through a pipe J passing through its interior, or through a chamber D surrounding it, substantially as set forth.

No. 10,814.—A. Harvey and C. Guild.—*Improvement in Vinous Fermenting Close Vessels.*—Patented April 25, 1854.

The improvement consists in the addition to usual range of closed fermenting vats, as patented, for instance, to C. O. Walpers, in July, 1841 of sundry devices, having for their object the return into, and the disseminating through, the fermenting liquids of the gases evolved by fermentation, in order thereby to condense, retain, and re-imbody in the liquid the alcoholic vapor thrown off, in conjunction with the carbonic acid gas, during the process of fermentation; and also, by returning the carbonic acid gas, to accelerate and render more perfect the decomposition of matter made subject to vinous fermentation by the chemical action of the carbonic acid gas thereupon.

Claims.—1st. The application of pumps *i*, or of exhausters and blowers, or other equivalent apparatus, to draw the gas from one fermenting vat, and force it into the fermenting liquid in another or the same vat, as herein described.

2d. The arrangement of apparatus whereby a return current is created, and the circulation of the gases caused; that is to say, the return pipe *c* and pumps *f*, or mechanism substantially equivalent, as set forth.

3d. The check-valve *h* in the disseminating pipes, for the purpose of preventing any contrary passage of the liquid from vat to vat from that which was intended, in combination with the turn-off cocks, for the purpose of isolating a portion of the vats, and shortening the circuit when desired; and the whole in combination with the pumps or valved pistons for the acceleration of the circulation, and by this means equalizing its action, and removing the danger of bursting the vats.

4th. The pipe b^4, having two discharge nozzles, at different heights of the liquid of the condensing vat, and cocks in the upper nozzle, in order to regulate the amount of vent or discharge.

No. 10,815.—Joseph C. Tiffany.—*Improved Ditching Plough.*—Patented April 25, 1854.

This invention and claim consists in the combination of one or more adjustable coulters *o o* with a permanent coulter M, and with adjustable elevators N, with mould-boards attached, so that the width of the ditch may be varied, and the elevators be set to suit the depth of the ditch intended; also in still further combining with these a flexible spreader, attached to the rear of the plough, which may be so adjusted as to remove the earth taken out in forming the ditch to the required distance from the edge of the ditch.

No. 10,816.—George W. Glass.—*Improvement in Cast-Iron Car-Wheels.*—Patented April 25, 1854.

Braces of various forms are to be cast on the surface.

Claim.—The constructing of cast-iron car-wheels of the shape and conformation described in the specification and shown in the accompanying drawings, being wheels with two disks, united at the rim and tread, and at the hub, by a series of circular or semi-elliptical arches; the greatest external curvature of the inner disk being immediately under the flange, and below the point of contact of the flange and tread, for the better supporting the flange and tread, in combination with the braces of the construction and shapes shown in the drawing.

No. 10,817.—Frederick Field.—*Improvement in Travelling Bridges.*—Patented April 25, 1854.

This is a bridge long enough to extend over three piers, and carries the load with it. The action of the locomotive upon the wheels D, or any other means of propulsion, may be used.

Claim.—The patentee does not claim a retractile drawbridge, nor any of the appliances by which such bridges are moved, but wishes it to be understood that he distinguishes his bridge from all others, and claims it as such. That this bridge acts as a carriage as well as a bridge, receiving its load upon it while resting on the abutments, or one side of the span or spans to be crossed, carries the load over, and rests upon the other side to receive its return load; and so back and forth, leaving the spaces between the piers open for vessels &c.

No. 10,818.—William E. Milligan.—*Improvement in Railroad Car Seats.*—Patented April 25, 1854.

This seat is adapted for use of a carriage or railroad car, or as a conversational sofa, and so arranged as to be readily reversed as occasion may require, the peculiar device consisting in ways which support the angle of the seat and back, whereby it is transferred from the front to rear of the chair, when the reversal is made. The patentee does not claim the device of making reversible seats, in which the back

turns down to form the seat, and *vice versa*, such having been before used.

Claim.—Supporting the angle of the seat and back upon ways, or in any equivalent manner, whereby it is transferred from one side of the chair-frame to the other, in making the reversal, substantially as herein described.

No. 10,819.—John P. Avery.—*Improved Method of Securing Stones in Foundations.*—Patented April 25, 1854.

The substance of this invention consists in the combination and arrangement of the dovetailed flanged joggles D D and the key *c*, by which two stones in the same course and one in the next immediately above are at once clamped together by driving in the key *c*.

No. 10,820.—Thomas W. Brown.—*Improved File or Bill Holder.*—Patented April 25, 1854.

In the drawing, A B represents two flat boards of equal size. In the upper board A a circular recess C is made, to receive a ring or hollow barrel D, containing a coiled spring E, sustained in place by a pin F. Four cords, G H I K, are wound in the hollow periphery of the barrel D, and their outer ends attached to the board B, thus binding the two boards between which the papers are arranged with elastic supports.

Claim—to the arrangement or application of the circular-grooved annulus or spiral-spring and the cords together, and with respect to the two boards, in manner and so as to operate substantially as hereinbefore specified.

No. 10,821.—Charles Buss.—*Improvement in Repeating Fire-Arms.*—Patented April 25, 1854.

The substance of this invention and claim consists in the combination and arrangement of the parts by which the trigger-guard H performs the double functions of protecting the trigger and serving as a spring to press the index-holder against the catch-wheel, as specified.

No. 10,822.—Reuben Burdine.—*Improved Rotary Pump.*—Patented April 25, 1854.

The drawings present, figure 1, a central sectional view of the apparatus, with the driver in its place; and figure 2, a view of the driver with one of its sides removed. This machine is so constructed as to require neither packing nor close fitting in any part of it, depending entirely on water packing; from which circumstance much of the friction, incident to other machines for similar purposes, is avoided. A represents the driving shaft; B, the casing, which consists of flat disks of metal, having a raised rim or flange *e e*, thus forming a drum; *c c* are semi-circular bridles, which serve as journals for the shaft A; *a a a a*

are raised borders, circumscribing the openings of each side of the disks or inlets for the water; D is the discharge-pipe; *b b b b* are annular rings bordering the screws *d d d d*, that are secured on the shaft A; *f f f f* represents the sides of the driver united with the screws and shaft; E E E E are parts of a circle interposed as vanes between the sides or plates of the driver, for the purpose of partially contracting the space at the periphery.

Claim.—The combination of the screw, or screws, upon the rotary shaft A, with the radial curved wings or drivers E E, [though the patentee does not confine himself to the curved form, as straight ones may be used,] the whole contained within a case or drum for receiving and directing the water intended to be elevated in the manner set forth.

No. 10,823.—STEPHEN and JAMES A. BAZIN.—*Improvement in Machinery for Laying Rope.*—Patented April 25, 1854.

The nature of this invention consists in an arrangement of mechanical devices by which an extra twist can be given to the strands when desirable, so that the machine can be readily adapted for forming either "soft" or "hard" cordage, as it is termed; and also in the use of a bent crane with a hinged bar, which moves parallel with the axis of the reel-shaft, in lieu of a straight one, for forming the rope into coils, as the end of the straight crane, over which the cord passes, describes an arc of a circle, which practically prevents the coil from being perfectly formed. There is also an improvement by which the rope is stretched after it is formed, and before it is wound into a coil. In the figure, *a a a* represent the bobbins hung in the swinging frames *b b b*, which have their journals in the plate *c*, and are revolved by the shaft *e e*. The short cranks *f f*, which are attached to the ends of the journals of the swinging frame, have their journals in a plate *g*, which revolves upon the rollers *h h*, which have their bearings in a plate *i*, (attached to the pulley *k*,) the hollow shaft *l* of which fits over an extension of the shaft *e*. Motion is communicated to the shaft *e;* and when but one twist is to be given to the strands the plate *i*, with its roller, is prevented from revolving, so that the ring *g g* will turn in one fixed circle of revolution around the rollers *h h*, (held in one fixed position,) and keep the bobbins *a a* in a vertical position as they revolve around the shaft *e e*. When an additional twist is to be given, the swinging frames are made to turn upon their axes while revolving around the shaft, giving an extra twist to the strands by causing the ring *g g* to revolve excentrically around the shaft *e e*. This is effected by means of the plate *i*, to which the rollers *h* are attached, to which motion is communicated by means of a band *n* extending around its pulley *k*, the pulley *o*, fixed to the shaft *e*, and the grooved pulleys *p p*. The pulleys *p* revolve loosely on the shafts, so that by lifting one of these pulleys from its shaft the band *n* will be loosened, and no motion will be communicated to the plate *i*. The rope, after being laid, is drawn along by a system of gearing, and passes first around the pulleys *r* and *s*, and thence around a pulley *t*, forming a part of the pulley *r*. The pulley *t* is larger than *s*, which arrangement will give a strain to the rope. The crane consists of a straight bar *w*, hinged to a standard *y*, and attached to a bent arm w^1. To the latter is attached an arm *x*, turning on a pivot at y^1. The arm *x* extends over the reel *z*, parallel with its axis, so that as the reel *z* revolves, the rope will be drawn over the pulleys of the crane and fed along as the helical curves of the coil are formed in a line parallel with the axis of the reel, thus forming a regular coil.

Claim.—Adapting the machinery for forming both "hard" and "soft" cordage by means of the ring *g*, so actuated by the circular plate *i*, and its rollers, made to revolve or held stationary, as set forth, as to form an extra twist in the rope, by giving an additional revolution to the bobbin frames.

Also, the moveable crane, formed of a bent shape with the right-angular hinged arm, operating so as to feed the rope in a direction parallel with the axis of the reel.

Also, stretching the rope after it is laid, by means of the double pulley *r t*, with grooves of different diameters.

No. 10,824.—HENRY CLARK.—*Improved Machine for Feeding Sheets of Paper to Printing Presses.*—Patented April 25, 1854.

The invention consists in detaching or loosening the sheet of paper that is to be fed to the press from the sheets underneath it, by giving the sheet a backward and forward motion, previously to its being operated upon by the feed or pressure rollers.

The paper *b* being laid on the box A, and its front edges placed under the lips *o o*, motion is communicated to the shaft B, and the wiper K acts against a frame, and the pressure blocks I force backward the front part of the top sheet of paper from underneath the lips *o o;* the pressure bar E bearing firmly upon the paper, owing to the spring G^1, and causing the upper sheets to be bent upwards, angularly, between the pressure bar and the pressure blocks. When the frame is freed from the wiper K, it moves back to its original position, by means of the spring J; and the pressure blocks, in their return motion, bring the top sheet of paper forward over the lips *o o*. The cam G then raises the pressure bar E; and the spring segments D D then bear upon the paper and force it forward a short distance; and then the elastic strips *d d* bear upon the paper, and move it along the required distance, to be fed into the printing press.

No. 10,825.—GEORGE H. COTTAM.—*Improvement in Portable Folding Chair Bedsteads.*—Patented April 18, 1854. Patented in England October, 5, 1852.

This invention consists in combining three frames (either stuffed or not) by hinges or joints, so that they fold together, and form at one moment a chair or a sofa; one of the frames acting at one time as a back, and at other times as a bedstead. The legs or beams are connected by moveable joints to such frames; so that when required to be

packed, the three frames come parallel to each other, and the legs, or other parts, also fold thereon, the arms or elbows acting by nearly a parallel movement.

Claim.—The patentee makes no claim to the parts separately, nor does he confine himself to the details as herein given, provided the peculiar character of the invention be retained; but what is claimed is the mode herein described of constructing folding sofa or bedstead chairs, viz: a combination of three frames A B C, and jointed arms, as applied and made to operate together, substantially as specified.

No. 10,826.—GEORGE C. JONES and PETER KING.—*Improved Wedge Machine.*—Patented April 25, 1854.

Figure 1 is a perspective view of the machine ready for action; the chisel or shave raised up, and the sockets or grooves I I I I exposed. Figure 2 is a view of the chisel or cutter: D representing the blade; E E the arms by which it is made to slide up and down the guides S S, when in operation; F, the head of the chisel, in which is a slot to receive the lever or handle, and which is attached to the body of the chisel by a joint or pivot, to accommodate it to the motion of the lever. G is a narrower chisel, affixed to the face of D, which stands at right angles to it, and which is used for shaving one edge of the wedge. On H is another similar chisel, affixed to D in the same manner, and used for smoothing the other edge of the wedge. On H will be seen a rounded projection which comes in contact with P, a projection upon the spring *c*, which permits the finished wedge to fall out of the machine.

Claim.—1st. The peculiar form of the chisel, having two or more projecting chisels at right angles to the face of the main chisel, and an appendage for pushing back the spring *c*, as above described.

2d. The application of the spring *c* and its projection P, for the support of the wedge while being shaved, as before described.

3d. The peculiar form and arrangement of the grooves for holding the block to be shaved, and giving shape to the wedges while being shaved, as above described.

No. 10,827.—GEORGE LITTLE.—*Improved mode of operating the Feed-tables of Printing Presses.*—Patented April 25, 1854.

The improvement consists in applying to one or both sides of the feed-table a ratchet wheel *c*, working on a screw F attached to one end of a connecting rod B, the other end of which rod is attached to an arm or crank E, having a series of holes in it, so as to allow a ready means of adjustment of the paper table L, to which it is attached. Also, in attaching two guides H, faced with India rubber, set as represented at fig. 2, so that they press the masses of paper by their edges, in order to prevent, by resistance, more than one sheet of paper being carried to the press at one time.

Claim.—The mode for operating the feed-tables of printing presses, together with the guides, composed of India-rubber or other suitable resisting material.

No. 10,828.—W. KUHLENSHMIDT and W. HAUFF.—*Improvement in Apparatus for feeding paper to Printing Presses.*—Patented April 25, 1854.

The improvement consists in the employment of a semi-circular roller E, so arranged and operated that it will, in its backwood movement from the paper-cylinder, loosen or detach the top sheet of a layer of paper, and then lift up the back end of the sheet, and, in its forward or return movement towards the cylinder, feed it to the fingers. The semi-circular roller is provided with some adhesive cement on that part which bears on the back end of the paper, for the purpose of perfectly seizing the sheets, which are turned over into the fingers of the press.

No. 10,829.—DANIEL R. PRINDLE.—*Improved Field-Fence.*—Patented April 25, 1854.

The nature of this invention consists in the manner of fastening together the adjacent posts of a field-fence, by passing a piece of metal, having a head on one end, through two adjacent posts, and securing the same by means of a wedge or its equivalent at the other end, the posts being so bevelled as to give any desired angle. This is the substance of the inventor's claim.

Figure 1 represents a perspective view of the fence; figure 2 the metal connexion before insertion; figure 3 the metal connexion when the panel has been moved to its proper position.

No. 10,830.—FREDERICK SCHAUM.—*Improvement in Glass Furnaces.*—Patented April 25, 1854.

This invention consists in giving such form to the furnace, by the external and internal configuration of the breast-wall around the pots, that a greater number of workmen or blowers can be employed than in any of the present known forms of glass furnaces; and also in the arrangement of the chimney-flues in relation to the pots and the great chimney-cone, so that a great amount of heat is saved, and the melt conducted more uniformly, and with much greater rapidity than in ordinary glass furnaces.

Claim.—Making the external and internal configuration of the breast-work of the furnace-wall, with the re-entering portions, so as to partly embrace the pots, and to furnish room for additional or extra teaze or ring-holes, substantially in the manner described.

No. 10,831.—J. C. FR. SALOMON.—*Improvement in Brick-Making.*—Patented April 25, 1854.

The nature of this improvement consists in the arrangement and operation of a crane C, mould-box D, and platen E, situated above the platform upon which the bricks are moulded. After the pressure is applied to the platen, the mould-box is caused to rise from the platform —the platen serving to push the bricks from the rising mould-box.

The crane is then carried forward, conveying the mould-box and platen with it, for repeating the operation.

The bricks are dried by means of heated air, conveyed beneath the platform, on which they remain in the very place where moulded.

Claim.—The combination of the swinging-crane, mould-box, and platen, for pressing brick, arranged and operating as set forth in the specification.

No. 10,832.—ALBERT SPENCER and AUGUST LOESCHNER.—*Improvement in Forming and Hardening Hat-Bodies*—Patented April 25, 1854.

The nature of this invention consists in the use and arrangement of two or more sets of endless feed-rollers, aprons, and fan-brushes, in combination with a blower, and a series of blow-pipes, so arranged in connexion with the fan-brushes as to cause the fur or wool to be thrown upon the former-cone from the mouth of a funnel. There are two sets of endless aprons *c c*, running around rollers D. I I are the fan-brushes, propelled by a band. O is the fan-blower case, arranged over the feed-rollers and aprons: it has side tubes or reservoirs for confining the air, so as to cause it to be discharged through the series of blow-pipes M, to carry the fur or wool thrown off by the fan-brushes to the forming-cone. P is the fan-blower, to which motion is communicated by suitable means.

Claim.—The use and arrangement of the series of blow-pipes, as set forth, when used in combination with two or more fan-brushes and feeding apparatus, for the purpose set forth.

No. 10,833.—WILLIAM G. STERLING.—*Improvement in Roofing.*—Patented April 25, 1854.

The invention consists in the use of reticulated wire, imbedded in cement, for roofing, where cloth is used as a foundation, which prevents the cement from cracking and breaking off, as is the case where wood or cloth alone is used as the foundation of the roof of cement.

No. 10,834.—WILLIAM M. STORM.—*Improved Bullet-Moulds.*—Patented April 25, 1854.

The substance of this invention consists in the peculiar arrangement of the slotted cutter *f* and the spring *d* on the moulds, which enables the operator to cut off the spring, and to disengage the ball from the moulds by a single grasp of the hand; while, by simply releasing the handles of the moulds, they are placed in readiness to receive the next casting.

The inventor claims the combination of the parts, as described, which enables him to effect the two purposes.

No. 10,835.—VARANES SNELL.—*Improvement in Machine for Cutting and Skiving the Counters of Boots and Shoes.*—Patented April 25, 1854.

The essential features of this machine consist in a vibrating clamp *b*, for holding the leather while it is being cut, and for releasing it after the operation is finished; and a traversing-knife *a a*, which travels in the arc of a circle, and rounds and levels the counter at the same time—the motions of the clamp and knife being effected at the proper times by a peculiar arrangement of mechanical devices.

Claim.—Holding the clamp upon the leather while the counter is being cut, and releasing it from the same after the operation is finished, by means of the traversing pawl K acting in combination with the lever *i i* and notched-plate *s s*, as above set forth.

Also, a machine for cutting and skiving boot and shoe counters, which has a clamp for holding the leather while it is being cut, and for releasing it after the operation is performed; and a traversing knife which moves in the arc of a circle, and rounds and skives the counter at the same time, as above set forth.

No. 10,836.—DEWITT C. SMILEY.—*Improvement in Oilers for Machinery.*—Patented April 25, 1854.

The nature of this invention consists in connecting with an ordinary oiler an interior chamber, having its bottom extended so as to fill the interior diameter of the can, and form a diaphragm dividing the can into an upper and lower chamber, and furnished with two valves, one opening upwards and the other downwards, so that by the alternate application of pressure on the bottom of the can, and removal of the same, the oil is drawn from the upper to the lower chamber, and forced through the interior chamber and out of the orifice at the extremity of the can tube. In the drawing, *a* is the interior chamber, its bottom *c* extended, filling the interior of the can *b*, and dividing it into two chambers *h* and *i*. In the diaphragm are the valves *e* and *f*, the former opening into the interior chamber from chamber *i*, and the latter opening downward, and forming a communication between the chambers *h* and *i*.

Claim.—The combination of the interior chamber *a* with the can *b* having a flexible bottom; when said interior chamber has its bottom extended to fill the interior diameter of the can, and form a diaphragm dividing the can into an upper and lower chamber, said diaphragm provided with valves *e* and *f*, one opening upward and the other downward, arranged and operating in the manner before described, for the purpose set forth.

No. 10,837.—WILLIAM B. THOMAS and SAMUEL HICKOK.—*Improvement in Railroad Car Seats.*—Patented April 25, 1854.

The improvement described in this patent consists in the construction of jointed or hinged legs A for railroad car seats, so constructed and arranged that the bottom and back of the seat H may be moved for-

ward or backward, obtaining different degrees of inclination to the same, and accommodate the person occupying the seat to an upright, sitting, or reclining posture.

Claim.—The construction and operation of this seat, with the exception of the jointed legs herein described, is substantially the same as that described in the patent granted to the said Samuel Hickok on the 9th day of August, A. D. 1853. That which is considered new is the jointed or hinged legs, in connexion and combination with the other parts of the seat; the claim, therefore, is to the combination of railroad car seats with hinged or jointed legs, constructed and operated substantially as herein described.

No. 10,838.—Simeon Towle.—*Improved Syringe for Eye Baths.*—Patented April 25, 1854.

This bath is made of India rubber, or other elastic substance, and has a bag A, connected by a tube to cap C. Upon rim D is a thin flap 3, which may be notched at several points in order to fit around a sore eye without giving pain. By a gentle alternating pressure upon bag A, the water rises into, and then flows from, the eye.

Claim.—To the combination of the rimmed cap C, connected tubularly with ball A, and arranged and operating substantially as described, to be used for purposes and in cases as suggested and set forth.

No. 10,839.—Isaac True.—*Improved Reaction Water-Wheel.*—Patented April 25, 1854.

The nature of this invention consists in constructing the buckets of percussion and reaction water-wheels, with projecting hooks on their inner faces, and also with projections or flanges above the rim, so as to afford the most favorable surface for the action of percussion, and in cutting away a portion, thus allowing the water free and unobstructed access to the buckets.

Figure 1 is a plan of the wheel with the improved bucket. Figure 2 is a vertical section.

Claim.—The employment of the hooked surfaces *d*, and curved projecting surfaces *l n* and *r*, in combination with the indented rim *q*, substantially in the manner specified, in the construction of percussion and reaction water-wheels, whereby the effective force of the percussion is greatly increased, as herein fully set forth.

No. 10,840.—C. D. Van Allen.—*Improvement in Invalid Bedsteads.*—Patented April 25, 1854.

This bedstead has a stationary canvass or mattrass *c*, with a central opening for dejections. Under *c* is the mattrass *l*, supported by frame *j*, which is elevated or depressed by windlass *s*; *k* is an extra frame, which may be slid out laterally from *j*, for a temporary additional bed. Frame *e* has one edge hinged, whilst the other may be

raised by windlass *i*, to support the patient's head. *p q* are hand-straps for the convenience of parturient patients.

Claim.—The arrangement and combination of the elevating and depressing bed *l*, with the stationary suspension mattrass *c*, whereby the bed is raised to, and lowered from, the patient when necessary, instead of moving the patient, thus avoiding the necessity of moving or disturbing the patient in the least, substantially as set forth and represented.

No. 10,841.—William F. Ketchum.—*Improvement in Guard-Fingers of Harvesters.*—Patented April 25, 1854.

The improvement refers to casting guard-fingers of the form as represented by drawing B, which heretofore had to be made from wrought iron, by casting them of the form represented in A, and closing, after the necessary dressing, the shanks, to give them the form B.

Claim.—Moulding and casing the blank for the tooth in the open form described, without a chill; then mallifying, dressing up, and bending them into the proper shape as required.

No. 10,842.—Isaac M. Singer.—*Improvement in Sewing Machines.*—Patented May 2, 1854.

The nature of this invention consists in forming a seam which on one side has the appearance of stitching with a single thread, whilst on the other side three threads are laid on the surface, in such a manner as to be adapted to ornamental embroidery.

Claim.—Forming seams for stitching and sewing with two threads; the first of which is carried through the cloth at each stitch, and interlaced with the second by forming a loop with the second on one side of a loop formed with the first, and then forming a second loop with the second thread, which is drawn through the loop formed with the first thread, and through the first loop formed with the second thread, as described.

Also, the needle *b* and the looper *c*, in combination with the instrument, or its equivalent, for carrying or guiding the second thread within the range of the looper, substantially as described.

In the drawings *a a a* represent pins which occupy the place of the cloth, and are thus given, so that the stitch may be seen, as it were, on both sides of the cloth.

No. 10,843.—A. Young.—*Improved Method of Discharging Cargo from Canal Boats.*—Patented May 2, 1854.

The substance of this invention consists, not in any of the devices taken separately, but in the combined arrangement of the suspension trucks and the dry dock, whereby the cargo may be discharged with despatch and with but little labor, and be run off at a high level to any distant place of transfer or deposit, without inconvenient detention of the boats.

No. 10,844.—N. G. Norcross.—*Certain Devices in Tonguing and Grooving.*—Patented May 2, 1854.

One claim is, to so arranging the saws and cutters, that a recess *a b* shall be cut slightly beyond the shoulder or tongue. Also, a groove *v*, in the feed-rollers, to allow the strips sawed from the sides of the tongue to pass out with the board whole. Also, the mode of adjusting the saws by two nuts *l* and *k*, working on a right and left hand screw-shaft *d*.

No. 10,845.—Matthias Lachenmaier.—*Improved Device in Constructing Strap-Iron Railing.*—Patented May 2, 1854.

The drawing presents a front view of the improvement, and the claim of the patentee is a sufficient description.

Claim.—The manner herein described of constructing and fitting together crimped wrought metal railing; by constructing the cross bars at the extremities of their crimps, or bends, with punched or pressed studs *r r* and *s s*, projecting—either successive pair in each bar—in opposite directions alternately, to form supports or stops to the bars on either side or edge of their crimps, and on both sides or faces of the railings, to prevent the bars from slipping out of their crimped bearings, or from out of line with them.

No. 10,846.—William M. Storm.—*Improvement in Chargers for Fire-Arms.*—Patented May 2, 1854.

The substance of this invention consists in the general arrangement of the parts as illustrated, viz: a fixed rammer and moving ball-nozzle, combined with a number of distinct ball-chambers.

No. 10,847.—Mahlon Loomis.—*Improvement in Plates for Artificial Teeth.*—Patented May 2, 1854.

This invention consists in making a whole set of upper or lower teeth, together with the gums or plate, of one piece of porcelain, to save the expense of gold; as shown in drawings, where figure 1 is a set of upper, and figure 2 of lower teeth. The inventor disclaims porcelain gums and enamel upon a metallic plate, but claims the above-described manufacture.

No. 10,848.—Mervin T. Landfeur.—*Improvement in Reed Boxes for Musical Instruments.*—Patented May 2, 1854.

The reed boxes are operated as usual by bellows; the reeds are constructed as represented by figures 1, 2, 3. These are placed in separate chambers, each graduated to a particular note. *Claim.*—1st, the method of inserting reed boxes in chambers of graduated length and depth and width; 2d, tubing or chambering the reed boxes; 3d, blocking the reed box, and mortising the block where it overlies the locality of the reed.

No. 10,849.—Halvor Halvorson.—*Improvement in process for Distilling Rosin Oil.*—Patented May 2, 1854.

The improvement consists in mixing to one part of rosin, about five parts of clay, before distilling; which it is contended will give an oily product containing less pitch than the same article would give if distilled from alkaline earths.

Claim.—Combining clay with rosin, and subjecting the mixture to distillation, so as to produce therefrom an oily product, substantially as specified.

No. 10,850.—Halvor Halverson.—*Improvement in Distilling Apparatus.*—Patented May 2, 1854.

The improvement chiefly consists in providing, within the still or stills, a stirring apparatus, in order to present a diffused surface of the fluid to the action of heat; and in forming the connecting pipe of stills with a flexure *b*, in order to make them self-acting.

Claim.—The rotary cup E, the rake I, discharge-pipe K, or their equivalents, in combination with a still D, and made to operate therewith, substantially as specified.

No. 10,851.—John W. Adams.—*Improvement in Spinning Cotton.*—Patented May 2, 1854.

This invention consists in interposing, between the spindle or bobbin and the flyer, a carrier, moving with the spindle, over which the thread passes from the flyer to the spindle, so that the dragging or drawing of the flyer or the thread on the edge of the cap shall be effected by the said carrier, the thread being in contact therewith, so that the power and the resistance shall at all times be at the same distance, without reference to the varying of the winding diameter. In the drawing, *a* represents a line-spindle, passing through a tubular spindle *c*, in which it is free to slide vertically, and with which it is connected by a feather, so as to rotate therewith. On the upper end of the spindle *a* is the bobbin *h*, surrounded by a concentric tube *g*, being of sufficient length to admit the whole length of the bobbin within it. This tube is rotated in the usual manner, and its upper end should be rounded to control the carrier *i*; *l* represents the flyer or traveller.

Claim.—The employment of the thread carrier in combination with the central spindle for winding on, with or without a bobbin or spool, and with the ring-groove and traveller, or its equivalent, substantially as specified.

No. 10,852.—WILLIAM E. ARNOLD.—*Improvement in Railroad Horse Power.*—Patented May 2, 1854.

The nature of this invention consists in making the platform of grooved metallic plates, the grooves forming rack-teeth to drive the pinion. Also, in the lip and groove, and hooks on the platform, for making the continuous chain, without using links, pins, or any rigid connection between them.

The platforms A are made of cast or other iron, the grooves on which constitute rack-teeth B, which operate the cogs *c* on the pinion D. The front end of each platform has a lip F, which fits into a similarly shaped recess G in the rear of the preceding one. On one of the platforms a hook H inclines downward, and on the other a similarly shaped hook I inclines upward. By means of the lip F, the recess G, and the hook H I, the platforms are firmly secured to each other, and so on through the entire series. *Claim.*—The lips F F, the recess G G, the hooks H I H I, by which the series of platforms A A are united into a continuous chain platform, without any other fastenings than those afforded by their own peculiar shape; and thus avoiding the use of links, bolts, or similar fastenings, substantially as described, and as shown complete in the figure.

No. 10,853.—JOHN ALLENDER.—*Improved Socket for Holding Tools.*—Patented May 2, 1854.

The claim allowed is to the face-plate G, with an eccentric groove or slot K, in combination with a sliding-catch *f*, with the projection *i* fitted to such groove, and so arranged as to traverse the catch by turning the plate.

No. 10,854.—WILLIAM BALLARD.—*Improvement in making Ships' Knees.*—Patented May 2, 1854.

The invention consists in making knees out of straight timber, bent into form, either with or without saw-slitting it, and combining with the bent timber at the convex part such pieces as will make up the knee.

No. 10,855.—WILLIAM H. CHURCHMAN.—*Improved Hydraulic Heater.*—Patented May 2, 1854.

The claim explains the nature of this invention.

Claim.—The attachment of all of the radiating or circulating tubes, in one or more series of rows, directly to the boiler or main receptacle for water, together with any and all equivalents thereof.

No. 10,856.—JOHN CRABTREE.—*Improvement in Piston Packing.*—Patented May 2, 1854.

The nature of this invention is very clearly set forth by the claim.

Claim.—The open conical ring G, in combination with the lugs *b b*

or their equivalents, cast on the open inner ring *c*, and the flanged adjusting-screw H^1 or its equivalent, the shorter adjusting-screw H^1 and follower a^1, arranged and combined as described and illustrated.

No. 10,857.—HENRY W. FARLEY.—*Method of Setting the Valves of Locomotives.*—Patented May 2, 1854.

The general character of this invention consists in placing a pair of rollers, *c c*, upon a shaft D, fixed transversely beneath the road-way, the drivers A A resting on the rollers, which, being turned, cause the drivers to revolve for the purpose of adjusting the eccentric and valves.

No. 10,858.—JOHN GALLAGHER.—*Improved Metal Cutter.*—Patented May 2, 1854.

Claim.—The arrangement of the movable cutting-die E, in the eccentric lever D, operating in connection with the fixed cutter H.

No. 10,859.—CURTIS GODDARD.—*Improved Machine for Making Bed Pins.*—Patented May 2, 1854.

This improvement consists in the combination of cutters in a hollow mandrel with a movable cutter.

Figure 1 is a prospective view of the machine; figure 2 is a longitudinal section of the mandrel, of which *b* is the body, *c* a movable cutter turning on a pivot *e*, in such manner that when the end of the pin *h* presses the cutter at *i* the end *m* is forced down, and by means of a V-shaped edge cuts the part of the head *n*. The cutter *c* is so framed that centrifugal force throws the end *m* out, when the pressure is removed at *i*. The pin is then removed, and cut off with the saw *d*.

Claim.—The combination of cutters in the hollow mandrel with the movable cutter, operated by the pin pressing the cutter at *i*, or by a disk of metal moved by the pin, or other means substantially the same, as herein set forth.

No. 10,860.—ROBERT HODGIN.—*Improvement in Straw-Cutters.*—Patented May 2, 1854.

This improvement consists of a straw-rest or table A^1, with teeth d^1, resting on the bottom of the feed-box A, and moved intermittingly forward the whole length of the feed-box, with its load of straw. As lever H is elevated, cutter-frame G also rises, carrying one end of lever L. This movement brings forward the lower end of arm *w* and of pawl *x*, setting in motion roller E, and winding the cord which passes from said roller around a pulley to frame A^1; then lever H descends, carrying the knife, whilst frame A^1 rests. The operator returns the table A^1 by hand for reloading.

The straw-rest A^1 is claimed, as moved by intermittent motion the whole length of feed-box.

No. 10,861.—A. C. KETCHUM.—*Improvement in Car-Trucks with Adjustable Axles.*—Patented May 2, 1854.

Figure 1 is a side view; figures 2 and 3 are plans—figure 2 showing the wheels inclined in an opposite direction from that shown in figure 3.

Claim.—The combination of the sliding side-pieces A A A^1 A^1, the transverse sliding bar F, and the lever G, in the manner substantially as described, for the purpose of causing the axle-boxes to move in such a way as to make the axles assume the form of radii or normals to the curve, and thereby keep the wheels in line with the track.

No. 10,862.—CONRAD LEIBRICH.—*Trunk-Lock Hasp.*—Patented May 2, 1854.

Claims.—1st. The combining of a spring *a* with a hinged hasp B, so that the lower or hinged portions thereof shall stand off from the trunk.

2d. Placing the hasped catch *e* in a solid projection *d*, which enters the lock with the hasped catch, and takes all the strain incident upon the lid to open, and thus protects the catch itself.

No. 10,863.—W. F. PAGETT.—*Improvement in Harrow.*—Patented May 2, 1854.

This harrow consists of a series of sectional beams A B C, each section bearing a tooth O, fastened together by rods N, which also pass through tubes S.

Claims.—1st. Constructing harrow-beams of sections of iron, with the teeth wrought solid upon and with them.

2d. The combination therewith and arrangement of cross-rods, with screws and tops, and pipes or tubes, or their equivalents, to keep the beams and sections in their places.

No. 10,864.—G. M. PATTEN.—*Improvements in Machinery for the Manufacture of Clinch Rings.*—Patented May 2, 1854.

The claim is to the spring-seat H of the lower die F and elastic cleaver G, when arranged and operating together as specified, so that not only is the finished clinch-ring forced upwards out the lower die, and detached from the upper one, to permit of its easy removal by the bar in feeding forward, but also whereby the spring-seat H and cleaver G are made to act as elastic grippers to the ring, to hold or keep it in its seat till removed by the bar, to avoid breakage of the machine, and whereby the cleaver G serves as an elastic guide to the bar, to facilitate the entry or feed of the bar, and to keep it in a fair or flat position for the operation of the punch upon it, as specified; the said cleaver G and spring-seat H being hung and operated so as to exert a continual tendency to approach each other, both during the up and down stroke of the punch, as herein set forth.

No. 10,865.—W. B. and G. M. RAMSAY.—*Improvement in Flexible Harrow.*—Patented May 2, 1854.

This invention consists in connecting three frames A B C by three joints *a b c*, to enable the harrow to adjust itself to uneven ground; and is claimed as an improvement on account of its freedom of motion, simplicity, and cheapness of construction.

No. 10,866.—WILLIAM ROBINSON, Jr.—*Improvement in Making Rope.*—Patented May 2, 1854.

This invention consists in the employment of a ring with cogs on both inner and outer edges, said ring being revolved by pinions meshing into the exterior cogs, for the purpose of regulating the relative twist of the separate strands and the entire rope, by diminishing, to a greater or less extent, the number of revolutions of the flyers upon their axes, while performing a single revolution about the main axis; also in an arrangement of clamps for receiving the finished rope, firmly holding it during the laying operation, and finally conveying it from the machine.

Claim.—The employment of the cogged ring *d* for giving the flyers an independent rotation for twisting the strands, and, by its own revolution, regulating the amplitude of that twist. Also the employment of the rotary clamps b^1, in combination with the cams d^1 and spring e^1, for grasping, conveying, and releasing the rope.

No. 10,867.—SEWALL SHORT.—*Improvement in Violins.*—Patented May 2, 1854.

The invention consists in combining a metallic horn or trumpet with a violin, violincello, viol, and instruments of a similar character. The bell of the horn B is united by a tube C, beneath the finger-board F, to the body of the instrument at D, the air from beneath the sound-board of the violin A having free passage through the horn.

Claim.—To the application of a trumpet or horn to violins, bass viols, and other similar instruments, in the manner described and for the purpose set forth.

No. 10,868.—PHILANDER SHAW.—*Improved Air-Engine.*—Patented May 2, 1854.

The invention consists, 1st. In the employment of auxiliary heater H, through which the air to be heated passes in one direction, and the exhaust air and the products of combustion in the opposite direction; the fresh air being pumped through the pipe A^1 and the compartments H^1 H^2 H^3, and the short communication pipes L L^1, and valves *e* e^1, and pipe F, and valve *b*, into the heater A; the exhaust air and the products of combustion being passed through the tube *a*, chamber E, and pipe C, tubes K^2 K^1, and c^2 c^1, and *c*, and smoke-stack M.

2d. In the arrangement of the cold water reservoir R, flexible pipes

S S¹, communicating with the interior of the hollow piston and rod, for the purpose of refrigerating the piston, &c.

No. 10,869.—LeGrand C. St. John.—*Hydraulic Engine.*—Patented May 2, 1854.

This invention relates to certain mechanism for regulating the flow of water into and from a chamber B, containing the float A, to operate the engine; also, a device for producing a continuous rotary motion in the same direction, whether the float be rising or falling with the water.

Motion is thus generated: A cord, *g*, passes over pulley *f* on the main shaft, and is attached at one end to the upper part of the float A, and at the other to the bottom. Hence, as the float rises or falls, the machinery is operated.

The valve I, letting the water in and out, is moved by rod J, connected with suitable mechanism above.

On two shafts, *l l*¹ are pinions W W¹ gearing into main pinion on shaft *h*; a ratchet wheel *r r*¹ is placed on these shafts, having pawls, by means of which one pinion, as the float rises, turns the machinery, while the other pinion remains stationery; as the float descends, the other pinion turns the machinery in the same direction, the former pinion (by means of its pawl, non-taking) remaining stationary.

Claim.—Producing continuous motion in the same direction, and operating the cylinder I (the rake) to let in and out the water.

No. 10,870.—John M. Weare.—*Milker's Protector.*—Patented May 2, 1854.

The milker's protector is a double forceps, as shown in the drawing, where F E are an arm and jaw in one piece, turning upon pivot N, and held forward by spring L; i and *a* are also an arm and jaw, turning upon pivot K, and held forward by spring M; A is a third arm, having jaws B and C, and also projections G and H. The jaws B and E are designed to grasp the ham-string of the cow, whilst the brush of the tail is seized by jaws C and *a*, and thus kept from the milker's face. The claim relates to the whole instrument.

No. 10,871.—Elbridge Webber.—*Improved Rotary Planing-Knife.*—Patented May 2, 1854.

This improvement consists in combining peculiarly-formed knives with oblique eliptical cutter stocks, and in arranging the same for the purpose of planing lumber.

Figure 1 is a side elevation of the machine.

Figure 2 is a view of the stock and knife attached to the shaft.

Figure 3 is a side view, showing the construction of the knives.

Claim.—Combination of the knives *r* with the stock *s*, constructed, arranged, and operated substantially as set forth.

No. 10,872.—Asa Weeks.—*Improved Expanding Bit.*—Patented May 2, 1854.

The principal feature of this invention is connecting the two cutters with each other in such manner that they shall move out and in simultaneously, each at an equal distance from the centre of the bit.

Figure 1 presents a side view of the bit.

Figure 2 is a front view of the same, the cap *a* being removed to show the parts within.

In the drawings, *c*¹ *c* represent the cutters, which are furnished with rack teeth *e e*¹, that engage with a small pinion *i*, the shaft of which passes through the bit, and is furnished with a screw head, by means of which the pinion is turned, and the cutters are run out as required.

Claim.—The method, herein described, of connecting the two cutters with each other, so that they shall move out and in simultaneously and equably, as set forth.

No. 10,873.—Parley Williams 2d.—*Second Improved Slatting Machine.*—Patented May 2, 1854.

The principal feature in this machine is in the manner of holding the wheel, or other article to be slotted, and attaching, feeding, and controlling the operation of the cutting tool.

Figure 1 is a front elevation of the machine.

Figure 2 is a vertical section of the same, taken at right angles with figure 1.

Claim.—1st. The mandrel K secured in the top of the column which supports the hub, serving, with the aid of a key, to hold the hub in place; and containing a slot *g* on the side, in close contact with the hub, which serves as a guide for the tool while cutting the slot in the hub, or other similar article, substantially as described.

2d. The combination of the wedge *h*, the screw *j*, and the spring *l*, the wedge being placed in a recess in the mandrel behind the tool, and serving to feed and hold the tool to its work, the screw being attached to the wedge, so as to bear on the top of the mandrel, and control the descent of the wedge; the spring being attached to the tool so as to bear on the hub and hold the tool back against the wedge, and thus prevent its overloading itself; all substantially as set forth.

3d. Attaching the tool to its stock, by a button or knob *b*, at the bottom of the tool, fitting loosely into a slot *c* in the top of the tool-stock, which has a mouth *e* narrower than the button, but which extends only partly across from the front of the stock; said stock being arranged in such a direction, and its narrow mouth being of such a length, as to allow the tool, while attached to the stock, to move back and forth as far as it is required for the feeding operation, but to allow the tool to be withdrawn by moving it back beyond its most backward operative position, as set forth.

No. 10,874.—SETH WHALEN.—*Improvement in Hay-Knives.*—Patented May 2, 1854.

The improvement in this knife consists in the simplicity of constructing the shank, by bending the blade-plate A laterally, as seen in figure 2, and attaching it obliquely to a straight handle C, figure 1.

Claim.—The form of this knife, as being very convenient in cutting hay, and of cheap manufacture.

No. 10,875.—SIMEON COON.—*Improvement in Sewing Machines.*—Patented May 9, 1854.

The nature of this invention consists: 1st, In drawing a sufficient quantity of thread from the shuttle bobbin to form the stitch in advance of the forming or drawing up of the stitch, so that in paying off the thread from the shuttle the tension or strain shall always be uniform, and not variable, as is the case where the act of drawing up the stitch must draw the thread from the spindle or cop, besides drawing it from the shuttle. 2d, In a double-acting feed motion, which feeds the cloth either way to the needle, when said feed motion always retains the same relative motion with regard to the needle, or so that the feed shall take place whilst the needle is advancing towards the cloth, and not when it is leaving the cloth to draw up the stitch, and this whether the cloth is fed to the right or to the left.

Claim.—The combination of the slot R, in the shuttle, and the pin or stud *l*, in the raceway, for the purpose of drawing the thread from the shuttle bobbin, so that there may be an uniform tension upon the shuttle thread when drawing up the stitch, as described; also in contradistinction from the double-acting dog, or pawl and ratchet, which changes the time of feeding forward the cloth, relatively, in regard to the motion of the needle, the separate pawls *t* and *v* operated by a cam and levers, or otherwise, so that the feed, whether reversed or not, shall always remain relatively the same with regard to the motion of the needle, or so that the feed shall take place whilst the needle is going down, or towards the cloth, and not when it is leaving the cloth to draw up the stitch, substantially as described.

No. 10,876.—E. L. NORFOLK.—*Improvement in Machinery for Dressing Flax.*—Patented May 9, 1854.

This invention consists in a certain device for regulating the movements of the rollers which supply the flax to the machine, whereby the said rollers are made to feed the material at a speed corresponding universally with the quantity passing between them, or to stop them entirely when the quantity becomes so great as to render a stoppage necessary.

Claim.—Governing the movements of rollers *c c*, which supply the material to the machine, by means of wedges *p*, which are suspended in such a way as to be caused by the rising and falling of the lids K to rise and fall, and thus regulate the position of bars N, which are acted upon by the cams O, for the purpose of transmitting motion to the feed, and thereby regulate the amount of motion which the bars receive from the cams, as set forth.

No. 10,877.—CLARK WHEELER.—*Improvement in Bee Hives.*—Patented May 9, 1854.

This improvement consists in a drone trap B placed under the bee door A^1, and drone passage *a*. F G and H are pendant doors, which may be pushed open by the drone in entering the trap, but close again to prevent his return to the hive. These doors, and partition *b*, are made of wire gauze to admit the light from window C into passage F *a*. Passages D E *c* are intended for the escape of working bees. These passages, as well as A, are too small for drones to pass; and the latter, finding no egress from the hive, are decoyed, by the light, into trap B.

Claim.—The drone trap, as described.

No. 10,878.—HEMAN CROSBY, JR.—*Improvement in Sewing Machines.*—Patented May 9, 1854.

Claim.—An adjustable cam, or its mechanical equivalent, in combination with the friction brake, for the purpose of intermitting the action of the brake upon the thread during the feed, and thus obviating the danger of sundering the thread in rapid work, during that moment of extreme tension, as set forth; also enlarging that portion of the needle which, having entered the material, is to retire from it before the pull upon the last loop is commenced, and in the manner and for the purpose described.

Figure 1 is a perspective view; figure 2, a front view of the cam; and figure 3 is a front view of the enlarged needle.

No. 10,873.—CHRISTOPHER HODGKINS, assignor to NEHEMIAH HUNT.—*Improvement in Sewing Machines.*—Patented May 9, 1854.

The nature and construction of this machine will be understood by reference to the claim and accompanying drawing.

Claim.—The peculiar manner in which the brake clamp N is constructed, applied to, and made to operate in, the groove *a* of the feed-wheel, whereby the bearings of the clamp on the two opposite concentric surfaces of the groove are curved—concentric lines or surfaces running parallel, or nearly so, to the plane of the feed-wheel, instead of perpendicularly to it; such an arrangement of the bearing lines or parts of the clamp rendering its hold on the wheel far more certain than when they are made in length only equal to the depth of the groove, and to stand perpendicularly to the frame of the feed-wheel.

Also the mode of operating the brake-clamp or lever N; or, in other words, the arrangement and combination of the spring P, the slide Q, cam R, cam S, lever O, and spring T; such mechanism causing the

clamping of the lever-brake N to the feed-wheel; to be wholly done by mechanism acting entirely before, and separate from, and not controlled by, that which produces the movement of the clamp, by which the corresponding extent of motion is produced in the feed-wheel.

No. 10,880.—Otis Avery.—*Improvement in Sewing Machines.*—Patented May 9, 1854.

The nature of this invention relates to the so hanging of the upper needle bar as that it may be turned up or swing around, for the removing of the cloth, or any other purpose, and to the individual and combined adjustment of the needles, for the double purpose of regulating the relative positions of the needles to each other, and their working position with regard to the material to be sewn; also the so arranging of an adjustable table or support for the cloth, with regard to two needles which have a fixed centre, at which the stitch is formed, that, by raising or lowering said table, the stitch may be thrown to one side or other of the cloth, or in the centre thereof, as may be desired.

Claim.—The so arranging the upper needle bar D^1 on a pivot *i*, and controlling it by a spring *j*, or their equivalents, as that it may be swung around to remove or replace the cloth or material to be sewn, substantially as described.

Also the arrangement and combined adjustment of the two needles, for the purpose of regulating the relative positions of said needles to each other, and their joint positions in relation to the material to be sewn, substantially as described.

Also the so arranging of an adjustable table O, with regard to two needles which have a fixed centre, at which the stitch is formed, that, by raising or lowering said table or the cloth, the stitch may be thrown to one side or the other, or in the centre thereof, substantially as described.

No. 10,881.—George T. Enoch and Daniel Wissinger.—*Improvement in Seed Planters.*—Patented May 9, 1854.

The improvement refers to the peculiar form of the seeding valve-bar M, and to the mode of giving said bar a longer or shorter stroke of vibration to suit the desired quantity of seed to be received and transmitted to the ground through the cavities *o o o* at each vibration, by shifting the tappet-wheel L along the axle B, and consequently, at any desired distance from roller *m*, of bar M, by means of lever J and its connecting parts *k*, *g*, and *i*.

Figure 1 is a plan of the apparatus.

Claim.—The mode of adjusting the tappet-wheel L, in combination with the peculiar form of the sliding-bar M, to suit the nicest differences in any desired quantity of seed to be sown, substantially as described.

No. 10,882.—William J. Casselman.—*Improved Hub-Borer.*—Patented May 9, 1854.

This improvement consists in having a cutter *h* attached to one end of a lever G, and having a pin *g* on the opposite end, the pin working in an oblique slot *f*, in an adjustable plate J, secured to a suitable bed H. The pivot *d*, on which the lever works, passes through a rod F, that has a screw-thread *e* cut upon a portion of it, and a nut L, formed of two halves *j* j^1, working thereon. The rod and lever are operated by turning the nut, and the cutter is made to pass through the hub N in an oblique direction.

Claim.—Boring taper holes through hubs by means of lever G, secured by a pivot *d* to a rod F, which is drawn through the mandrel-hole of the hub; said lever G having a cutter *h* at one end, and a pin *g* at the opposite end, which pin fits in an oblique slot *f*, in an adjustable plate J; the slot *f* giving the proper movement to the cutter as it passes through the hub.

No. 10,883.—William Damerel.—*Extension-Bit Key.*—Patented May 9, 1854.

The improvement claimed is in so arranging the main bit of the key that it can be shoved into the key-hole to plug it, by means of a rod passed through the shank.

10,884.—Heman H. Dean.—*Improved Felloe Machine.*—Patented May 9, 1854.

Figure 1 is a plan of the machine, and figure 2 a vertical section of same. The improvement consists in a combination of devices for removing the concave felloe-guide from the cutters, and for regulating the approach of the guide and felloe to the cutters.

Claim.—The combination of mechanism operating the guide *n*, namely, the lever G, rod H, and springs *s s*, arranged and operating substantially as set forth, for the purposes specified.

No. 10,885.—Jacob Edson.—*Improved Pump.*—Patented May 9, 1854.

This pump is designed to be used either as a lift or a force-pump; and it may be readily changed from one to the other by tightening or loosening the screw *b*, to which is attached the packing *c* of the piston, that is composed of India rubber or other suitable substance, and which is forced into the conical opening *d*; *e e* are holes bored through the socket *f*, round its whole circumference, and opening a communication between the cup D and the interior of the tube A.

Claims.—1. The tube A in communication with the air-chamber B, constructed and operating in the manner and for the purpose set forth.

2. The cup D in combination with the holes *e*, and the packing *c*, constructed and applied to a force-pump as described, and for the purpose set forth.

3. The inclined partition E, in the rear of the spout G, operating in the manner and for the purpose set forth.

No. 10,886.—Charles K. Farr.—*Improvement in Cultivators.*—Patented May 9, 1854.

The cultivator is designed for opening furrows by means of a broad tooth or coulter E, adjustable by bolt *d*, and followed by a box or bed A, having bottom *a* and inclined sides *b b*.

The beam is not shown in the drawings.

Claim.—The bed A, with inclined sides *b*, as described, which, following the trace of the coulter, renders the sides of the furrows compact, and prevents the falling in of the earth, substantially as herein set forth.

No. 10,887.—Albert Fink.—*Improvement in Bridges.*—Patented May 9, 1854.

The substance of this invention consists in the peculiar combination of the different systems of triangular bracings B, B, B, B^1, B^1, B^1, and B^2, B^2, B^2, as shown in the drawings; so that a weight coming on one of the systems of the truss, as on B^1, is not only carried over one or more other systems before it is carried back to the abutment, but the foot of the post of each triangle shall be capable of settling vertically or moving to the side, so that the tension rods of each system of the triangular bracings will be strained equally, when the bridge settles under a superincumbent weight; which effect could not be attained unless the foot of the post of each triangle possessed the power of motion downwards as well as to the side.

No. 10,888.—Charles R. Fox.—*Improved Journal-Box for Saw-mill Carriages.*—Patented May 9, 1854.

The figure shows one of the carriage-wheels B, with its boxes C^1.

The object of the patentee is to furnish the means of giving any desired set to the log, and also, to furnish a sure and simple set-off for the carriage when gigging back, and a set up when moving forward.

Claim.—The construction of the boxes C^1, with opposite inclined inner faces f^1, f^2, for giving the requsite set-off to the cariage when gigging back, and again setting up when moving forward for the cut.

No. 10,889.—Nelson Gavit.—*Improvement in Machine for Cutting Paper.*—Patented May 9, 1854.

The object of this invention is to give to the machine for cutting paper the capacity for varying the length of the sheets cut from the web, to any degree, small or great, within the two extremes of length to which the machine is adapted, and to produce such changes while the machine is at work. The web of paper is wound upon a spool,

which is laid in the cutting machine on bearings that allow it to turn, and the end of the web inserted between a pair of feed rollers that draw it off the spool at a uniform rate, and pass it between the jaws of a pair of shears, or beneath a knife that, acting at intervals, divides the web into sheets; then as the knife passes through the web most frequently, the sheets are shortest, and when it passes through the slowest, the sheets are longest, because the feed in the cases supposed is uniform.

Claim.—The method of adjusting the cutting of sheets from a web of paper, whereby the length of the sheets can be varied by any required proportionate amount of the whole range of variation to which the machine is adapted, however small or large the same may be; thus rendering it possible, with a continuous feed of the web of paper under an intermittent cutter, to sever the sheets half way, or thereabouts, between water marks nearer together at one part of the web than at another.

No. 10,890.—Platt C. Ingersol.—*Improved Mortar and Pestle.*—Patented May 9, 1854.

The nature of this invention consists in combining the pestle with the mortar by means of a ball fitted to a corresponding cavity in a spring bar connected with the mortar.

In the drawing, *a* represents a mortar; the pestle *b* has at *d* a spherical swell fitted to a socket of corresponding form in a bar *e*, the ends of which are fitted to suitable sockets in the mortar. To the upper surface of the bar are attached two leaf springs, *f f*, which extend from near the centre each way to the ends.

Claim.—The manner of arranging and combining the pestle with the mortar, by means of the ball on the handle of the pestle fitted to a corresponding cavity in a spring bar, substantially as and for the purpose specified.

No. 10,891.—William Loughridge.—*Improvement in mode of Unloading Canal-Boats, &c.*—Patented May 9, 1854.

The substance of this invention consists in the combined arrangement of the vessel with valves in the bottom, (shown at *b b*,) the dry dock with valves immediately below those in the boat, as at *a a*, and the shutes G to carry off the load into boats or other receptacles.

The devices, taken separately, are all admitted to be old.

Claim.—The method of unloading boats, thus arranged, as presenting novelty and economy in time and money.

No. 10,892.—H. G. Marchant.—*Manure and Sand Loader.*—Patented May 9, 1854.

The substance of this invention consists in the combined arrangement of the box A, the trough E, and the rake F, by means of which

the manure or sand is loaded into carts through the opening D of the loader; the same being effected by horse power attached to the ropes G. The devices, taken separately, are not patented.

Claim.—The transportable manure-loader, consisting essentially of the following elements: the body or box A, the trough E, and the rake G, constructed and arranged as described.

No. 10,893.—J. and G. W. PRESCOTT.—*Improved Machine for Reducing Wood to Slivers.*—Patented May 9, 1854.

This machine is designed for making stuffing for mattresses from wood, in such a manner that the material, when it leaves the machine, shall possess the greatest degree of elasticity possible. The wood, being reduced by cutters set obliquely in their stocks, all the material removed is consequently curled in long helices.

Claim.—The arrangement of the planes *g h* so that each shall cut not only with a drawing stroke, but shall curl the shavings into helices, as specified, and, in combination with the feeding carriage P and the feeding screw R, the movable straddle or sliding block Y, and the scroll cam Z of the screw; the same being made to operate together substantially as specified; also the tripping rest *s*, as combined with the weighted lever X X and the feeding carriage P, and used as specified.

Figure 1 is a transverse vertical section of the machine, taken through its feeding carriage, and the feeding screw thereof.

Figure 2. Top view of the machine.

Figure 3. Horizontal section of the plane-stock and plane-irons.

Figure 4. Side view of the machine.

Figure 5. Side view of the grooved plane-iron.

Figure 6. Detached view.

No. 10,894.—J. AUGUSTUS ROTH and JOSEPH LEA.—*Improvement in Bleaching Apparatus.*—Patented May 9, 1854.

Improvement and claim consist in the arrangement of the series of graduated and compensating upper and lower rollers, in combination with the vat, for the purpose of treating simultaneously a series of parallel layers of woven fabrics, in the manner and for the purpose substantially as herein specified.

No. 10,895.—JAMES ROGERS.—*Improved Machine for Marking out Sash.* Patented May 9, 1854.

The design of this invention is to mark out the heads of mortices in sash or other small work requiring two or more mortices in the same piece, with a single motion, and to operate on two pieces at the same time.

The drawing represents the machine as seen when ready for action, and gives a view as seen at I I I I of the moveable knives or markers.

A further description of the machine would seem to be unnecessary, as the drawing sufficiently sets forth its character.

Claim.—Moveable knives or markers, moveable stops and slides, or their equivalents, and the manner of adjusting the top, and of causing markers in the top to correspond with the bottom markers; also the manner of applying the scales to the machine.

No. 10,896.—WILLIAM S. REINERT.—*Machine for Weighing and Printing Butter.*—Patented May 9, 1854.

The nature of this invention consists in suspending to one end of a scale beam a vessel or mould F, in which the butter is weighed and printed, counterbalanced by a suitable weight at the opposite end of the lever or beam, the mould being provided with a movable bottom, capable of being raised with the butter, when formed and stamped by a button L^1, on the end of an upright rod L, moved by a lever N, connected to another lever P above the scale beam, to which upper lever the pattern or stamp is attached in such a manner as to enable the butter to be raised out of the mould with facility and despatch.

Claim.—The combination of the mould F, for containing the butter, suspended to the lever or scale beam, and its attachments, plunger or piston G, having the desired configuration on its lower surface, and upright rod and button for raising the circular plate or piston in the bottom of the mould, together with the levers for operating the same for weighing, forming, and branding or imprinting the butter in parcels, and discharging the same from the mould, substantially in the manner described.

No. 10,897.—A. M. SPRAGUE.—*Improvement in the Flues of Steam Boiler Furnaces.*—Patented May 9, 1854.

Claims.—1. The moveable adjustable bottom M of the flue-space, for the purpose of adapting the furnace to different kinds of fuel.

2. For the inclined vibrating bridge *z*, so constructed and arranged that it will conduct the flame from the furnace to the flue.

No. 10,898.—A. M. SPRAGUE.—*Improvement in the construction of Pistons for Steam Engines.*

This improvement consists in so constructing the hub or interior body of the piston that it may be removed with the rod, by simply removing the cap or follower, and, in the direction of the follower, leaving the outer portion of the body and packing undisturbed, and giving large space through the body of the piston to afford room for truing the cylinder.

No. 10,899.—DANIEL TALLCOT.—*Self-acting Safety Hatch.*—Patented May 9, 1854.

The substance of this invention consists in the combined arrangement of the trap-doors A, the lever H, the roller *g* of the carriage, the

half-pulley G, and the spiral J, by means of which the trap-doors are opened automatically, as the carriage passes up and down through the hatches; the doors being counterpoised by the spiral spring J, and kept closed by the springs L, which throw them out of a vertical position as soon as the carriage passes, when their own weight causes them to settle.

No. 10,900.—Enoch Woolman.—*Improvement in Hinges.*—Patented May 9, 1854.

Claim.—The arranging of the roller I, so that it can be traversed towards or from the pivot of the hinge, in combination with the screws G G^1 in the inclined planes, so that it can be used either as a self-shutting or self-retaining hinge when open, or partially open, substantially as described.

No. 10,901.—R. and T. Winans.—*Improvement in Locomotive Fire-Box.* Patented May 9, 1854.

Claim.—The downward and rearward inclination of the top or roof of the fire-box, when this is connected with the flat grate-surface and the usual feeding-hole or door, and with or without the fuel feeding boxes through the roof.

No. 10,902.—Francis Davis, assignor to J. Mason Reed.—*Improvement in Screw Jacks.*—Patented May 9, 1854.

The nature of this invention consists in the use of a right and left screw, with socket C for the operating lever D between them, whereby the lever is situated out of the reach of the body being raised, and is not obstructed in its operation thereby. It is obvious that the motion of the head A of the jack is double that of the ordinary screw-jack for an equal motion of the operating lever.

Claim.—A new tool or instrument for the purpose of raising heavy bodies, constructed and operating substantially as described.

No. 10,903.—W. Baker.—*Joints for Clap-boards.*—Patented May 16, 1854.

The figure shows the form of the joints.

Claim.—Making the joints of clap-boards, etc., in the manner shown.

No. 10,904.—Cyrus Roberts.—*Improvement in Harvester-Rakes.*—Patented May 16, 1854.

The improvement is designed to throw off from that end of the platform A, towards which the cut grain has been pushed, in suitable quantities to form sheaves by any known device, said grain, by means of a rake or fork O, connected in such way by bar K and lever J with a dumper H, I, *y*, that, the fork O being in the position indicated by figure 1, the teeth H will assume the position shown in the same figure; and the fork O being in the position indicated by figure 2, the teeth H will follow in the position shown in the same figure; thus the fork O throwing off effectually, at each stroke, all the grain collected on the dumper while the latter was in the position indicated in continuous lines, and the elevation of the heads *y* during the position of the dumper in figure 2—that is to say, during the throw—preventing the grain from falling from the platform on the dumper.

Claim.—Is restricted to the fingers H, arranged as described, and operated by means of the excentric M, rod K, and lever J, in combination with the fork O, constructed and arranged as herein shown, namely: with a curved slot *w* through it, in which the pin or arm *x* fits, and operated by the crank P, for the purpose set forth.

No. 10,905.—Hiram Frisbee.—*Improved Lath Machine.*—Patented May 16, 1854.

The nature of this invention consists in hanging the log A, shown in dotted lines, upon centres, in a carriage which moves the length of the log backward and forward, on a frame in which revolves circular saws at right angles to each other, for the purpose of cutting off the lath from the log as it traverses over the saws; also, in the combination of devices for adjusting the log to the saws, so that laths or strips of any desired thickness or width may be cut from the log; and also, in revolving the log the thickness of a lath by the action of a ratchet, immediately as each strip is cut from the log.

Claim.—The combination of the movable cam-blocks I I^1, stay-lever H, ratchet-dog G, and weight J, for the purpose of successively turning and griping the log in the following manner: the ratchet-dog rotates the log the thickness of a lath as the stay-lever passes over the movable cam-blocks I I^1; on the instant the stay-lever is reversed by the action of the weight J, causing the log to be griped, and held stationary, by the point of the lever at H^1, during the process of sawing. The act of turning and griping the log takes place alternately, as the carriage traverses backward and forward.

Also, the combination of the adjustable rollers D D, and D^3 D^3, the slides D^1 D^2, and the adjusting screw E E, with the slides C C, as hereinbefore described.

Figure 1 is a transverse section of the frame.

Figure 2 is a plan of the machine.

No. 10,906.—William Stoddard.—*Improved Rotary Shingle Machine.*—Patented May 16, 1854.

This improvement consists of a wheel B, formed in halves, in each half of which are placed one riving knife and two shaving knives, and

also the springs and other apparatus, as shown in the drawings, for adjusting the same for splitting or riving and shaving shingles, by the rotary motion of the wheel in which the knives are placed.

Claim.—1st. The riving-knives *c c*, the springs J J, to which they are attached or secured, the dressing-knives D D, the bevelled flanched wheel B, when they are arranged and operated as shown and described.

2d. The arm E, placed at or near the centre of the within-described wheel B, or its mechanical equivalent, when made and used for the purpose of sustaining the shingles, while the knives D D are dressing them.

3d. The levers N and O, in combination with the springs G G, for supporting the four springs E E E E, near the periphery of the wheel B, during the dressing of the shingles.

The two figures represent perspective views of both sides of the wheel.

No. 10,907.—Charles A. Read.—*Improvement in Self-heating Smoothing Irons.*—Patented May 16, 1854.

This iron is composed of three parts. The bottom part, being made in the shape and of the size of an ordinary flat-iron, is perforated with a row of round holes *a*, to receive the tubes of the lamp. There is a row of holes *b b*, above those for the lamp-tubes, through which the air enters, and deflects the flame of the lamp down against the bottom, to heat it most, and the top least. The top part is provided with a rebate around the edge to fit the bottom, and is made inside so as to descend from rear to front, and is secured by pins passing through the side of the iron. The top is furnished with a handle, in the usual manner, and also has a draught-pipe or chimney *d*, in its forward end, communicating with the interior. The lamp is made semicircular, of tin or copper, for holding alcohol or other burning-fluid, and has a number of tubes projecting from the straight side of the lamp, corresponding in all respects with the round holes *a* intended to receive them.

Claims.—1st. Making the holes which supply the air to the lamp, above the holes through which the lamp-tubes are inserted; so that the air, as it enters to supply the lamp, will deflect the flame down towards or against the bottom, to heat it more rapidly and effectually than it would otherwise do, and heat the top less, substantially as described.

2d. Making the inside of the top descend gradually from rear to front, to aid in deflecting the flame down to or against the bottom, so as to heat it more effectually.

No. 10,908.—William L. Bass.—*Improvement in Tables for Ship's Cabin.*—Patented May 16, 1854.

The object of this invention is to economise the space occupied by the large dining-tables commonly used in ships' cabins, &c., by con-

verting the same at pleasure into two arm-chairs, placed opposite to each other. And this is effected in a simple manner, by attaching to the chair a reversible back *c*, which can be changed, being fastened to the frame *a* of the chair, from an upright to a horizontal position; the seat of the chair being so connected to its supporting frame-work, by a peculiar arrangement of mechanical devices, as to allow free access to the table, and also serve as a seat to the same.

Claim.—A table for ships' cabins, &c., which is formed in sectional pieces, by the backs of two opposite rows of adjacent chairs, the said backs being sustained and operated as herein above described, and also susceptible of being reconverted into the backs of chairs, as above set forth.

No. 10,909.—Smith A. Skinner.—*Improvement in Surgical Splints.*—Patented May 16, 1854.

In this apparatus, G is a bar of iron having near its upper end several holes, *r*, *r*, *r*, *r*, into which screw *m* works, said screw being several inches in length and bearing upon its distal extremity a curved spring, or body brace, which is clothed with cushioned-straps *r* and *t*, the former to pass round the body of the patient, and the latter to pass under the perineum; E is a slide for adjusting the upper end of splint A B; and F is another slide for adjusting the lower end of said splint, and for making counter extension by means of screw R, which is turned by wheel-tread L. Foot-rest is adjustable by means of slotted bar.

Claims.—1st. The combination and arrangement of the long bar *a*, made to extend above the hips, and to have a counter extension strap applied to its upper part, the thigh and leg-rests, and the extension screw applied to the bar, the whole being substantially as specified.

Also, in combination with the long bar G, and the counter extension strap of the groin, the projecting screw arm *m*, and its body-rest, the same being for the purpose of obtaining extension in direct line of the leg as stated.

2d. The combining the connected thigh and leg rests with the bar G, by means of the two slide-rods and slides, and their set-screws, as specified; whereby the whole, the combined thigh and leg rests, may be readily and properly adjusted to any leg, whatever may be the degree of projection of the hip thereof.

The inventor disclaims thigh, leg, and foot rests upon a board extending the whole length of the extremity without means of producing extension of the thigh, and also of Liston's and Ferguson's splint.

No. 10,910.—Israel M. Hopkins.—*Improvement in Knitting Machines.*—Patented May 16, 1854.

The first part of this invention relates to certain means of causing the locking-bar to descend and lock the sinkers firmly, previously to the commencement of the retreat of the needles, and the closing of their barbs by the presser-bar; whereby, after the depressions of the thread

are made between the needles by the sinkers, the passage under the joints of the needles is more effectually secured, and the dropping of loops is more effectually prevented.

The second part of the invention relates to certain devices by which the thread is prevented running out from the bobbins, and has a slight back-drag given to it at the commencement of the laying of every new row of loops upon the needles, for the purpose of taking up the slack sometimes left in the thread when the traverse commences its return, and making a tight selvage.

Claim.—Attaching the locking bars i i to the same plate or head J with the presser-bar, in such manner as to allow them a limited movement, irrespective of the head, under the influence of springs *m m*, applied substantially as described; whereby the said bars are enabled to lock the jaws some time before the termination of the descent of the presser-bars to close the barbs, and hence before the commencement of the retreat of the needles, but the necessary continuation of motion of the head to bring down the presser-bars is not prevented.

Also, the combination of the spring U and the plate W attached to the traverser, and the tongues R R attached to the needle-bar; the several parts operating substantially as described, to arrest or retard the thread, or produce a back-drag, as may be required, to tighten the selvage at the commencement of each row of loops.

No. 10,911.—JOSEPH PUTNAM—*Improvement in the Manufacture of Couplings for Clay Pipes.*—Patented May 16, 1854.

The object of this invention is the construction of the moulding-box case and its cover, in such manner as to cause a more perfect moulding and shaping of clay-pipe couplings than has been attainable by any means heretofore known, and a more perfect means of removing the excess of clay from the outside of the coupling.

The spindle E^2 rests in the centre of the semi-cylindrical mould-box A, and sustains the core, which is composed of two short cylinders H I, expanding into the conic frustra F G. The core is covered with stocking-net L, instead of common inelastic cloth; and shape is given to the exterior of the upper half of the coupling by drawing an instrument of wire, figures 3 and 4, over the mass of clay from one head, K, to the other; by which it is not only trimmed down to the height and curve of these heads, but the superfluous clay is, at the same time, divided, and falls on either side.

Claim.—The manner of making the mould, viz: of a combination of the two conic frustra, and their separation cylinder or cylinders together, and with the concave cylindrical block and end-boards, as specified, the two parts of the core being supported on a spindle that rests on the concave block, and concentric with its curved surface, as specified.

The inventor does not claim the mere use of cloth, or an inelastic fabric, to prevent adhesion of the clay to the moulding surface, but claims the employment of stocking-net, or an equivalent elastic material, for the cover or covers of the two parts or frustra of the core;

the elastic properties of such cover or covers enabling them to fit closely to the curved surface of the cone without the formation of injurious seams or indentations on the inside surface of the coupling; and, besides this, the elasticity of the cover or covers facilitates the removal of the same from the moulded article.

Also, the wire former, made substantially as specified, viz: of a curved wire or blade R, the tension-stay and cutter of wire U, and the forked stock or handle—the whole being used in the manner and for the purpose specified.

No. 10,912.—T. J. SLOAN.—*Improvement for Water-Gauge for Steam-boilers.*—Patented May 16, 1854.

The invention consists in enclosing the shaft *c* of the float-arm *b* in an elastic extended sleeve *h*, surrounded by metallic rings, thus forming a loose but steam-tight joint.

Claim.—Connecting the float, inside the boilers or other vessel, with the indicator or other mechanism outside, by means of a flexible sleeve or sleeves, or the equivalent thereof, substantially as and for the purpose specified.

No. 10,913.—CHARLES G. SARGENT.—*Improvement in Machinery for Combing Wool.*—Patented May 16, 1854.

In this machine there is one or two rows of teeth, by one of which the wool to be combed is lapped; and these teeth are attached by sectional bars to the links of an endless chain, passing over rollers or wheels, and, in the upper part of their course, guided so as to move slowly in a straight line, to receive the fibres of wool from a feeding apparatus, thence carry it along in front of a combing apparatus, and thence to a pair of rollers, which throw off the combed fibres to form a sliver.

Claims.—Giving to the feeding apparatus the lapping motion as specified by the crank *i* and rockers *e e*, or their equivalents, for lapping the fibres of wool on the teeth of the main comb b^1, as specified.

Also, in combination with the feed-rollers *c c*, operated as specified, the employment of the lifting-rod *t*, for lifting the fibres preparatory to lapping them on the teeth of the main comb, and thus separating them, substantially as specified.

Also, in combination with the continuous chain of main comb-teeth b^1, on which the fibres are lapped, a working comb q^1, which is operated by a pecular motion, like that given to the lapping rollers, by having the said working comb q^1 attached to it, and carried by a frame operated at one end by a crank u^1 or its equivalent, and jointed to the vibrating rods or rockers S^1 S^1, as specified.

Also, in combination with the main comb-teeth b^1, and with the lapping feed-rollers and the working comb q^1, as specified, the employment of brush or brushes a^2 b^2, as described, for holding the fibres of wool, after they have been lapped on the main comb-teeth, to prevent them from being drawn out before they are combed, as described.

Also, in combination with the endless chain of comb-teeth b^1, constituting the main comb, the vibrating finger m^3, operated as described, to direct the fibres, after they have become combed, to the rollers which draw them off, and deliver them to the condensing apparatus.

Also, giving to the feed-rollers *c c* an intermittent rotary motion, as specified, that the required quantity of wool may be led forward for each lapping motion, and then stop during the pulling or separating, as specified.

Also, giving to the rollers v^2 v^2 of the condensing apparatus, which strips the fibres of wool from the teeth of the main comb, a slow vibrating motion in the direction of their axes, as specified.

No. 10,914.—George Rogers.—*Method of Coating Metals.*—Patented May 16, 1854.

The method consists in placing one or more partitions B in the bath A, by which the opposite ends of coating metal are kept at different temperatures.

Claim.—Constructing the bath in such manner that the upper portion of the molten metal at which the article to be coated enters, is separated by a partition from that portion of the upper part of the molten metal at which the coated article emerges, whereby the flux at the two ends of the bath may be kept separate, and the metal at one end of the bath kept at a much higher heat than at the other, substantially as specified; whereby, also pulverulent matter, not a good conductor of heat, may with important advantages be employed to cover a portion of the surface of the molten metal, the remainder being covered by flux, as herein set forth.

No. 10,915.—Henry Burt, assignor to the Newark Patent Hosiery Company.—*Improvement in Knitting Machines.*—Patented May 16, 1854.

This invention consists in certain improvements in knitting machinery, being based upon and applicable to a machine of the kind for which letters patent were granted to the patentee September 23, 1843.

A description of the nature and construction of the machine would occupy too much space in the Report.

Claim.—The method of constructing the pattern-cylinder, viz: by dividing it into two parts, so as to be capable of sliding to or from each other on the supporting-shaft, whereby variations in the width of the web may be effected, but having the same pattern.

Also, combining the pattern-cylinder directly with the shifting-bar, carriages, and yarn guide, as described; whereby space is economised, and a better action in the machine produced.

Also, the improved construction of the carriage and stop-motion, by the addition of a second carriage, on which the stop-levers and yarn-guide are fixed. These in combination with the shifting-bar, as set forth.

Also, in attaching the point of the yarn-guide by a hinge, and so shaping it that it may be pressed down between the needles to form the selvage, as described.

Also, the hook-bar H and its hooks, in combination with the needles and sinkers, substantially as set forth. No illustration.

No. 10,916.—A. Greenleaf.—*Water-wheel.*—Patented May 16, 1854.

The detailed specification, the numerous drawings, representing almost every species of curved surfaces, together with their peculiar combination, render a satisfactory description here impracticable.

There are five devices.

The 1st and 2d cover the combination of the adjustable hinged gate K with the flume *m*.

The 3d and 4th claims refer to tapering floats H, in combination with the cuniform spiral-like surfaces O of wheel.

The last claim relates to the peculiar change of curvature given to the ends of buckets seen at V I.

No. 10,917.—Leander Lackey.—*Improvement in Machines for Pegging Boots and Shoes.*—Patented May 16, 1854.

Claims.—The patentee claims the several parts of this above-described machine combined for the purpose of making boots or shoes.

1st. The hanging the jack or last-holder Y by universal joints M, so arranged as to press against points of inclined spur-wheel *r*, and held firmly at proper time by clamp *s*, or analogous device.

2d. The receiver *o*, when this is so combined with a concave guide X, in which it revolves, as to receive the peg directly as it is cut from the block, and convey it directly to the hole pierced by the awl.

3d. In combination with the revolving receiver, the awl L and punch P, when made to operate alternately through the compartments thereof, for the purpose of piercing the hole and driving the peg; it being understood that the general device of making the awl and punch act alternately with each other is not claimed, as that is not new.

4th. The revolving spur-wheels R and *r*, on which the shoe rests, and is carried at certain times the precise distances for the series of pegs, either for single or double rows.

5th. The manner of making the pegs, by cutting them on the box or hopper, as set forth, and feeding along the card by the alternate motion of a catch operating on the points of the card.

6th. The annular guide that supports the toe while the shoe is being pegged round the heel, and also supports the heel while being pegged around the toe.

7th. The waved cam C^2, for the purpose of raising and depressing the shoe to place the pegs in alternate rows.

The patentee is aware that one or more of the above-mentioned devices may be dispensed with in some kinds of work, and therefore does not claim the whole as a necessary combination; but I use the whole for common large work, reserving the right to use less or more, as required.

No. 10,918.—Heman B. Hammon.—*Improvement in Ox-yokes.*—Patented May 16, 1854.

This invention consists of putting ferrule *c* upon the end of the ox-bow; fastening washer *f* to the top of the yoke, and then bringing washer *e* upon the bow, so that projection *g* fits into the branched slot of ferrule *c*; pin *i*, upon washer *f*, enters hole *h* of washer *e*, and retains the latter in place.

The inventor does not claim the ferrule and washers separate, for they are used for different purposes.

Claim.—The combination of the ferrule *c*, or its equivalent, and the washers *e* and *f*, for fastening ox-bows, as herein set forth.

No. 10,919.—Daniel P. Baldwin.—*Improvement in Shower-Bath.*—Patented May 18, 1854.

This bath has two reticulated trumpet-shaped discharges, G and H, which may be revolved at pleasure to direct the water upward, downward, or laterally. Pipe A supplies cold water, and pipe B supplies hot. By means of stop-cock D^1, cold water may be furnished as in figure 1; a mixture of cold and hot, as in figure 2; and also hot water alone.

Claims.—1st. The manner herein described of combining the two directors G H, and providing one of them with large and the other with small discharge-holes, and arranging them so as to be capable of being revolved when it is desired to vary the direction and quantity of the water discharged, and thereby increase or lessen its force upon the body of the bather, substantially as herein described.

2d. The manner herein described and shown of applying the three-way cock D^1 to the supply-pipes A, B, E, of the directors G H, so that warm and cold water may be supplied at the same time, and mixed and discharged together through either of the directors, or warm and cold water supplied and discharged separately, as may be desired, substantially as set forth.

No. 10,920.—Levi Dederick.—*Improvement in Cotton and Hay Presses.* Patented May 16, 1854.

The nature of this invention consists in having the case or box in which the cotton or hay to be pressed is placed of rectangular form, and placed in a horizontal position, said box or case being higher than its width, so that the bale when pressed stands on end; also in a peculiar manner of fastening or securing the top and side doors of the case or box.

Claim.—The bar G hinged to one of the doors, and capable of being removed therewith from the opening, in combination with the caps *i i*, by which it is retained immediately over the ends of the two doors, effectually resisting the pressure from within, and keeping them closed during the operation of pressing.

Also, providing the caps *i i* with flanges on the interior sides, by means of which the bar G is enabled to aid in supporting and binding together the two sides of the press during the greatest strain upon them.

No. 10,921.—George E. Higgins.—*Improved Fastenings for Ear-Rings.*—Patented May 16, 1854.

The object of this invention is to provide a means of connecting the drop with the knob, which shall be simple and secure, and afford greater facility for its attachment and detachment, and for the removal of the drop from the knob, while the latter is in the ear.

This is accomplished by constructing the standard A, with an interior wire *f*, of metal harder than gold, cased by an exterior tube *g* extending a part only of its length; a slot *h* is cut in the upper part of the tube on the side next the knob, in order to receive the end of the ear-wire *b*.

No. 10,922.—Frank Baker.—*Lathe for Irregular Forms.*—Patented May 16, 1854.

The figure represents this improvement. The two outer mandrels C G carry identical patterns *n o*; a revolving shaft *p*, having friction rollers *q*, carries the cutters also; and as the carriage A passes along, these rollers *q* follow the pattern, and, of course, the knives cut corresponding forms from the pieces n^1.

Claim.—Two patterns in combination with the tracer roller, arranged and operating as may be seen in the drawings.

No. 10,923.—Bernard Hughes.—*Atmospheric Trip-Hammer.*—Patented May 16, 1854.

The improvement consists in having a piston E attached to the stem D of the hammer, working in a cylinder C, open at the top and closed at bottom, with cock and valve; so that the whole or a part of the pressure of the atmosphere may be added to the weight of the hammer.

No. 10,924.—C. M. Daboll.—*Improved Carpenter's Brace.*—Patented May 16, 1854.

The claim allowed is to the securing and detaching the bit in and from the socket of the brace by means of the eccentric-catch D and the inclined side *b* of the notch in the shank of the bit B, operating in such a manner that any force exerted to withdraw the bit will bind it tighter in its place without straining said catch, and by which a slight pressure on the thumb-lever C, combined with the catch, will release its hold upon the bit.

No. 10,925.—Ward Eaton.—*Machine for Cutting Glaziers' Points.*—Patented May 16, 1854.

The claim allowed is to the combination of a partially serrated or indented and straight cutter L, having a reciprocating vertical motion, with a stationary blade N, so that the serrated part of the cutter L shall cut out one half of the sheet in points, and at the same time form two of the three sides of the remaining points of the sheet, which are cut therefrom by the straight cutter, and thus cut up the entire sheet without waste; this being claimed only when said cutting-edges are so inclined to each other as but one point of the series cut from the sheet shall be cut off at a time, which prevents their warping or bending.

No. 10,926.—Charles H. Dana.—*Improvement in Potato Diggers.*—Patented May 16, 1854.

The gist of this invention consists in arranging on a two-wheeled truck, and immediately behind a hoe C, a series of radial teeth *e e*, on an axis *b*, revolving parallel with that of the truck; upon which teeth the tubers raised by the hoe are thrown by the momentum of the progressing machine, and thus freed from the adhering earth, which falls through between the teeth.

Claim.—The revolving separator D, constructed and operated substantially as described, for the purpose of breaking up the raised furrow-slice, and separating the potatoes therefrom.

No. 10,927.—James Hults.—*Improvement in Gun Locks.*—Patented May 16, 1854.

The invention consists in the combination of the tumbler *d* of sear *c* with the jointed levers *f* and *k* and the spring *b*, as described and illustrated; so that by the set-screw *j*, and through its action upon the jointed levers *f* and *k*, the sear *c*, and the tumbler *d*, the cock may be detached from its cocked position, and the gun fired with greater or less exercise of power, as may be desirable; thus deriving all the advantages of a gun with two or more triggers, while but one is used.

No. 10,928.—N. W. Cilly.—*Hanging Gates, &c.*—Patented May 16, 1854.

The construction and application to gates, &c., of the parallel movement, well known to geometricians, is the substance of this invention. The figures sufficiently illustrate the present application.

Claim.—The method of suspending gates or other structures to bracing levers, jointed to each other and to the gate or other structure, and to fixed works, substantially as specified.

No. 10,929.—William H. Mitchel.—*Improvement in Machinery for Composing Type.*—Patented May 16, 1854.

This is an improvement on a patent granted to the inventor on the 30th of August, 1853, and applies to the parts for dropping the type from the conductors *g*, therein shown, on to the belts *m*, which convey the type to the diagonal belt *o* that carries it to the composing apparatus, &c., and also comprises the invention of the wheel (figures 1 and 2) for setting up or composing type in line.

Figure 1 is a sectional elevation.

Figure 2 is a plan of the composing wheel.

Figure 3 is an end view of the parts for dropping one type at a time.

Figure 4 is a plan of one of the finger-keys detached.

No. 10,930.—Jeremiah Peck.—*Improvement in Fire-Arms.*—Patented May 16, 1854.

The substance of this invention consists in revolving the chambered cylinder by means of a jointed lever *g h i*, acting in recesses in the front end of the cylinder, and worked by a thumb-piece *r* on the back end of the lever, by pressing it with the thumb immediately before pulling the trigger.

Also, in so constructing and arranging the rear end of the lever that it will form a complete protection against accidental discharges.

Also, in the manner of constructing and locating the spring-shield F, so as to serve the double purpose of protecting the caps and of preventing the recoil of the cylinder B.

No. 10,931.—Lyman Scott.—*Improvement in Portable Mills.*—Patented May 16, 1854.

The nature of this invention consists in spreading the points where the fine grinding is done by the alternate shallow and deep sections on the burr, for the purpose of preventing a surfeiting or clogging of the grain at any one point; also in the method of supporting the shell and adjusting the burr therein.

In the figure, A is the shell, B the burr. On the outside of the shell are cast the sockets C into which the grooved legs D are secured. E is the bridge-tree, made adjustable by the screw-rods *a a*. The arms of the bridge-tree fit into the grooves of the legs, and are guided therein in adjusting the burr. Alternate sections of deep and shallow grooves are made on the burr, as seen at *e e*, causing the meal-making line to be scattered over more of the surface of the burr.

Claim.—The alternate deep and shallow sections of furrows upon the main grinding-surface of the burr, for the purpose of distributing the material over said surface, and preventing a surfeit or clogging upon any one point of said grinding-surface, substantially as described.

Also, the method of supporting the shell and adjusting the burr therein, by means of the lower bridge-tree, grooved legs, sockets, and adjusting screw-rods, when said legs serve the double purpose of sup-

ports to the shell and guides to the bridge-tree, substantially as described.

No. 10,932.—Linus Stewart.—*Saw.*—Patented May 16, 1854.

Claim.—The construction of saw-teeth, viz: each tooth shall project beyond the next below it a distance equal to the depth it is intended to cut, each tooth having its forward face or sole vertical or parallel to the corresponding faces or soles of the other teeth.

No. 10,933.—H. S. Taylor.—*Improved Machine for Paging Books.*—Patented May 16, 1854.

It consists in a revolving disk, or cylinder, F, in the periphery of which are secured common printing types *a*, which may be taken out and replaced by others when desired. The type-holder is constructed of two parts, one of which, G, is fixed to the shaft D, and F is held to it by the buttons *b*.

In operation, the leaf of the book to be printed is placed between the fingers *r*, over the platen *p*; the treadle K is depressed, the platen *p* is raised, and the impression is made. By the reaction of the treadle, under the influence of the spring L, the shaft D is turned sufficiently to bring a new set of types opposite the platen.

No. 10,934.—William H. Towers.—*Improvement in Guitar*—Patented May 16, 1854.

The improvement consists in passing the strings of an ordinary guitar through openings in the pins A F E B G D, fastening them at their lower ends, and in lengthening the pins G D, so as to touch and press against the bottom-board of the guitar, to cause them to act as sounding-posts, in addition to being hold-fasts for the strings.

No. 10,935.—William H. Street.—*Improved mode of attaching Blankets to Cylinders for Printing Presses.*—Patented May 16, 1854.

Claim.—Attaching one end of the blanket to the cylinder by a row of pins *d*, arranged within the cylinder on one side of the opening C, which receives the gripper-shaft, and the other end to a bar G, provided with a row of teeth *e*, which occupies a position within the cylinder, and has a screw E to draw it inwards to tighten the blanket *b*.

No. 10,938.—Matthew Spear.—*Improved Mitre Box.*—Patented May 16, 1854.

The nature of this invention consists in the arrangement of two supporters connected at one extremity, so as to turn about a common pivot with the saw-guide; the outer extremities of the supporters and saw-guide being connected by suitable mechanism, so that the guide shall

bisect all angles which may be contained between the faces of the supporters in the several positions in which they may be placed; also, in a side adjustment of the saw-guide, by which angles 90° and under, with the plane of the supporters, may be cut on lumber laid on said supporters and across the saw-guide.

Figure 1 is a plan of the machine; figure 2 is a vertical section.

Claim.—The two supporters, or lumber-bearers, *a* a^1, connected and turning about a common centre, in common with the saw-guide *d*, attached to the same pivot, and so connected by mechanism with said supporters as to cause it at all times to bisect the angle at which the supporters may be set.

Also, the turning of the saw-guide from its vertical position, as herein set forth, for cutting any desired angle with the plane of the lumber-supporters, substantially as specified.

No. 10,937.—Isaac W. Little.—*Improvement in Ox-Yokes.*—Patented May 16, 1854.

This invention consists in making the yokes of two parts A B, connected with bolts C D and clasp E, and strengthened by P Q R and S, in order to adjust the length of the yoke, by additional holes for C D, and extending the chains, and at the same time make it both strong and tight; upon screw *a* is a nut I, to tighten the chains.

Claim.—Making the yoke in two parts A B, scarfed, bolted, and confined together, as set forth, and combining with them the sustaining chains, the chain-holder K, and the stirrup screw and nut—all substantially as specified.

No. 10,938.—Peter S. Howes.—*Improvement in Self-heating Smoothing-Irons.*—Patented May 16, 1854.

This smoothing-iron, like others, consists of a box A, formed with two smoothing faces *a b*, and connected to a handle B by journals C D, that project from the ends of the box, and extend through bearings made in the lower parts of the vertical slides of the handle. The journal C is made tubular, to admit the wick-tube *c* of the spirit-lamp E to pass into it. The journal D extends through and beyond the handle, and has a turning-lever N jointed to it, so as to be capable of being turned in an arc of one hundred and eighty degrees, in a vertical plane made to pass through the axial line of the two journals. This lever, when pressed up against the handle, is made to enter a recess *f* formed in the handle, and to press upon a spring-catch *h*. This catch serves to hold the lever in place when standing upward. The wick-tube *c* of the lamp is made to lead out of a chamber H in tube I, extending up from the bottom of the lamp, and is closed at its bottom and made open at its top. The wick *g* is led into the chamber H, up and in contact with a tube of cloth or capillary cover h^1 closely fitting upon the tube I, and extending down to a shoulder K formed around tube I, and in the body of the lamp. A cylindrical air-vessel K, closely fitting the tubular cloth and tube I, is attached to a rod L extending down

through the filling-cap M of the lamp. The object of the air-vessel K and tube I is to prevent the swash of the alcohol in the lamp during the process of ironing.

The patentee does not claim the combination of a rotary box, a supporting bail or handle, and a spirit-lamp, the box being provided with two smoothing-faces or surfaces of flats, and made to turn around within the handle, so as to bring either of them downwards, after it has been heated by the flame of the wick of the spirit-lamp.

Claim.—The mode of preventing the swashing of the alcohol in the lamp, for causing too great or sudden a flowage of the alcohol through the wick; the air-vessel K, in combination with the tube I, its seat, and the capillary covering, the same being applied together and in the reservoir of the lamp, and to the wick thereof, and made to operate substantially as specified.

No. 10,939.—D. M. SMITH.—*Lathe-Dog.*—Patented May 16, 1854.

This device clamps the material E to be turned. The screw D abuts against the dog A, thereby closing it and the double stirrup B B^1 firmly against the piece E.

I *claim* combining the stirrup to the eye of the lathe-dog, so that the eye part of the dog shall be made to extend through into the stirrup, and the male screws of the dog be made to screw through the stirrup and against the end of the dog, as stated. I also claim to combine a cross-bar or rod with the tines of the stirrup, so that the said cross-bar shall pass through the eye of the stirrup, and serve to keep the parts together, or from entirely separating, when not in use, as specified.

No. 10,940.—P. B. TYLER.—*Saws.*—Patented May 16, 1854.

This improvement consists in the particular method of fitting cutting-nibs *d* to the saw, so that, when desirable, they may be removed, and others inserted and screwed to the plate.

Claim.—The improved mode of making and fitting each tooth, the cutting-nib of it being made so as not only to embrace a rib made in the teeth or body of the saw, but to rest in an angular notch formed at the front of the rib, the nib being secured in place by rivets.

No. 10,941.—JOSEPH EDMONDSON and CALEB HAWORTH, executors of THOMAS EDMONDSON, deceased.—*Improved Case for holding Railway and other Tickets.*—Patented May 16, 1854.

The figures represent two rows of tubes or boxes *t u* for containing tickets, used principally at railway stations. Each tube is formed of the back plate *t*^{1}, partitions *t*^{2}, front plate *t*^{3}, and bottom plate *t*^{4}, the two latter being adjustable and somewhat separated, to allow the ticket-clerk to draw the lowest ticket out of the tube, when required. In the figure, the lowest ticket is represented as partly drawn out. The boards *x* and *x*^{1} are made to contain half tickets for children, &c. The

boards *x*^{1} are hinged to the back plates, and are raised up when it is necessary to put a fresh supply of tickets in the tubes. The swivel-boards are furnished with a piece of slate for the clerk to enter the number of the last ticket upon, and the back of the board is covered with paper for making any memorandum upon. The length of the tubes *t u*, and the number of them, must be regulated according to the quantity and different kinds of tickets required at the station where the case is used.

No. 10,942.—LEWIS W. LEEDS and R. MORRIS SMITH.—*Hydraulic Heater for Warming Buildings.*—Patented May 16, 1854.

In the figure, A represents the heater, B is the fire-chamber, D the ash-pit, E E E water-spaces extending around the tubes, fire-chamber, and smoke-pipe *b*; F F are air-pipes at the rear of B, open at top and bottom of the heater; F^1 F^1 are pipes like the others, but placed near the inside wall of the fire-chamber. The cold air is received at the lower portion of the heater, and passes up and through the numerous air-tubes F F, F^1 F^1 F^1, I I, and around the sides of furnace.

Claim.—The arrangement of air-tubes F F, F^1 F^1, forming a perforated chest A, containing the water to be heated, in connection with the fire-chambers B therein, thus making a compact, portable hot-water apparatus, of short circulation and efficient action, at a greatly reduced cost, in the manner set forth.

No. 10,943.—EDWARD BROWN.—*Improved Machine for Making Hinges.* Patented May, 1854.

This invention consists in providing devices furnished with feeding-ways, into which the skeleton hinges, previously cut to the required form, are placed, and then introduced one by one, by means of a feeding-slide, before dies, where the knuckles are turned by means of punches, and the finished hinges then ejected from the machine.

Claims.—1. To the slides G G^1, regulated by set-screws.

2. The eccentric rods E E^1, sliding within the hollow rods F F^1, and connected with the slides G G^1.

3. The sliding-punches J J^1, with adjusting screws.

4. The sliding-gauge O, with its longitudinal motion and set-screws, for the purpose of securing the hinges while-turning the knuckle.

5. The fast-gauge S, with the preventer *r*.

6. The slide P, with the catches *v v*^{1}, and the spring-catches *w w*^{1}.

7. The gauge M, in combination with the preventer *r*, for the purpose of preventing the hinge from returning with the feeding-slide; the whole being combined substantially as set forth.

No. 10,944.—EDMUND H. GRAHAM, assignor to E. H. GRAHAM and A. WHEELER.—*Improvement in Magazine Guns.*—Patented May 16, 1854.

The nature of this invention consists in the combination of the slide cut-off F G and the perforated plate E with the barrel and magazine,

arranged as specified, so that a rotary charge-receiver and its attendant evils may be dispensed with, and yet the advantages of the arrangement of two series of powder and ball chambers in concentric circles on the side of the gun, and out of the sight-range, be retained; the same contrivance being but little liable to be rendered foul by the smoke, or any gases arising from the explosion of the charges.

No. 10,945.—Joseph Birch.—*Improvement in constructing Ships for safety and escape.*—Patented May 23, 1854.

This invention consists in making the after part of the deck U separate from the main part of the vessel, and so arranged that it may be detached and form a life-boat.

No. 10,946.—P. Teale and C. Tyler, assignors to W. P. Cresson & Co.—*Lathe for Turning Hollow Ware.*—Patented May 23, 1854. In England April 3, 1853.

The improvements consist in certain means of holding and controlling the movements of the turning-tool, whereby it is made to accommodate itself to irregularities in the surface of the article, whilst no more of the metal is to be turned off than is indispensable to the removal of the crust on the surface of the casting.

Claims.—1. To the rest *m*, with or without a friction-roller *n*, attached to or combined with a swinging turning-tool *k*, so as to move therewith, and bear on the surface on which the tool is operating, for the purpose of keeping the tool in a suitable position in relation to the surface that is being turned, and furnishing a proper rest therefor—in all its movements to follow the deviation of the motion of the surface from a true circle.

2. Hanging the tool in a frame *o o*, which is left free to vibrate, and keeping it in contact with the work by a spring or analogous device, while the axis of the work is fixed, or has its motion limited; or, what is equivalent, hanging or supporting the axis of the work in such a way as to allow it to vibrate freely, but keeping it in contact with the tool by a spring or analogous device, while the tool is stationary, for the purpose of keeping the tool and work in proper contact, but allowing them to yield to any want of truth in the surface of the work, and thereby cause the tool to take about the same depth of cut on all parts of the surface.

No. 10,947.—Joseph Edmondson and Caleb Haworth, executors of Thomas Edmondson, deceased.—*Improved Machine for Printing Railway and other Tickets.*—Patented May 23, 1854.

The machinery which forms the subject of this invention is intended to print on each of a number of tickets the same names of places of departure and arrival, and to number them consecutively.

The blank tickets are placed in a feeding-tube *a*, from which they are fed one by one to a horizontal table under a type box containing

the type, the impression of which is repeated on all the tickets; the type-box *e* is raised and lowered to receive the ink from rollers h^1, and to print the tickets, which are held in place by the guide-rails *g*, which extend from the feeding-tube *a* to the receiving-tube *k*.

The consecutive numbers are printed on the tickets by the numbering-wheels *n o*, which have the numbers engraved on their circumferences. The wheel *n* prints the units and tens, beginning at 0 and going up progressively to 99; while the wheel *o*, which impresses the hundreds and thousands, is provided with a blank and with figures beginning at 1, and continuing progressively to 99, substantially as herein described.

No. 10,948.—Elon A. Lee.—*Improved Piano-forte Action.*—Patented May 23, 1854.

Claim.—The arrangement of the adjusting-screw *e* and button *f*, in such a manner that, instead of acting against the fixed arm *a* of the common jack, it is brought to act on a wire placed in the same manner with the wire *g* or *m*, with its button as represented; so that as the hammer is raised, this wire by itself, or by means of its button moving in connexion with the under hammer, assists, by pressing against the button of the adjusting screw, to throw off the fly *c* of the jack to the recess *j* of the under hammer at the moment the hammer reaches the string, thus giving a free hopping motion to the hammer without diminishing the force of its blow against the string.

By the combination of the connectors and supporters, the usual hammer-rails and back-catchers are dispensed with.

No. 10,949.—G. B. Turner.—*Improvement in Smut Machines.*—Patented May 23, 1854.

The invention is confined to the special construction of the zigzag passage *c b* b^1 *d* of smut and grain, and the concentric return of the grain towards the shaft F, while the smut and dirt pass out through the inclined screen-bottom J, the chaff to be separated finally from the grain by the blast in spout D.

Claim.—The stationary and rotating scouring plates G G and I I, inverted screens J J, and the blast-spout D, constructed and operated in the manner and for the purpose substantially as shown and described.

No. 10,950.—A. N. Newton.—*Improved Primer for Fire-arms.*—Patented May 23, 1854.

This invention consists in the peculiar arrangement and combination of the capping lever G with the cock and the rotating cap-cylinder F, so that the elastic fingers *k* k^1 of the said lever, picking a cap from the cap-cylinder during each backward movement of the cock, conveys it to the nipple and holds it thereon; also removes the exploded cap

from the nipple preparatory to a new cap being put thereon; all of which is done while the gun is being cocked.

No. 10,951.—Lewis A. Miles.—*Improved Puppet-Valve for Pumps.*—Patented May 23, 1854.

The claim fully explains the nature of the invention.

Claim.—The valve, united by a double hinge $f f^2$ to the chamber, in combination with tongue f^2, which, projecting from the pivot f, bears against the top of the valve in rising, and insures its even action upon the seat in falling, in combination or otherwise with the closing spring s.

No. 10,952.—Ransom P. Adams.—*Improved Excavator for Fence-Posts.*—Patented May 23, 1854.

Claim.—The arrangement of the drill-gearing, the several parts of which are designated in the drawing by the letters *k*, *l*, *m*, *n*, *q*, *t t*, *v*, *w*, *x*, *y*, *z z*, and clutch *h*, upon and within a frame *o o*, pivoted to and adjustable upon the sliding and adjustable platform *u*, adjustable upon and pivoted to a fixed frame *e* upon a travelling carriage.

Figure 1 is a side elevation of the machine.

Figure 2 is a front view of the same.

No. 10,953.—Henry T. Anthony and Frank Phœbus.—*Improved Apparatus for the Manufacture of Daguerreotype Cases, &c.*—Patented May 23, 1854.

The invention consists of an improved machine for making the cushion for daguerreotype, jewelry, and like cases. The operation may be understood as follows: a square of embossed velvet is first laid upon the block B, figure 2; the clamping pieces *b* lying over on A. The velvet is cut large enough to allow of being lapped over and turned on the opposite side of the paste-board. The space formed by the sides of the clamps *b*, however, is only as large as the square of the finished cushion; consequently the edges are bent up, and lie against the clamps, as seen at *c*. A bit of cotton wadding, or other proper material for stuffing the cushion, is next laid on the velvet; a square of paste-board E comes next. This has had the edges previously prepared with glue or paste for fastening on the velvet after the edges are turned over. A follower D, with a handle, is then put on the paste-board, and the block B forced down into the cavity *a*. This throws over all the four clamping pieces, each piece of the clamp turning down upon the paste-board that edge of the velvet which rested against it, from the position shown in fig. 2 to the position shown in fig. 1.

On taking off the follower D, the block B is forced up by the springs beneath, the clamps fall open, and the cushion is taken out complete.

No. 10,954.—Isaac Babbit.—*Improvement in Metallic Hones.*—Patented May 23, 1854.

The claim of the inventor fully sets forth the nature of this improvement.

Claim.—Making the grinding surface of hones for sharpening razors convex, or of portions of the surface of a sphere, for the purpose of keeping the edge of the razor always thin, without at any time injuring it, even if carelessly used.

No. 10,955.—Hiram Baldwin.—*Improved Ratchet Lever.*—Patented May 23, 1854.

In the figure, *a* is the lever, *b* is a false handle secured to the lever by the fulcrum pin *f f*, and, passing down on each side of the lever, encircles it at the part marked *x*, in such manner as to allow the lower end of the handle to play forward and back about ¾ of an inch; *c c* are dogs or catches attached to the lever by the fulcrum pins *g g*.

Claim.—The application of a dog and ratchet to any moving lever or wheel, in such manner that the usual application of the moving power to the lever or wheel simultaneously lifts the tooth of the dog from the ratchet on the side to which the lever or wheel is to be moved, or the removal of the power allows it to fall back in its place, rendering the lever or wheel immovable, except in the manner described.

Also, the application of this invention not only to the moving levers of machinery generally, but as also applicable to the securing of ships' tillers or rudders, or to any other like purpose.

No. 10,956.—John Beach.—*Improvement in Cheese Hoops.*—Patented May 23, 1854.

The object of this invention is to provide a convenient and durable fastening for cheese hoops.

The hoops are constructed in halves, A and B, and hinged together on one side, the fastening being applied at the other side. To the end of one of the halves is hinged a hasp *b*, with a slot which clasps over a small ratchet wheel *c*, connected at a point near the centre of the opposite half of the hoop by projecting ears *d*; the hasp being pressed down over the ratchet wheel below the centre thereof, thus preventing any tendency of the hasp to open during the operation of pressing, while it can be easily opened or shut when necessary.

No. 10,957.—Alfred T. Clark.—*Improved Sash Balance.*—Patented May 23, 1854.

This invention consists in the combination and arrangement of the pulleys and cords with the balanced sashes, by means of which the lower sash rises double the distance that the upper sash descends, and thereby leaves a wider space open at the bottom than at the top of the window.

No. 10,958.—Henry A. Chase.—*Improvement in Counterpoise to Cast Locomotive Wheels.*—Patented May 23, 1854.

Claim.—Casting the counterbalance D upon the inner face of the tread C of the wheel, and independent of the two side-plates A A forming the wheel; this method allowing all the parts of the wheel to expand or contract independent of the counterbalance, and the counterbalance itself to expand to any desired extent without exerting any strain on the wheel during the casting or chilling process.

No. 10,959.—James Curtis.—*Improved Windmill.*—Patented May 23, 1854.

The nature of this improvement consists in the manner of hanging the sails upon one shaft, so that when one sail of a pair turns to the wind, its fellow shall, by the partial turning of their common shaft, turn edgewise, to prevent resistance to the wind, and aid its fellow in coming to the same position; and in the hollow bearings upon which the sails turn, so that the lines by which they are reefed may pass through these bearings.

Figure 1, is a perspective view of this improved windmill; and figure 2, a section through one of the hollow bearings. A is a hollow shaft through the openings in which the cords *i* pass for reefing and furling the sails. F F^1 are sails attached to the extreme ends of a common shaft G, so that it shall turn with the sails; *a a a a* is the metallic frame-work of the sails without rods *b*, having eyes *c* passing across each. H H H H serve the double purpose of braces and guides to the sail-frame, *d d d d* are hollow bearings to which the sail-frames are pivoted, and *e e e e* are hollow bearings upon the frames. I is a continuation of the shaft G. The cords are indicated by dotted lines.

Claim.—So hanging the sets of sails upon one shaft extending both ways from the centre, that when one sail of the pair turns to the wind, its fellow shall, by the partial turning of the shaft, turn edgewise to prevent resistance.

Also, hanging the sail-frames on hollow bearings in combination with the sails and lines, for the purpose of reefing and furling the sails at pleasure while the wind-wheel is in motion.

No. 10,960.—Elias Davis.—*Improvement in Self-acting Power-Press.*—Patented May 23, 1854.

The nature of this invention consists in so arranging a series of horizontal and vertical knuckle-joint levers C C and D D, below the screw I, and bed-plate J, in combination with the peculiar manner of constructing and operating the press, that a progressive and powerful upward pressure, in a straight line, will be exerted upon the article being pressed, by means of its gravity and that of the movable portion of the press.

Claim.—The peculiar arrangement of the horizontal levers C C, vertical levers D D and G G, below the screw and bed plate, in combination with the manner described in specification of constructing and operating the press, whereby an accumulative upward pressure, in a straight line, can be exerted upon the article being pressed, by reason of its gravity and that of the moving portion of the press, substantially as set forth and specified.

No. 10,961.—Loring Danforth.—*Improved Machine for Making Book-Covers.*—Patented May 23, 1854.

The nature of the invention consists in combining a pair of folders A and B, having two distinct movements, the edge of one being the centre of motion of the other, so as to produce a perpendicular and parallel motion in quick succession.

The book-cover is placed upon the surface D, which is adjusted by the screw G, and the edge of the cover is made to rest on the folders A B, and by the connecting machinery the lifter C is elevated until the surface of the folder B is perpendicular to the bed-plate D, and against the edge of the book-cover L, when the work is completed by the further pressure of the treadle.

No. 10,962.—John P. Hayes.—*Hot-air Furnace.*—Patented May 23, 1854.

In the drawing, A represents a fire-chamber, having in the upper part a series of radial chambers *b c* are two rows of hot-air tubes, communicating with the fire-chamber and with the passages B C. *d d* are hot-air tubes connecting chambers D and E. The chamber E at the upper ends of the tubes *d*, and the chamber C, at the upper ends of the tubes *c*, are isolated. The chamber D communicates with the fire-chamber through the tubes *e f*. The chamber B communicates with the smoke-pipe G, by means of a pipe H provided with a damper. I is a hot-air tube, closed at top. J is a tube, terminated by a bulb K at one extremity; the object of the tube is to supply air to the furnace.

Claim.—The general construction of the furnace, as shown and described in the body of the specifications.

No. 10,963.—Amos Jacobs.—*Feed-water Apparatus.*—Patented May 23, 1854.

The invention consists in the arrangement of the reservoir D, counterpoise I, and valve K, in such manner that the excess of feed-water operates to regulate the supply, shutting off the supply; and while the pump continues in operation, the excess is returned over and over to boiler.

No. 10,964.—John McMullen.—*Preventing Incrustation in Steam-Boilers.*—Patented May 23, 1854.

The claim allowed is for the agitating of the water in steam-boilers, and preventing incrustation of the same, by the action of the spirals ',

coiled around the bars *e*, attached to the arms *c*, radiating from the shaft *a*, having an oscillatory rotary motion; and by the spirals *m*, coiled around the tubes B, having a longitudinal motion, as herein described.

No. 10,965.—JOHN MYERS and ROBERT G. EUNSON.—*Improved Machine for Sawing Thin Boards.*—Patented May 23, 1854.

This machine is designed for sawing lumber into thin stuff, such as is used for the backs of mirrors, picture-frames, &c.

Claim.—The employment, or use, of the deflecting plates E E, one or both, placed at the sides of the saw, and for the purpose of preventing the sawed stuff from bearing against the sides of the saw, and expanding the saw-kerf; and also for the purpose of allowing a thin veneer-saw to be stiffened by plates D, one or two, as desired.

Also, the employment or use of the clamps I I, arranged as herein shown, or in an equivalent way, so as to have a lateral elastic movement, independent of the roller-beds to which said clamps are attached, for the purpose of compensating for the varying thickness of different pieces of stuff, and keeping them in a proper relative position to the saw.

Also, the knives or cutters O O, placed in the roller-beds F F, and arranged substantially as shown and described, for the purposes set forth.

Also, the employment of an adjustable bed F, with clamps as described, in combination with the saw *c*, when the saw has a stiffening plate E, in line with said bed, by which the stiffened or rounded side of the saw is made the "line side."

No. 10,966.—JAMES PIGOT.—*Improved Apparatus for Making Palliasses.*—Patented May 23, 1854.

This invention is for the purpose of making palliasses of variable sizes, &c. It consists of a box with two sides, A B; A being stationary, while B is made adjustable, and secured by the bolts D D: both sides are perforated with holes *f*, of sufficient size to pass the twine and tufts to secure the palliasses at a uniform thickness. E and F represent the bottom and one end of the frame, adjustable by bolts *d e* and *m m*, which pass through holes *n h*, allowing of variation for size.

No. 10,967.—THOMAS S. STEADMAN.—*Improvement in Clover Harvesters.*—Patented May 23, 1854.

The invention consists in the arrangement of a series of knives *t t*, and parallel with them of a rake S, on the same frame, I H, the latter being vibrated by gearing, in such way that the clover-heads, passing, as the machine proceeds, between the comb-fingers *e e*, are cut off by the knives *t t*, and thrown back at every vibration of the frame, and pushed out of the way and towards the hind part of the platform at every subsequent vibration.

Claims.—1st. The arrangement of the cutters, in combination with the comb, operating in the manner and for the purposes described.

2d. The rake S, in combination with the cutters, as described.

No. 10,968.—LEWIS C. SUGETT.—*Improvement in Process for Treating Hemp.*—Patented May 23, 1854.

The improvement refers to picking the hemp seven to ten days before ripening, its toughness being at its maximum about this time; the immersing thereof, after the usual mechanical treatment, in a solution of common salt, at about 70° Fahrenheit, during six hours, and, when the further chemical treatment is completed, in the treatment thereof with tar, or equivalent, previous to manufacturing it into twine or cordage; the whole for the alleged purpose of making it softer, stronger, more pliable, and more durable, and at the same time cheaper than under any other treatment.

Claims.—1st. The application of common salt, or other saline substance, to the steep-water, in order to effect the removal and separation of the gum at the most advantageous condition of the lint or harl, in regard to toughness and pliancy, and before the induration of the gum about the fibres, without endangering the strength of the latter by decay.

2d. The saturation of the fibre and expulsion of its moisture, by immersion in boiling tar, pitch, or oil. for the purpose of more thorough and intimate application of the preserving substance to the fibres, preliminary to their conversion into twine or cordage. No illustration.

No. 10,969.—JOSEPH C. STRODE.—*Improved Hydraulic Ram.*—Patented May 23, 1854.

This improvement consists in carrying a pipe C C C from the upper valve-seat of the puppet-valve to the bottom of the air-chamber, for the purpose of transferring the shock produced by the rising of the puppet-valve to the air-chamber; and also in placing a series of short vertical tubes, E E E E, extending from the upper valve-seat of the puppet-valve, and which are open at their upper extremity to the external air, for the purpose of preventing the formation of a partial vacuum by the descent of the puppet-valve.

Claim.—The arrangement of the tube C C C, in combination with the upper part of the puppet-valve chamber, and with the air-chamber B; and the arrangement of the tubes E E E, in combination with the top of the puppet-valve chamber, in the manner and for the purpose described.

Figure 1 is a central vertical longitudinal section of the same.

Figure 2 is a plan of the top of the puppet-valve chamber.

No. 10,970.—R. L. WRIGHT.—*Improved Tire-Bender.*—Patented May 23, 1854.

Claim.—The adjustable spur-wheel *c*, with the rising and falling roller-shaft of the wheel F, and the concave bed, for the purpose of bending tire of variable sizes in the same machine.

No. 10,971.—R. and T. WINANS.—*Improvement in Locomotive Tender, for Feeding the Furnaces of Locomotive Engines.*—Patented May 23; antedated May 9, 1854.

Claim.—The tender, with an upper, G, and a lower, P, platform, in connexion with and for the purpose of feeding with greater convenience the furnace of a locomotive steam-engine having upper and lower feed-holes.

No. 10,972.—THOMAS W. BROWN, assignor to WILLIAM M. MEAD.—*Improvement in Button-hole Cutters.*—Patented May 23, 1854.

This instrument consists of two levers, constructed and hinged like those of a common pair of scissors. The end of the lower lever *c* is provided with a cloth-rest D, which has a scale formed on its upper surface, by which the edge of cutting-knife E can be adjusted to cut any length of button-hole desired. There is an adjusting screw N, passing down through the upper lever B, at the rear end of the knife, with a small circular cutter formed on its lower end, which cuts a circular hole at the end of the button-hole, while the knife, the edge of which stands at an acute angle with the cloth-rest, is performing its office.

Claim.—The combination and arrangement of the angular knife, or knife-edge, the cloth-rest, and adjusting screw, substantially as described, and so as to operate together, as specified.

Also, the combining a tubular cutter directly with the adjusting-screw, and so that it may perform the functions of a cutter and stop, essentially as specified.

No. 10,973.—JOHN MANSURE, assignor to FARR & THOMPSON.—*Improved Bracelet Clasp.*—Patented May 23, 1854.

The nature of this invention relates to the method of fastening the clasp, when applied to bracelets, &c., and to a device for preventing the clasp from slipping to one side, or, in other words, holding it in proper position. The first is accomplished by two spring-bars *b b*, hinged to the plate *a*, and catching into the slot *e*. To the cut ring *d*, between the bars, is secured a spring-bar *o*, which has a loop or projection *r* on its end for the purpose, when the armlet is closed, of pressing against or catching into the material embraced within the armlet to prevent its slipping to either side.

No. 10,974.—ISAAC M. SINGER.—*Improvement in Sewing-Machine.*—Patented May 30, 1854.

A description of this invention would occupy too much space in the report.

Claim.—The method of forming a seam with one thread, by carrying the thread through the cloth or material with the needle, and forming the thread into a loop, and at the next passage of the needle forming another loop, which is drawn through the first or previously-formed loop.

Also, the employment of lateral pressure, whether by a cam, a lever, or their equivalents, to act against and in combination with the needle, at or near the end of its perforating motion, and to insure the proper position of the needle, as described.

Also, in combination with a needle for perforating the substance to be sewed or stitched, and carrying the thread through it; a looping apparatus to form a loop at each perforation of the needle, and consecutively liberating the previously-formed loop over the one last formed, to effect the concatenation of the stitches, as described.

Also, the looping apparatus, with a recess into which the thread is drawn to form a loop, or its equivalent, in combination with the lever, or its equivalent, for alternately opening the recess to receive the thread to form the loop, and closing it to shut in the last-formed loop, and discharging the previously-formed loop over the one last formed.

Also, giving a positive motion to the spring yarn-guide, through which the thread passes from the tension apparatus to the needle, by combining therewith the two bridles, or their equivalents, and the needle-carrier, or some equivalent moving part of the machine, substantially as specified; the carrier forcing up the said spring arm-guide to the limit governed by the fixed bridle, and the movable bridle forcing it down to make the slack, as described.

Also, the method of feeding the cloth or other substance to the needle for the progress of the seam by means of the foot or pad, which holds it to the table, substantially as specified; by means of which the cloth or other substance can be turned on the needle as its axis while the needle is in it, and the foot or pad is lifted up preparatory to the feed-motion, as set forth. No illustration.

No. 10,975.—ISAAC M. SINGER.—*Improvement in Sewing-Machine.*—Patented May 30, 1854.

The first part of this invention consists in the method of feeding the cloth with a view to render the operation efficient and cheap, whilst it can be adjusted to regulate the length of the stitches.

The cloth is held by a pressure-pad on the periphery of the feeding-wheel, which is roughened or formed with minute teeth to bite sufficiently to move the cloth. The nature of this part of the invention consists in giving an intermittent feeding-motion to the said wheel by means of a cord or catgut, or its equivalent, fitted to a groove in the periphery of said wheel; one end of said cord being attached to a spring connected with the arm of a rock-shaft, with a set-screw interposed to

regulate the length of the stitches, and the other end of it attached to a reaction spring attached to a frame or to a permanent bracket, and resting thereon at a given and positive tension after drawing back the cord, so that, when the cord is pulled by the arm of the rock-shaft to give the feed-motion, the said cord shall be drawn to a tension equal to that of the reaction spring when resting on the bracket, before the reaction spring will yield to permit the feed-motion; when this method of imparting the feed-motion is combined with a friction brake, in or on the said wheel, which makes a friction in one direction to resist the feed-motion, equal to the tension of the reaction spring when at rest; that the time of starting the wheel shall be positive, and a greater friction or resistance in the reverse direction to prevent the wheel from being turned back by the tension of the cord. The nature of the second part of the invention consists in providing a wire with guides and with a turning wing, and passing the thread on its way from the spool, bobbin, or reel, to the needle around the said wing, so that by turning the said wing on the wire the thread shall be moved around the body of the wire more or less, and thus increase or decrease the friction of the said thread in proportion to the number of turns which it makes around the body of the wire.

Claim.—The method of imparting the feed-motion to the feed-wheel *a*, by means of the cord connected at one end with the adjustable arm of the rock-shaft *j*, and the other with the re-action spring *o*, substantially as specified, when this is combined with the friction brake, operating substantially as specified, and for the purpose set forth.

Also, governing and regulating the tension of the needle-thread by means of the wire g^1, with its eyes or guides, substantially as specified, in combination with the turning-wing h^1, by which the coiling or winding of the thread around the wire can be increased or decreased at pleasure, substantially as specified.

Also, in the sewing of leather, causing the needle-thread, on its way to the needle, to pass through linseed oil, or its equivalent, mixed with a dryer, substantially as and for the purpose specified.

No. 10,976.—Christian B. Miller.—*Improvement in Process for Galvanizing Metals.*—Patented May 30, 1854.

The improvement consists chiefly in the use of a rotary cylinder for the purpose of containing the metals while in the different baths preparatory to and during the galvanization; also, in the arrangement of the tanks C B and the melting and drying apparatus A, and the furnishing thereof with the ways *k k* and rests *g g*, for the easier locomotion and revolving of cylinder D, in and from one to the other of said vessels.

The claim is restricted to the use of the cylinder D, in combination with the melting and drying apparatus, and diaphragm tanks A B C, for the purpose described, and operated as set forth, for the galvanizing of metals.

No. 10,977.—John Murphy.—*Improvement in Process for Treating Gutta Percha.*—Patented May 30, 1854.

The improvement refers to the process of re-heating, as patented to John Rider, in June, 1852, and consists in mixing two ounces of sulphur with ten pounds of gutta percha, and heating the latter to about 285° Fahrenheit preparatory to the regular vulcanization; this amount of sulphur, although not enough to vulcanize the gum, being alleged to serve the purpose of expelling certain volatile ingredients preparatory thereto.

Claim.—Incorporating with gutta percha, substantially, the proportion of sulphur, or its equivalent, herein specified; and then subjecting it to such a degree of heat, and for such a length of time, as to expel therefrom its injurious volatilizable ingredients, preparatory to vulcanizing the gutta percha thus treated, or of using it in the condition that said process of treatment puts it into. No illustration.

No. 10,978.—Charles T. Appleton.—*Improvement in Dyeing Process.* Patented May 30, 1854.

The improvement is illustrated in the drawing, in which A represents an air-tight vat, in which the pressure of the air may be increased or diminished above or below the pressure of the atmosphere by the pumps E H, or a vacuum generator D, while the goods to be dyed may be kept in constant motion by being wound around the rollers *l l*, acted upon at the discretion of the operator by means of the gearing *n p q*; the object of varying pressure being to expel the air from the pores of the fabric, and thus to prepare the same more perfectly for the reception of the dyeing material, as well as to force the latter more thoroughly through the minutest pores of the goods under treatment.

Claim.—Controlling the pressure of the atmosphere during the process of dyeing by means of exhaustion, pressure, &c., in combination with the method herein described, of keeping the folds of the goods separated from each other by keeping the fabric constantly in motion, or by suspending it upon hooks within the vat, as set forth.

No. 10,979.—William Beal.—*Machine for Cutting and Grinding Corn, Cobs, Bark, &c.*—Patented May 30, 1854.

In the figure, D is a cast-iron cylinder, with a series of ribs on its surface, which ribs are notched as shown in drawing; E is the concave, which has ribs similar to those in D. The surfaces on both concave and cylinder, which lie between the ribs, are also notched.

Claim.—The application and use of the peculiar form of tooth cut in the ribs of the cylinder and concave, the front of the tooth being shaped obliquely across the ribs, and every succeeding tooth being oblique in an opposite direction to the preceding one.

No. 10,980.—John H. Barsantee.—*Improvement in Knitting Machines.*—Patented May 30, 1854.

In the accompanying drawing, two cylinders, L and M, are placed concentrically, with a space sufficient for the dust and waste wool to sift down between them for the purpose of preventing their clogging. At four points there are projections *c*, on the inner cylinder I, to keep the space equal all around, and to guide the cylinder. The outer cylinder M is connected with the moving power by means of four rods J, from which project arms. The rods J are connected with eccentrics on a shaft for the purpose of raising the cylinder accurately and steadily, while it has freedom to revolve.

Claim.—The arrangement and combination of the two cylinders L and M, with a space between them, and supported and moved substantially in the manner and for the purposes set forth; also the ring in which the inside cylinder L sits, and by which it is elevated or depressed, said ring being attached to the frame by set screws for that purpose; also vibrating the cylinder by means of the adjustable lever interposed between it and the gearing, or the equivalent thereof, substantially in the manner and for the purpose specified.

No. 10,981.—Charles H. Bigelow.—*Improved Mode of Manufacturing Turbine Wheels.*—Patented May 30, 1854.

In the drawing, *l* represents the wrought-iron bucket, and *n* the dovetails on its upper and lower edge, about which the rim is cast.

Claim.—1st. Attaching the buckets of turbine wheels to their rims or disks, by forming tongues or dovetails on their upper and lower edges, and then flowing the melted metal used in casting the said rims about them, so that the rims, when cool, shall rigidly hold and embrace the buckets, substantially as set forth.

2d. Attaching the guide curves or diaphragms of the turbines to their disk, by casting them in a similar manner in connexion with their disk.

3d. Using the guide curves of the turbine to sustain the weight of the disk, and of the water impinging upon the same, by casting the lower part of the iron flume around dovetails formed on the said guide curves, so as to mortise them together, or by casting the lower part of the iron flume into holes formed in the said guide curves, so as to rivet them together, as above described.

No. 10,982.—John Brown.—*Improvement in Hot Water Apparatus.*—Patented May 30, 1854.

The improvement consists in making the water-tight joint as described, and securing a large radiating surface of pipe.

Claim.—The curved return-bends, formed with and on the upper part of the end of each pipe, to pass into and connect with the next pipe above, thereby allowing of the pipe *g* being of the full size of any flanch or socket that would be needed with a separate elbow, exposing more surface for the size of the apparatus, and preventing air remaining in the apparatus, as described and shown. Also, the construction and arrangement of the apparatus for the purposes and substantially as specified.

No. 10,983.—Abel Breaer.—*Improvement in Fastening the Disk and Rim of Car Wheels.*—Patented May 30, 1854.

The disk and rim are each furnished with projections—when united a conical cavity, into which is passed the securing-bolt, as shown in section at A. The invention disclaims bolts radial or parallel to axis.

Claim.—For confining cast-iron wheel rims to simple or double disk bodies or centres, the use of bolts whose direction is parallel with a plane perpendicular to the axis of the wheel, and whose direction is also in the course of circular arcs, described from the centre of the wheels; the bolt being either conical in form, or encased by conical sheaths, to facilitate such adjustments as shall secure the parts firmly together, substantially as described.

No. 10,984.—I. H. Fairchild.—*Improvement in Hooks and Eyes.*—Patented May 30, 1854.

This improvement consists in bending the point of the hook within the bow of the body thereof, to prevent the eye from becoming loosened.

Claim.—The peculiar form and construction of the hook, having its point brought round within the bow, as described.

No. 10,985.—Charles Gregg.—*Improved Chuck.*—Patented May 30, 1854.

Claim.—The combination of the cylindrical die A, having scores, or recesses, in its periphery, with another and smaller cylindrical die D, having a groove cut in its periphery parallel with its axis, thus forming two sharp edges that sink into the body to be held, when pressed against it by means of the screw and slide.

No. 10,986.—John Harraday.—*Improved Machine for Cutting out Cloth.*—Patented May 30, 1854; in England, January 20, 1854.

The main object of this machine is to cut out several pieces of cloth or other material, at the same time, to a uniform shape and size. The operation is performed by a straight-edged blade or knife, working with a reciprocating movement through the table B, in a direction perpendicular thereto; one side and the edge working in contact with a sharp edge which is fixed at one side of the opening in the table. The table is made with a loose centre-piece J K, which contains the open-

ing through which the knife reciprocates in performing the cutting operation. This centre piece is capable of turning on its axis in line with the axis of a shaft D, which carries the knife, the centre-piece being geared with the shaft in such a way that both may rotate together; and thus the edge of the knife may be presented in any direction desired, and, at the same time, maintain its proper position in relation to the cutting-edge in the opening. In the figure, D represents the shaft which carries the cutting-knife, and is connected by a blade and socket-joint *d* to a connecting-rod F, which connects with a stud on the face of a disk G, which is secured to the front end of a horizontal shaft, which is the driving-shaft of the machine.

Claim.—The employment, for the purpose of cutting several thicknesses of cloth or other material, of a reciprocating knife, which works through an opening in a table, upon which the cloth is placed, and has one side and its edge working in, or very nearly in, close contact with a sharp edge plate *i*, substantially as herein set forth.

Also, the employment of a knife *o*, with the back extended in the form of a rod.

Also, making the table which carries the cloth or material with a loose centre-piece J K, which contains an opening to receive the knife, and has its axis in line with the axis of the knife-shaft, so as to turn therewith, and at all times bear the proper relation thereto.

No. 10,987.—Silas A. Holmes.—*Improvement in Cameras for taking Stereoscope or other Daguerreotypes.*—Patented May 30, 1854.

The improvement consists in attaching two camera-boxes together, so that they are both adjusted vertically on the object of which a picture is to be taken; and then the two cameras are directed on the object in such a manner that two pictures can be taken of the same object at one time for stereotypes and other purposes.

Claim.—Attaching two camera-boxes at or near their front vertical edges 3, and adjusting one or both cameras to the object of which a daguerreotype or other view is taken, by means of a pinion and rack.

No. 10,988.—Carmi Hobson.—*Improved Stave-Machine.*—Patented May 30, 1854.

The nature of this invention consists in the combination of the rim G and wheel D, both provided with suitable cutters *a* and *b*, and concentrically arranged about the same axis; and these, in combination with a fixed rest J, so that, by passing the stave through between the inner periphery of the rim and the outer periphery of the wheel, both running in the same direction, the stave shall be dressed on both sides by a simultaneous operation, and without the use of auxiliary guides, yielding rollers, or any other appliances beside the rim, wheel, and rest.

Figure 1 presents a front view of the machine.

Figure 2, a section of the same.

Claim.—The combination of the cutting-rim and wheel, hung in the same vertical plane, with the fixed rest passing between their cutting surfaces, for the purpose of holding and controlling the stave whilst it is being dressed on both sides.

No. 10,989.—Thomas T. Jarrett.—*Improvement in Hay-Elevators.*—Patented May 17, 1854.

This invention consists in the application of a cord and weight to hay-elevators, by means of which they may be discharged at any desired elevation.

To the body of the elevator is hinged a bail or handle C, to which a tongue D, permanently attached to the elevator at one end, is latched or looped. The cord I should be of sufficient length to permit the elevator to ascend to the desired height, and is fastened to the loop or catch E in such a manner that, as soon as the intended height is reached, a weight L, fastened to the end of the cord, causes the loop to rise from the end of the tongue over which it works, thus permitting the body of the elevator to swing upon its hinged bail in a vertical position to discharge its load.

The claim is embraced substantially in the above description.

No. 10,990.—George Neilson.—*Ventilator Window for Railway Cars.* Patented May 30, 1854.

This invention consists in making a window-frame in shape of a frustrum of a quadrangular pyramid, the frame being composed of four trapezoidal frames A B C D, in each of which a pane of glass *a* is inserted; the inferior base of the window is made open, as seen at F, and has a closing window E, opening inwards. The window opening is surrounded on its four sides with a deflecting flanch *b*, curved horizontally.

Claim.—The frustro-pyramidical ventilator window, as made of top, bottom, and vertical sides or windows A B C D, and with an opening F and a closing window E, substantially as specified.

Also, the arrangement of the deflector range entirely around the window opening, and in respect to the deflecting sides A B C D, as specified, not intending to claim a deflector or guard, as applied to a car-window opening, but to limit my claim to its arrangement on four deflecting sides or panes, and entirely around the opening between them, as set forth.

No. 10,991.—J. R. Pierce.—*Improvement in Neck-Yokes.*—Patented May 20, 1854.

This invention consists in placing the attaching rings of neck-yokes upon bars, with racks passing on each side of a pinion movable upon the main bolt, for admitting of the equal longitudinal movement of the said rings.

No. 10,992.—Daniel Poole.—*Improvement in Quartz Crushers.*—Patented May 30, 1854.

This is an improved arrangement of grooved and smooth cylindrical cast-iron rollers, co-operating in pairs to crush and pulverize mineral ores and other substances. An endless apron, moved by the same power as the cylinders, feeds the machine.

Claim.—The arrangement and construction of the machine, substantially as herein described.

No. 10,993.—Elias M. Ray.—*Improvement in Knitting Machines.*—Patented May 30, 1854.

This invention is an improvement of the French circular rotary knitting machine, in which there is not only a row of upright needles arranged in a circle, and each made to stand vertically, but a toothed sinker-wheel to run between the needles and form the loops. The said row of needles is attached to a rotary frame that is made to rotate horizontally over or above a stand or base, and is rotated by bevel gears, one of which is arranged on the bottom of the rotary frame or its shaft, while the other is fixed on a driving-shaft.

This invention consists in having a series of wires or lifters arranged horizontally and radially, and made to extend between the needles, there being one of such lifters between every two needles, and made to project beyond their outer surfaces a short distance. At its inner end each lifter-bar is so applied to the rotary frame as not only to hold the lifter-bar in place, but to allow the front end of the lifter-bar to be raised upwards.

Claim.—The combination of the series of radial and horizontal lifter-wires, and the stationary lifter-cam *k*, with the rotating set of needles; the same being made to operate substantially as set forth.

No. 10,994.—Martin W. Stevens and Edward G. Kinsley.—*Improvement in Sewing Machines.*—Patented May 30, 1854.

Claim.—When the shuttle and feed-motion are arranged within a cylinder, upon or around which the work is placed, so arranging and operating the feed-motion as to move the work longitudinally to the cylinder substantially as described, in order that longitudinal seams may be made in articles of circular form.

Also, attaching the pressure-rollers L L to a collar M, which fits to a portion of the needle-rod guide D, or other suitable fixed part of the machine, in such way, substantially as described, that they may be turned and readily secured to run either longitudinally or transversely to the cylinder or bed upon which the work is placed.

No. 10,995.—Robert S. Thomas.—*Improved Typograph.*—Patented May 30, 1854.

The operation of this machine is as follows: The springs M N being supplied with ink, and a sheet of paper placed around the cylinder D,

and there secured by springs, the operator takes hold of the handle G, and raising it, turns it until the desired letter is underneath, and then brings it in contact with the inking apparatus. He then brings that letter over the space between the ends of the springs M N, and, allowing the guide-pin F to enter the hole which corresponds with that letter, presses the bar down with a force sufficient to produce the impression on the paper upon the cylinder and overcome the resistance of the springs, the reaction of which lift the type from the paper when the pressure is removed. The same operation is repeated with the succeeding letters, the cylinder D being turned each time sufficiently to leave a proper distance between the letters. When a line is completed, the sliding-frame *c* is moved more or less, according to the distance required between the lines.

No. 10,996.—Benjamin C. Van Duzen, assignor to J. Martin and B. C. Van Duzen.—*Improvement in Furnace Grate Bars.*—Patented May 30, 1854.

In this invention the bearing-bar is perforated at regular distances, making a socket to receive a pivot cast on the end of the grate-bar, which has no protuberance as usual in the side.

Claim.—The form and arrangement, substantially as described, of furnace grate-bars and bearing-bar, the former being clear of the usual protuberances for lateral support, and having each one a pivot at its rear end occupying a socket in the bearing-bar, so as while holding the rear ends of the grate-bars in their proper places and relative distance, to capacitate them for lateral shifting at their front ends, at the option of the furnace man, without liability to dislodgment, or for removal of a portion without endangering the stability of those which remain, and for other objects as set forth.

No. 10,997.—William Waley, assignor to Jonathan Whipple, Jr.—*Improvement in Self-acting Nipper-Blocks.*—Patented May 30, 1854.

The dotted lines show the position when the rope is checked. The lever H is meant to release the rope partially when desired.

Claim.—The construction and arrangement of the block, as herein shown and described, viz: placing the two pulleys A B and nipper J between the cheek-plates C, and attaching said cheek-plates by a joint B to a standard E, the nipper part F, of which is curved or bent, and is placed a short distance below the pulley B and nipper J, so as to allow sufficient space for the rope G to pass between the pulley B, nipper J, and the end F, when the two pulleys are in a horizontal line; by which arrangement and construction the block is made self-acting.

No. 10,998.—Brown S. Wood.—*Improvement in Knitting Machines.*—Patented June 6, 1854.

The object of this invention is the knitting of ribbed goods by power. The first improvement consists in an arrangement of wide and nar

row jacks, for the purpose of forming a row of long and short loops, which they lay in proper positions to be caught by the needles,—the long loops by the rib-needles, and the short loop by the other set of needles, and drawn through similar loops previously formed in the same manner.

The second improvement consists in operating the jacks by means of a double slur, to which the heads of the jacks are so fitted that the narrow jacks are operated upon in advance of their regular turn, in order to prevent the wide jacks, in advance of them, from taking up the thread necessary to form the narrow loops, and thus preventing the proper formation of the loops and breakage of the thread.

The third improvement relates to the relative arrangement and movements of the two sets of needles, for the purpose of forming and seizing the loops, and drawing each row through the preceding one.

The fourth improvement relates to the arrangement of the rib-needle in combination with a creased presser, by the pressure of which they require to be sprung into the proper position to enter the loops, formed by the jacks, to receive them; the said arrangement of the needles being such, that after they have entered the loops, and the presser is removed, they will spring back and draw the loop tight around them, so that on their descent or retiring motion from the loops, the latter will not fail to pass under their points and into their hooks.

The fifth improvement consists in supporting the head which carries the jacks, the slur, and the thread carrier, in a frame which is capable of being swung out of its operative position, to allow the quarter to be run on the machine, and the needles to be adjusted conveniently; the said capability of swinging also serving for the adjustment of the jacks for regulating the depth of the loops.

Figures 3, 4, and 5 are on a smaller scale than the rest of the figures.

Claim.—The employment of a series of wide and narrow-tongued jacks P P, and P^1 P^1, arranged in any desired order of succession, to form short loops upon the frame needles *c c*, and lay long loops between certain of the said needles, in such a manner that they may be entered and caught by a set of rib-needles c^1 c^1, working parallel or nearly so with the frame needles, substantially as herein described.

Also, the method of giving a lead or advance motion to the narrow jacks P^1 P^1, by means of the double slur *o* o^1, having one part wider than the other, and the recess *n*, made in the heads of the wide jacks, to prevent their being operated upon until the wide part of the slur comes in contact with them, and allow only the narrow jacks to be operated upon by the narrow part, substantially as described.

Also, the movements of the two sets of needles relatively to each other, as described, that is to say: the front needles *c c* rising first, and then remaining stationary to receive the loops upon and between them; the rib-needles being in the mean time stationary, but rising after the loops are formed, and entering the loops intended for them; and then both sets of needles descending together, to carry the loops through those previously formed.

Also, arranging the rib-needles c^1 c^1 at such distance from the front needles *c c* that their upward motion will not carry them through the

oops; and springing their ends forward to the requisite position for that purpose by means of a presser W, constructed as described.

Also, attaching the head Q, which carries the jacks, the slur, and the thread carrier, to a frame M, which is capable of swinging back, as described, to expose the needles and afford facility for their adjustment, for the running on of the quarter, and for the repair of any damage to the machine or to the web.

No. 10,999.—Robert Waddell.—*Improvement in Steam-Engines, relating to the Valve.*—Patented June 6, 1854; in England, April 27, 1853.

This improvement consists, 1st, In the equilibrium table *f*, with its ledges *g*, applied to and acting in combination with the valve *e*. 2d, In the packing pieces *b b*, extending from the back of the valve chests and abutting against the back of the valve, in combination with the several passages *o o*, leading from the ports.

3d, In combining the equilibrium table *f* with the packing *p p* and small passages *o o*, by the joint action of which a slide-valve is balanced.

No. 11,000.—A. H. Rauch.—*Improvement in Machines for Washing Bottles.*—Patented June 6, 1854.

This invention relates to improvements whereby bottles of all sizes and descriptions can be washed on their outer and inner surfaces at the same time, with great facility and despatch. The machine as represented in the drawing has two run of bottles; it may, however, have a larger number; water being shown coming from the reservoir and passing up through the pipe D D^1 and branch J into the bottle, and against its outside, and then descending and passing out through the mouth of the bottle, and down its outside, from which it continues its course and falls into the receptacles C M N, and passes off through the pipes O P Q. It should be mentioned that while the water is being injected into, and up against the outside of the bottle, the bottle has a rapid revolving motion communicated through the cone P, which fits round its bottom; and as the motion is communicated to the cone by means of the pulley and band at the top of the machine, it is caused to revolve, and consequently the bottle with it. The machine may be driven by hand or steam, through a crank-shaft bevel gearing, giving the required speed. The hinged brush will be understood by the figure 3; D being the water-tube, and *g* a spring to expand the brush-frame.

No. 11,001.—Charles F. Brown.—*Improvement in Instruments for taking Deep-sea Soundings.*—Patented June 6, 1854.

This invention relates to a new and useful implement for sounding or ascertaining the depth of the ocean, and consists in attaching to a spindle or shaft A a chamber B of a prolate spheroidal form, said

chamber containing a requisite quantity of gunpowder within the lower part of the spindle or shaft; and underneath the spheroidal chamber there is placed a needle, which is operated by a spring, and forced against a cap placed on a nipple at the lower end of the chamber; said needle being forced against the cap, and firing the powder, when the lower end of the spindle strikes the bottom of the ocean, by means of suitable mechanism. The implement is allowed to descend, or is let fall from the surface of the water; and the time which escapes from the moment the implement is let fall till the report is heard or the concussion felt, is denoted by a stop-watch. Reference is then made to a table formed by previous experiments, and the correct depth ascertained; the depth being in proportion to the time which elapses from the letting fall of the implement till the report is heard or the concussion felt—the increase of buoyancy from increased depth being taken into account.

Claim.—An implement constructed and operated substantially as herein described, for the purpose of sounding the depth of the ocean.

No. 11,002.—Joseph Baron de Palm.—*Improvement in Brick and Pottery Kilns.*—Patented June 6, 1854; patented in England July 13, 1852; patented in France, August 13, 1852; patented in Holland and Belgium, September 15, 1852.

This kiln, as clearly shown, consists only of one single kiln, divided into different compartments, to regulate more conveniently the heat, which otherwise must indiscriminately circulate in one and the selfsame kiln.

An improved system of registers has been adopted between the different compartments, to regulate and distribute the heat; and by these means has been obviated a most important disadvantage, arising where several kilns are employed to effect large products, viz: the great loss or waste of fuel originating when the cold air circulates all around each separate kiln, and when the heat, also, at a great loss, must be carried from one kiln into another, by means of flues or dampers, likewise surrounded by cold air.

A minute description is omitted, as more space for such purpose would be required than can be spared in this report.

Claim.—A series of upper and lower chambers, in kilns for baking and burning brick and pottery, communicating with each other by apertures in the partition walls and floors, in combination with adjustable dampers or registers in the apertures in the floors between the upper and lower chambers, as herein described, for the purpose of regulating and controlling the heat in its ascent, and directing it to those parts of the upper chambers where it may be most required, substantially as herein specified.

Figure 2 is a section through the line B *b* of figure 1.

Figure 3 a section through A *a* of figure 1.

No. 11,003.—Henry R. Campbell.—*Improvement in the Combination of Railroad Tracks and Wheels.*—Patented June 6, 1854.

This improvement consists of wheels with a flange in the middle of the tread made to run upon double rails, which bear on their tops the whole weight.

The patentee disclaims double or compound rails, as also similar wheels and rails where the weight is borne on the inside of the groove and the flange, for the purpose of increasing adhesion, or where such a groove acts as a guide to arm or driving-wheel.

Claim.—The combination of the wheel with the flange in the middle of the tread, (which shall be cylindrical, on both sides of the flange, as to diameter and tread,) with the double line of rails, so constructed that the flange of the wheel shall run freely between said double line of rails, and with sufficient play or space between said double line of rails to avoid unnecessary friction against said flange, and to accommodate the ordinary inequalities in the width and parallelism of the railroad track; the surfaces of said double line of rails to be level, or nearly so, and the two portions of the tread of the wheel to bear the whole weight of the wheel equally, or nearly so, on the surfaces of said double rails.

The tracks and wheels to be arranged for use in combination, and for application to railroad purposes, as shown in the drawings, and herein described.

The purposes and objects claimed for said improvement, as the result of the combination, when applied to railroad purposes, is increased economy in the track, engines, and cars, in power, speed, and safety, profit, and usefulness of railroad communication.

No. 11,004.—Samuel McCormick.—*Improvement in Threading Screws.* Patented June 6, 1854.

This improvement consists in forming or impressing screw-threads on the plain surface of blanks, by means of three revolving dies 7, 8, 9, placed triangularly on a suitable frame, and worked by mechanism, as set forth and shown.

Claim.—The forming or impressing of screw-threads or ornaments on the plain surface of screw-blanks, or other plain shafts of metal, by means of three revolving dies placed triangularly on a suitable frame, and worked by mechanism, as described, (or by the mechanical equivalent thereof,) so as to produce the results described.

No. 11,005.—Donald Taylor.—*Berth-Knee Former.*—Patented June 6, 1854.

This improvement consists in the combination and arrangement of the side-rulers or bars A B, the slotted bars C D, the bar I, with the springs F F, the friction rollers G H, and set screw K K K, or their equivalents, for adapting the instrument between any two timbers, and for the width of the berth-knees of vessels.

No. 11,006.—Henry Allen.—*Improved Machine for Dressing Polygonal Timber.*—Patented June 6, 1854.

The drawing presents an end elevation of the machine.

The patentee does not claim the employment of a pattern rail to guide a rotary cutting-tool or wheel over a piece of work, as such has been used in machines for turning oars or other irregular forms; nor does he claim the invention of the tracer permanently fixed to the frame G.

Claim.—The improvement whereby the said cutting-tool P^3 P^3 may be adapted to the reduction of a stick of any ordinary diameter, and to a size suitable to a stick, as described; such improvement consisting in combining with the tool-frame G the sliding-rest P, operated by the lever Q, and held in position by it and the perforated size-plate T.

No. 11,007.—William Ballard.—*Improvement in Ship-timbers.*—Patented June 6, 1854.

This improvement consists in cutting out the heart of artificially bent timbers at the curve, and inserting therein a metal plate B.

Claim.—Cutting the heart out of artificially bent ship-timbers at the curve or bend known as the "naval timber," and combining therewith an iron plate (curved so as to fit the curve of the timber) by inserting it in the place cut out of the timber, so as to be protected from rusting by the action of the atmosphere or bilge-water of the ship, substantially as hereinbefore described.

No. 11,008.—Whitman Price.—*Improvement in Cultivator.*—Patented June 6, 1854.

In this cultivator a series of twisted blades *d d d* are rotated upon shaft *c*, by means of driving-wheel *a*. There are also two shares J J, to cultivate the sides of the row of corn; the frame *f f* is allowed some play by means of straps *p p*, so that the driving-wheel may pass over stones with less disturbance of the working. Weight *i* may be employed when the draught is too slight to make the machine work deep enough.

Claims.—1st. The construction of the accommodating frame *f f*, having uprights *g g* and cross-ties or suspension bars *h*, together with the compensating strap or equivalent *p p*.

2d. The construction of the twisted obliquely-curved blades or thinners *d d d* attached to the radial arms *r r*, forming a rotary cotton thinner; and the using the same with the right and left double-shank furrow-shares J J, specifically as set forth, and as arranged with the cultivator, as described.

No. 11,009.—Jared Pratt.—*Making Seamless Metal Tubes.*—Patented June 6, 1854.

This improvement consists in moving the mandrel M and tube L in a horizontal direction, and rotating around them the compressing rolling dies J, or vice versa.

No. 11,010.—William W. Hill.—*Improvement in the arrangement of Dampers in Rotary Stoves.*—Patented June 6, 1854.

The nature of the improvement secured by this patent is set forth with sufficient distinctness in the claim.

Claim.—The combination and arrangement of the dampers with a revolving or rolling oven, as set forth in the foregoing specification and accompanying drawings.

No. 11,011.—Walter Westrup.—*Improvement in Grain Mills.*—Patented June 6, 1854; patented in England January 24, 1850.

In portable mills used in military or other expeditions, it is important to economize space or bulk. This compact mill includes the conical runners with corresponding stationary stones, and a bolting apparatus, united in one machine, and driven by power applied to a common shaft.

Claim.—The general arrangement and combination of parts herein described, that is to say: The use of two or more pairs of mill-stones, the runner of each pair being mounted on the same vertical shaft, and arranged in such manner that when the meal escapes from the first pair of stones, it may be subjected to a dressing operation for the purpose of separating the already formed flour from the unground meal, as set forth, leaving the unground meal when freed from the flour to pass through the second pair of stones to perfect the grinding operation, substantially in the manner herein described.

No. 11,012.—Matthias P. Coons.—*Improved Rivet-clamp for Wire Fences.*—Patented June 6, 1854.

Figure 1 is a perspective view of this clamp.

Figures 2 and 3 are section views, showing the manner in which the two parts are fitted to receive the wire that is to pass between them: d^1 d^1 show the corrugated wires; o^1 o^1 and r^1 r^1 are elevations upon each half of the clamp, which, fitting together and being secured by the rivets s^1 s^1, prevent the clamps from being moved about in any direction.

Claim.—The peculiarly constructed rivet-clamp and its application to wire fences, or for equivalent purposes, in the manner and substantially for the purposes hereinbefore described and stated.

No. 11,013.—William A. Flanders.—*Improvement in Moth-killers.*—Patented June 6, 1854.

This invention consists in arranging a blow-pipe lamp A, with an alcohol reservoir E, from which the vapor may pass by tube F, so as to come in contact with the flame of the lamp, forming a horizontal jet of flame H, above a pan of water G. The flame is protected from extinction by the sides of the lamp; and yet issuing through a hole in the lower part of smoke-pipe D, it presents itself for the approach of the moth-killer, which, being crippled by the flame, falls into the water below and is drowned.

The applicant does not claim the blow-pipe lamp.

Claim.—The within described moth-killer, constructed and operating in the manner substantially as set forth; the lamp being entirely protected from the wind, and from being extinguished by the dead millers, and the flame being blown through an opening in the side of the lantern as explained.

No. 11,014.—Ross DEEGAN.—*Improved Machine for Cleaning and Watering Streets.*—Patented June 6, 1854.

The nature of this invention consists in depositing the dust thrown up, by the movement of a rotary sweeper P^1, in a chamber D in the rear part of the machine, by means of a draught created by a revolving fan or blower C, the sweeper and fan being operated through suitable gearing by the forward movement of the rear wheels of the machine; and also in using, in connexion with the fan and sweeper, an apparatus for distributing water. The water is contained in a chamber having an outlet pipe G, and the quantity deposited is governed by a valve E, substantially as described.

No. 11,015.—EDWIN CLARK and JAMES M. CLARK.—*Improvement in Flouring Mills.*—Patented June 6, 1854.

By this compact arrangement of devices in flouring mills, the materials passing through the bolt are expeditiously separated from each other and deposited in suitable receptacles as claimed or conveyed off to be re-bolted, thus economizing room and operating with less expenditure of power.

Claim.—The double-conveyer for the fine flour and middlings, constructed substantially as described, to wit: The conveyer for the middlings being attached to a tube enclosing the conveyer for the fine flour; the conveyer for the fine flour terminating in the receptacle r^1, and that for the middlings terminating in receptacle r^2; and, in combination with this double-conveyer, is claimed the arrangement of the receptacles r^1, r^2, elevators $g\ g^1$, spouts h and j, for returning the fine flour and middlings respectively to the bolt and the eye of the mill as set forth.

Also, the arrangement in series of spouts 1, 2, 3, 4, 5, with their slide valves, in combination with the separate receptacles and conveyers n and p.

No. 11,016.—SMITH BEERS.—*Improved Method of Turning Hubs.*—Patented June 6, 1854.

In using this machine, the material is submitted to the action of several sets of revolving cutters in succession, while the material revolves slowly; such sets of cutters being intended to produce distinct parts of the form required, and all being hung in a revolving frame, or its equivalent, which admits of their being brought successively into the positions required in the performance of their respective offices.

Figure 1 is a perspective view.

Figure 2 is a transverse sectional elevation of its working parts.

Claim.—The arrangement and the manner of operating a series of revolving cutters, for the purposes and in any manner substantially the same as set forth.

No. 11,017.—TIMOTHY F. TAFT.—*Improved Device for operating Cutter-Heads of Planing Machines.*—Patented June 6, 1854.

This improvement consists in placing the cutter-head P upon the end of a horizontal arm L, that is caused to vibrate across the surface of the board; thus giving to the cutters a position nearer to their centre of motion, and to the machine a more rapid feed.

The improvement is more particularly designed for use in connexion with the "Daniels Planing Machine," and a perspective view of this is, therefore, given with the improvement attached. See fig. 1.

Figure 2 is a plan of the vibrating arm and cutter-head.

Claim.—Hanging the planing cutters to the vibrating arm L, or its equivalent, in the manner and for the purpose set forth.

No. 11,018.—ALFRED BRADY.—*Improved Vault Covers.*—Patented June 6, 1854.

This invention consists in the peculiar form given to the upper face of the cylindrical lens, in combination with the India rubber or other elastic water-proof packing and vault cover, by means of which the lenses are less exposed to be scratched and rendered opaque by persons or vehicles passing over their exposed upper surfaces.

No. 11,019.—NOAH W. SPEERS.—*Improved Hydrant Cap.*—Patented June 6, 1854.

This invention is designed to overcome the liability to loss that exists in using the caps of stop-cock boxes as at present constructed.

Claim.—The formation of a stop-cock box with catch h, of width exceeding the play of the cap within the rebate, and with pivots b, whose distance from their confining flanges g exceeds the depth of the rebate, or devices substantially equivalent, for the objects described.

Figures 1, 2, and 3, different positions of the cap.

Figure 4 is a vertical section through the line $x\ y$, fig. 1.

No. 11,020.—JAMES A. WHIPPLE.—*Improved Mechanism for Operating Pumps.*—Patented June 6, 1854.

This improvement is more particularly applicable to pumps with a double piston reciprocating in a single cylinder, though it may be applied to any kind of pump in which it is desired to obtain a more rapid movement of the piston than is attainable by the ordinary construction.

Claim.—The combination of the wheel B, the cogged segments C and D, and the racks upon the ends of the pistons; by which is attained

an accelerated motion of the pistons, at the same time that the power which actuates them is applied in a vertical line passing through their centre, great fiction and wear of the pistons and pump-barrel being thereby avoided.

The drawing presents a sectional plan of one of the pumps mentioned, with the improvement.

No. 11,021.—Samuel H. Dudley.—*Road Scraper.*—Patented June 6, 1854.

This invention consists in the peculiar arrangement of the bows B B, and the combination of them with scraper A and chains C, as described; so that the operator can continue the work of taking the earth from the sides of the road, and delivering it in the middle, without the trouble and delay of upsetting, or of lifting the scraper in order to discharge the load.

Claim.—To the combination of the bow or bows B with the scraper A, for the purpose set forth, and in a manner substantially as herein described.

No. 11,022.—Edward P. Day.—*Improvement in Machines to Print Subscribers' Names, &c., on Newspapers.*—Patented June 6, 1854.

The type cylinder B, having a series of grooves D D cut in its periphery and parallel to its axis, and binding screws E in the cap or end plate of the cylinder, for adjusting the type in the cylinder grooves, in combination with the table T, platen L, and ratchet wheel F, for holding the paper, and rotating the cylinder, as an improvement on Henry Moeser's invention for like purposes, whereby all the names of a subscription list for one post office, and the address of the post office, may be printed at one operation.

No. 11,023.—F. M. English.—*Improved Mode of Disconnecting Horses from Vehicles*—Patented June 6, 1854.

This invention consists in the arrangement and combination of the spring *a* with the dart *b* of the whiffle-tree, by means of which the trace can be held on, or disengaged, at the pleasure of the driver.

Claim.—To the arrangement of springs on the ends of swingle-trees, for holding the traces on the darts, and throwing off the same at the will of the driver, as herein fully set forth.

No. 11,024.—Robert M. Wade.—*Improved Lubricator.*—Patented June 6, 1854.

This improvement places the regulation of the supply and discharge of the lubricator more immediately under the control and within the reach of the engineer. Two openings are constructed in the feed cylinder A, marked *a* and *b*, one for feeding and the other for discharging; their relative positions being such, that when one is performing its

functions, communication between it and the other is cut off; either opening being brought into operation by a movement of the cylinder arm F, operated upon by a rod R, connected with it, and leading to a position near the engineer's stand.

Claim.—The hollow cylinder A, in combination with the jacket B, constructed and operated as set forth, viz: the two apertures in the cylinder being so situated, that while the upper one is admitting oil into the cylinder, the lower one is closed to the steam, and when the lower aperture is open to the steam, the upper one is closed to the steam and to the oil in the cup.

The drawings embrace a front elevation of the oil cup, and a section perpendicular to the axis of the plug.

No. 11,025.—A. B. Latta.—*Steam Generator.*—Patented June 6, 1854.

This boiler is composed of tubes divided from 1 to 2, from 2 to 4, from 4 to 8, and so on, as shown by letters A, B, B.

Claim.—The dividing of the coil or coils, commencing with one, then dividing into two and three, sub-dividing into four, or any other number, as shown and described, or any equivalent device.

No. 11,026.—Charles F. Martine.—*Improvement in Sofa Bedsteads.*—Patented June 6, 1854.

Claim.—The windlass barrel D, and its working gears, or their mechanical equivalents, and the cords *b* of said windless barrel, in combination with the seat A, the back B, and a single spring mattress, as applied thereto, and made to operate substantially in the manner as hereinbefore described.

Note.—The main object of the combination is to turn the back B from an upright down into a horizontal position, or vice versa, for the purpose of a sofa or bedstead, as occasion may require.

No. 11,027.—Hymen L. Lipman.—*Improvement in Eyelet Machines.*—Patented June 6, 1854.

This improvement consists in the use of an eccentric lever A, so arranged that by moving it to the right and the left, it is made to depress two pistons, to the end of one of which is attached a tubular cutter B, or punch, and to the other a point or fastener C, for securing the eyelet; thus greatly facilitating the operation and securing a more compact, convenient and speedy mode of fastening with eyelets, than has hitherto been attained.

Claim.—The arrangement in one stock of the double-acting lever A, punch B, and fastener C, with their spiral springs D D, and counter-dies or anvil block, for the purpose of punching holes for, and setting eyelets in one machine, as set forth; and this, when said lever actuates both punch and fastener, by allowing one to rise whilst the other is being forced down.

No. 11,028.—E. PHELPS.—*Improvement in Excavators.*—Patented June 6, 1854.

This invention consists in combining with a scoop, supported upon two wheels, two caster-wheels, one in front and the other in the rear of the scoop; the front caster-wheel being attached to the draught-bars, and so adjusted as that the amount of cut into the earth may be regulated to the nature of the soil to be excavated.

No. 11,029.—WILLIAM B. JOHNSON.—*Improvement in Seed-Planter.*—Patented June 6, 1854.

In this seed-planter, pin *a* of the driving-wheel holds pitman *f*, which carries arm *d* of rock-shaft *c*, giving motion to link-rod *e*, and causing bucket C alternately to ascend and descend. The seed is carried from hopper A by said bucket, whose front has a hole *s*, through which the seed falls, when the bucket rises out of hopper upon the convex surface semi-cone D, and then rolls over the grooved reciprocating table G to the ground. The buckets are sharp at bottom to enter the seed, and have adjustable false backs to regulate their capacity.

Figure 2 represents a section on line *o o*.

The patentee does not claim said grooved semi-cones, or their equivalents, separately and apart from the other devices herein specified, and used in combination therewith; as their equivalents have been used before by F. Van Doren; and are described in the specification of his seed-planter, patented April 13, 1852.

Claim.—1st. The method herein described of sowing seed broadcast by means of the ascending and descending buckets, grooved semi-cones or their equivalents, and reciprocating bed or table; constructed, arranged, and operating together in the manner specified.

2d. Constructing the seed-buckets with an open back, false or close adjustable inner back, for regulating the lifting capacity of the buckets, as herein set forth.

No. 11,030.—PATRICK CLARK.—*Water-Level Indicators for Steam-Boilers.*—Patented June 6, 1854.

The improvement and claim consist in the arrangement of the tubes C and F, in relation to the chamber B, in connexion with the boiler A, whereby, through the action of the steam and water in the chamber upon the steam in the tube C or F, the water in the tube is made an indicator of the height of the water in the boiler, or made to operate a valve in the feed-water pipe.

No. 11,031.—THOMAS & SAMUEL CHAMPION.—*Improvement in Feathering Paddle-Wheels.*—Patented June 6, 1854.

This improvement consists in bowing or arching (D) one or more of the shanks *a* of the paddles *b*, so that they may pass through the hub *c*.

and stand in the same transverse line with each other around the wheel; and in giving to the shifting guides E a side-motion just sufficient to disengage them from the projections of the paddles from one side of the hub, and simultaneously engage them with projections on the other side of the hub.

Claim.—1st. The bowing or arching of one or more of the shanks of the paddles, so that they may pass through the hub and stand in the same transverse line with each other round the wheel, with the paddles on each end of each shank, permanently, at right-angles to each other; whereby the great advantages above mentioned are attained, and the wheel greatly simplified.

2d. Giving to the shifting guides a side-motion, just sufficient to disengage them from the projections of the paddles from one side of the hub, and simultaneously engage them with projections on the other side of the hub, and vice versa, so as to effect the proper adjustment or shifting of the paddles, thereby dispensing with the inconvenience of having to turn the frame around to the opposite side of the wheel to shift the guides.

No. 11,032.—WAITMAN DAVIS.—*Improvement in Seed--Planter.*—Patented June 6, 1854.

This planter is carried in front of the breast by a strap passing over the workman's shoulder. In the bottom of a box are transverse bars B, with interspaces *a a*. The seeding-bar C is vibrated by means of bell-crank D and lever E; the latter being fastened at its lower end to the knee of the seedsman.

Claim.—The operating of the seeding-bar of seeding-machines by means of a bell-crank and lever, when said lever receives its motion from the leg of the operator in the act of walking, substantially in the manner and for the purposes set forth.

No. 11,033.—JOHN SHEFFIELD.—*Apparatus for Filing Mill-Saws.*—Patented June 8, 1854.

This improvement consists in the arrangement of the stirrups F F, cords E E, weight D, and roller B, for holding, guiding, and supporting the file.

Claim.—The arrangement of the stirrups, cords, weights, and rollers, for holding, guiding, and supporting a file, whilst filing a saw in the gate or frame, substantially in the manner herein represented.

No. 11,034.—ROBERT H. COLLYER.—*Gold Amalgamator.*—Patented June 6, 1854.

This improvement consists in providing cylinders B B with buckets *a a*, for the purpose of raising the mercury, and bringing it into closer contact with the particles of gold.

Claim.—Effecting the amalgamation of the gold or other metal, and the separation of the ores or other foreign matter, by means of a cylin-

der or cylinders B B, fluted to form buckets *a a*, or otherwise provided with such buckets, and revolving within a concave trough which contains the necessary quantity of mercury, said cylinder operating in the manner herein substantially described.

No. 11,035.—Isaac R. Shank.—*Improved Lath Machine.*—Patented June 6, 1854.

This improvement has reference more especially to the mechanism for regulating the thickness of the lath, separating it from the board or slab, and insuring its discharge.

Figure 1 is a vertical section of the machine at right-angles to the plane of the knife, and showing the knife *c* as it is about to enter the board. Figures 2 and 3 show the discharging action of the gauge *h*.

Claim.—The revolving gauge, formed of two unequal cylindrical segments, in connexion, as described, with a reciprocating knife, for the purpose of gauging and insuring the liberation and discharge of the lath.

No. 11,036.—David Russell.—*Improved Method of Operating Sawmill Blocks.*—Patented June 6, 1854.

Claim.—The combination of the transverse racks *i k*, the wheels *f, g, l, m*, and the shafts *s n*, with the horizontal connecting piece C, and its racks *h* and *p*, substantially as described, and for the purpose specified.

The drawing presents a plan of the improvement, with part of the blocks broken out to show the gearing.

No. 11,037.—H. O. Clark.—*Lathe for Figured Work.*—Patented June 6, 1854.

The claim appears to embrace the novelty of this alleged improvement.

Claim.—The combination and arrangement of the sliding rest B, the V-shaped knife X, the side-cutters E E, and the bushings D, for the purposes set forth. An arm upon the carriage follows the pattern W, and the piece passing along and through the collar D, thereby receives the corresponding head. The carriage may carry a piece on its backward movement to be similarly turned.

No. 11,038.—Thomas Crossley.—*Improvement in Weaving Cut-pile Fabrics.*—Patented June 6, 1854.

The fabric which this most nearly resembles, is what is known as the Turkey carpet. The object of the invention is to produce a carpet with a pile that cannot be torn or swept out, and which may also be woven on a plain loom without Jacquard or dyeing apparatus.

In the accompanying drawing, *n n* is a heavy linen or cotton warp, which is kept at all times slightly strained, and which forms one side of the shed, the other side being formed by a woollen warp, which is allowed to remain loose. These two constitute the only warp of the carpet, and they are constantly upon opposite sides of the shed; *o* is a fine linen or cotton filling, which is shot below the warp *n*; *p* is a similar filling upon the upper surface of the linen warp.

Claim.—The above described method of weaving a cut-pile fabric; that is, interweaving the pile into the body of the cloth, by looping it over a shot of filling on the top of the foundation-warp, and under a shot of filling under the foundation-warp.

No. 11,039.—William Cann.—*Improvement in Cleaning Bolts of Flour Mills.*—Patented June 6, 1854.

The difficulty of preventing the meal or flour from choking the fine meshes of the bolting-cloth suggested this invention, and by means of the slight percussion of the vibrating-cloth C, (seen in the figure in section,) the accumulating matter on the inside is detached.

Claim.—The application to flouring-bolts of a brush or cleaner, as herein described, which will prevent the bolts of flouring-mills from becoming clogged up with and obstructed by "beards" and other substances, which are contained in almost all wheat, and which will keep the bolts clean and free without the necessity of "shaving" and "brushing" the bolts; using for that purpose the aforesaid cotton, woollen, or other cloth, or other flexible material substantially the same, and which will produce the desired effect.

No. 11.040.—Edward Harrison.—*Improvement in Grinding-Mills.*—Patented June 6, 1854.

The peculiarity of construction in this mill consists in rigidly securing the shaft for driving the lower stone in a metallic hub, which is continuous with, and forms part of, the metallic back of the stone.

Claim.—An improvement in the grinding-mill, produced by forming the runner of a metallic back and hub, combined with a disk-grinding face composed of the requisite quantity and quality of stone, and rigidly securing the shaft within the metallic hub of the runner, when the said runner is arranged and operates with the stationary uppermos stone, substantially as herein set forth.

No. 11,041.—Jordan L. Mott.—*Improvement in Securing Car-wheels upon Axles.*—Patented June 6, 1854.

The wheel is fastened on the inside, the key or other fastening being introduced through the hole in the wheel at *g*.

Claim.—The method, substantially as herein described, of securing rail-road car wheels to their axles by means of a nut, or the equivalent therefor, within the wheel.

No. 11,042.—Edwin J. Green.—*Improvement in Joint-bodied Buggies.* Patented June 6, 1854.

The nature of this invention consists in the combination of the spring-reach N R O, of the peculiar form and construction as described, with a joint-bodied buggy of the form and style of that 'patented by James C. Spencer, by means of which greater strength is given to the buggy, and an easy and elastic seat given to the driver, with less expense and greater simplicity than has been hitherto used for like purposes.

Claim.—The combination of a spring-reach of the peculiar form and construction as described, with a joint-bodied buggy of the form and style of that patented by James C. Spencer, by means of which greater strength is given to the buggy, and an easy and elastic seat given to the driver, and for the purposes set forth.

No. 11,043.—Levi Dederick.—*Improvement in Cotton and Hay Presses.* Patented June 6, 1854.

The nature of this invention consists in a peculiar system or arrangement of levers C D F G, by which an equal pressure is given the follower B, so that it will not cant, or one end or part of it be out of a vertical line with the other parts. The levers, also, by their arrangement, have a progressive power as they are operated, the follower at first moving quickly, and gradually decreasing in speed; hepower, of course, augmenting as the speed diminishes.

Claim.—Traversing the follower B parallel by two sets of levers or toggle-joints, with one lever of each set extended beyond the joint of connexion, so as to form a lever to separate the joints; when they are so arranged that the lever of the lower set or joint may work or vibrate between the fulcrum levers of the upper one, the two levers C and D being connected together by a rod or links; the whole being constructed and operated substantially as described for the purposes set forth.

Only one-half of the apparatus is represented in the figure, the other half being exactly similar.

No. 11,044.—Jas. J. Johnston and Jas. V. Cunningham.—*Moulding Hollow Ware.*—Patented June 6, 1854.

This improvement consists in an arrangement of the follow-board B, core-box C, and anchor D.

No. 11,045.—John C. Reed, assignor to C. P. Buckingham, Henry P. Upton, and John C. Reed.—*Improvement in Grinding-Mills.*—Patented June 6, 1854.

The application of metallic cups to the stones, giving stability to the whole arrangement; which allows the employment, in connexion therewith, of a hollow spindle for feeding in the grain. The running stone is also kept in proper equipoise by means of the weights, which slide to and fro in radial grooves on guides back of the stone.

Claims.—1st. The hollow spindle in combination with the metallic cup, through which the grain to be ground is fed, substantially as specified.

2d. The method of balancing and adjusting the bed stone by means of adjustable weights arranged in radial guides, and movable towards and from the centre of the stone, as described.

No. 11,046.—Hervey Ely, assignor to Samuel P. Ely.—*Improvement in Drying Flour.*—Patented June 6, 1854.

The application of a heated air current to the outside of the revolving cylinder in this class of machines is rendered more uniform than heretofore, by regulating the temperature by a thermometer. The great waste of flour attendant upon the use of open cylinders is also avoided by making the ends to revolve in tight boxes.

Claim.—Closing the cylinders or other conveyers at each end, or causing them to revolve in close boxes, as herein described, and for the purpose set forth.

Also, applying to the exterior surface of closed cylinders continuous currents of heated air, so regulated as to keep the contents of the cylinder at a given temperature by an arrangement of dampers L and N, and the observations of the thermometer attached, as set forth. A, hot-air furnace.

No. 11,047.—Thomas Wallace and Eliz. Bacmeister, administratrix of Henry Bacmeister.—*Fan Blower.*—Patented June 6, 1854.

As this improvement is solely upon the shape or form of the revolving fan, the claim describes it sufficiently.

Claim.—The cylindrical revolving diaphragm B, with one or more openings E, for the escape of the air by the combined action of centrifugal force and a partial vacuum.

No. 11,048.—Denis Donovan, [for himself, and as administrator of Witchell G. Hallman, deceased,] assignor to Henry I. White.—*Improvement in Cooking Range.*—Patented June 6, 1854.

The merit of this improvement lies in the hinged flue cover on top of the oven A^1, with the projecting side-pieces containing additional flues.

Claim.—The hinged flue cover, consisting of the hinged cover A^1, side-pieces B B, flue-spaces C^1 C^1, top flue D, in combination with teh valves or dampers C.

Also, in combination with the hinged cover and the valves C, the arrangement of the aperture P for the escape of fumes from cooking.

Lastly, the sliding boiler-plates in combination with the hinged cover and valves or dampers C.

No. 11,049.—Alfred Krupp.—*Railroad Wheel-Tires.*—Patented June 6, 1854.

This improvement consists in making car and other wheel-tires out of solid bars of cast-steel, without welding, when slotted, opened, expanded, and finished into the desired form, as shown by figures, so far as can be, without the specification.

No. 11,050.—Dominique Emile Coutaret.—*Improvement in the Manufacture of Sulphuric Acid.*—Patented June 13, 1854; patented in England December 16, 1853.

This improvement refers: 1. To a mode of obviating the injurious influence of the hyponitric acid gas present in the sulphuric acid, as it comes from the leaden chambers into the boiler A, by passing a stream of sulphurous acid gas over the surface of the sulphuric acid, in order to cause its combination with the nitrous acid gas to form liquid sulphuric acid, which thus remains in the boiler; and, at the same time, to save the excess of the nitrous acid gas for further production, by returning it to the leaden chambers.

2. To a mode of preventing the inconveniences arising from it, that during evaporation smaller or larger quantities of acid are carried away by steam suddenly evolved, by placing over the evaporating pan G a movable condensing capital H, provided on its inside with a gutter O, in order to admit of a circulation of atmospheric air, promoting evaporation, to prevent the fusion of the lead, and to recondense the vaporized acid, and collect it, by means of pipe I, in J, which otherwise would spread in the laboratory and vicinity.

Claims.—1. The mode of bleaching and purifying, without loss or injurious emanations, sulphuric acid from the leaden chambers, by means of the movable cover, plunging into the liquid sulphuric acid contained in the boiler A, and receiving by a tube the sulphurous gas of the furnace, leaving the surplus nitrous acid gas to escape by the tube, as described.

2. Concentrating sulphuric acid to 66 degrees without loss or injurious emanations, by means of the movable cover H, surrounded by a gutter adapted to the leaden evaporating boiler G, as above described.

No. 11,051.—William Russel Palmer.—*Improvement in Threshers.* Patented June 13, 1854; patented in England, April 11, 1853.

The improvements refer to that description of threshing machines in which a series of revolving flails beat the grain against rubbers placed on the vertical sides of the flail-case, and consist, first, in the peculiar mill-like furrowing given to the surfaces of the flanches and rubbers, as represented in the drawing; and, second, in the peculiar position they occupy to each other, and their arrangement on the opposite sides of the flail-case, as represented in the drawing; all for the purpose of adapting the machine to thresh all kinds of grain, except Indian corn, and under different circumstances; and also, for the purpose of driving the grain, while being threshed, alternately from side to side of the flail-case or chamber, and to be acted upon successively by the rubbers attached thereon.

Claims.—1. The peculiar form and construction of the furrowed surfaces of the flanches 2, and rubbers 3, as particularly described in the specification.

2. The combination of such rubbers, which are adjustable, with such flanches and their arrangements as before described, upon the opposite sides of the flail-case; and also, the combination of such furrowed rubbers and flanches, substantially in the manner and for the purposes before set forth, with the rotating flails *d d*.

No. 11,052.—Suspended.

No. 11,053.—Joseph Iler and William Fitzpatrick.—*Cut-Nail Plate Feeder.*—Patented June 13, 1854.

Claims.—1. Giving a rising and falling motion to the end of the nipper-barrel and nose-pieces attached thereto, by means of the cam F, bearing G, and guide-saddle H, in combination with the nipper-barrel B.

2. Constructing the nose-pieces J J with an opening between them, so as to permit the jaws of the nippers *y* to pass into this opening, for the purpose of feeding the scrap-end of the nail-plate as close up to the cutter as possible.

3. The guide *h* and spring h^1 in combination with the nose-pieces J J, for the purpose of guiding and holding the nail-plate in the nose-pieces.

No. 11,054.—Tyler Howe.—*Improvement in Bed-Bottoms.*—Patented June 13, 1854.

Springs are arranged and applied to a rectangular frame, as follows: Thin plates of steel B B, having a proper elasticity, and being about two and a half inches in width, are extended across the frame parallel to one another, and are connected to the frame by means of rocker-links C, there being a rocker-link at each end of the strips B.

Claim.—Combining the main-springs B B together and with the frame, in lateral directions, by means of wire and clasps, in combination with connecting said springs at their ends to such frame by means of rocker-links, all substantially as herein specified, and for the purpose of forming a mattress-foundation of bar-springs, whose parts shall readily accommodate themselves to the varied strains induced by a person's body when laid upon them, and this without injurious strain upon one another.

No. 11,055.—Thomas Ashcroft.—*Improvement in the means for controlling the operation of Cut-offs of Steam-Engines.*—Patented June 13, 1854.

Improvement and claim consist in controlling the operation of the cut-off plates or valves c c^1, by means of two inclined planes $f f^1$, one attached to each valve, and the movable stop-bar D, the whole being constructed and arranged as shown.

No. 11,056.—David Prew.—*Improvement in Cast-iron Car Wheels.* Patented June 13, 1854.

Claim.—An improved cast metal chilled rim-wheel, as made, of the combination of a solid or tubular hub, a chilled rim, two undulating plates uniting the hub and the rim, a series of ogee or curved arms, placed between the hub-rim and two plates, and made to connect the hub and rim, and be joined throughout their entire length to the two plates, and a series of openings in one of the plates, and respectively between the arms, all cast or founded in one piece of metal, substantially as described.

No. 11,057.—Casimir Abos.—*Spark Arrester.*—Patented June 13, 1854.

This invention consists in the arrangement of the draught-pipe D, central spark-conducting or return-pipe E, hinged self-closing valve F, and stack A.

No. 11,058.—John M. Batchelder.—*Improvement in Insulating Telegraph Wires.*—Patented June 13, 1854.

Claim.—The combination of an electric telegraph wire or conductor with a composition of India rubber and sulphur, forming an insulating coating upon and around the wire; this composition being the same for which a patent was granted to Nelson Goodyear, on the 6th day of May, 1851, and herein referred to.

No. 11,059.—Samuel Childs.—*Improvement in Stills for Distilling Fatty Bodies.*—Patented June 13, 1854.

The nature of the improvement consists in separating the still from the fire by a stratum of steam, by means of a sort of jacket c c, into which it is introduced by a stop-cock 2, and from which it is led off by pipe e, and passed into the interior of the still; thus protecting the bottom of the still, and at the same time having thereby superheated itself, to serve the purposes of distillation.

Claims.—1st. The use of a stratum of steam within a jacket or case, between a fire-heat and a vessel containing any article, such as oils, fats, rosins, and other similar articles under treatment, whereby the heat applied to such vessels can be regulated to any desired amount, according to the supply and delivery of the steam, as specified.

2d. Passing the steam from the above jacket directly into the still and material under treatment, for the purposes as specified.

No. 11,060.—Silas Constant.—*Improvement in Lens Lamp-Chimney.* Patented June 13, 1854.

The thickness of the glass used in making lamp chimneys is commonly uniformly the same throughout. In this invention the glass is much thickened at the bulge, so as to reflect and dispose the rays of light more effectually near their point of emission at the burner.

Claim.—Constructing a lamp-chimney, with the bulge so thickened as to form an annular lens for refracting the rays of light, as herein described.

No. 11,061.—Nathaniel Dodge.—*Improvement in the Construction of Tanning Apparatus.*—Patented June 13, 1854.

This improvement consists in furnishing the tan-vats A with a pair of fulling stocks B C, one at each end, which, by virtue of their vertical, and, with regard to each other, opposite motion, by the cut of the notches p, and in opposite direction to the notches o, and by the dasher N assuming a horizontal position, while the dasher M hangs down perpendicularly, and *vice versa*, impart, when set in motion, to the skins or hides in the vat a revolving movement, and thus insure a thorough and equal operation of the liquid contained in the vat upon them.

Claim.—The two dashers and sets of notch-bars, as applied to the two vertical and movable frames, and in the vats, and made to operate essentially in the manner set forth.

No. 11,062.—Anthony Faas.—*Improvement in the Construction of Accordeons.*—Patented June 13, 1854.

The improvements consist in combining with the diatonic scale of the large keys two other scales, viz: one for producing all the intermediate notes or semitones, and the other founded upon the subdominant of the diatonic scale; both arranged so as to be fringed by a single set of small keys, to enable the performer to produce full and correct harmony in any key.

This is accomplished by the valves $f f$, etc., of the lower or small keys, which stop two series of apertures, a a and b b, etc., opening from bellows below. The two series of apertures are alternately opened and closed by means of a wind-stop H, constructed as shown in the figure, with two rows of apertures, arranged in alternate order. These are governed by the levers h i l m, jointed to the wind-stop H, and to one another, in the manner shown in the drawings.

Another improvement is in constructing the instrument with a sound-board I, for the purpose of giving more strength, fullness, and resonance, to the tones; and it also facilitates the arrangement of the first

improvement more conveniently, by giving space to arrange the valves, etc., within the instrument, where they are not exposed, adding neatness to its appearance, &c.

No. 11,063.—Eli H. Green.—*Improved Carriage Axle.*—Patented June 13, 1854.

This invention consists not in the mere axle, with shifting-screws, nor in having wrought-iron arms, covered with neatly turned cast-iron sleeves, nor with sleeves of any other metal—for this has been done before; but in forming the arms of eight or more sides, fitting into a corresponding hollow of a cast sleeve, the surface of which may be turned for a bearing, which secures greater strength in the sleeve than when the arm has a square section, and presents the advantage over the round arm of holding the sleeve firmly in its position on the arm, and of being shifted, so as to change the bearing surface.

Also, in the combination of the flange *b* on the sleeve with the nut *d* and axle A, which enables the smith to take off the broad washer *x* without cutting the axle.

No. 11,064.—George P. Gordon.—*Improved Printing Press.*—Patented June 13, 1854.

The operation of this claim is as follows: The paper is placed upon the upper part of the frame A at *z;* motion is given to the shaft F, and the connecting-rod H moves the bed or carriage C, which contains the form, upward and over the paper; when at this point, the toggle J acts against the lower end of the arm I, and forces the upper end of the frame B towards the frame A, and the form is pressed upon the paper, the bed or carriage containing the form remaining stationary during the time the impression is given, in consequence of the eye *e* acting against the spiral spring *f* upon the connecting-rod H, and the upper part of the bed or carriage bearing against the straps *s s;* upon the return or downward motion of the bed or carriage, the nippers *k* hold the printed sheet in its proper place upon the frame until the type is freed from it by the springs *p;* and the fly, by the operation of the cam G, pinion N, and rack O, then revolves a part of a revolution backwards, and carries the sheet around with it, and deposites it upon the fly-board R. As the bed or carriage C passes downward, the sides of the bed bear upon the rollers *j* of the frame K, and the inking rollers *h h* are in consequence lifted from the inking-roller, and bear against the form; and when the form has passed below the inking-rollers, said rollers, by their own gravity, fall upon the inking-cylinder L, and are again raised from it and pressed against the form upon the upward movement of the bed or carriage. Thus two distributions are given to the inking-rollers for every impression, and the form inked twice, one inking on the downward movement and one on the upward movement of the bed or carriage. The return movement is given the fly M on the upward movement of the bed or carriage.

No. 11,065.—F. M. Harris.—*Improved Tail-Board for Wagons.*—Patented June 13, 1854.

This invention consists in the mode of rendering the tail-gate capable of increasing the length of the body of the wagon when lowered to a horizontal position. Also, in the combination of the spring-catches G G¹, eye-strap H I, hinged tail-board D, elbow-shaped pieces *d d*, and hooks *c c*, for the purpose of rendering the tail-gate self-locking, and also capable of resting in a horizontal position while unloading, substantially and for the purpose described.

Claim.—The manner of rendering the tail-gate or board capable of increasing the length of the body of the wagon when lowered to a horizontal position. Also, the combination of spring-catches G G¹, eye-strap H I, hinged tail-board D, elbow-shaped pieces *d d*, and hooks *c c*, for the purpose of rendering the tail-gate self-locking, and also capable of resting in a horizontal position while unloading, as and for the purpose herein described.

No. 11,066.—Berrymon R. Hundley.—*Improvement in Bed-Bottoms.*—Patented June 13, 1854.

The object of this improvement is the maintaining the due tension of a bed-cord without the necessity of its removal or the disturbance of the bedding; and the peculiarities of the device over others for a similar purpose are deemed to consist principally in the equable tension, strength, and elasticity of the cord, and the uniform action on every part of it during the process of tightening; and the radial arrangement of the cord, by crowding it towards the middle of the bedstead, presents the requisite amount of effective strength where the most strain is exerted, so that one-third less cord is necessary than where two sets are crossed rectangularly.

Claim.—The ring *a*, provided with hooks or other attachments in connexion with a handle *c* and catch, substantially as described, for the tension of a radial arrangement of the bed-cord.

No 11,067.—Bernard Hughes.—*Improvement in Vises.*—Patented June 13, 1854.

Claim.—The method of attaching and using the nut or female screw E at the back of the movable jaw D D, with simple screws *x* through its flange.

No. 11,068.—William E. Jones.—*Improvement in Saddle-Trees.*—Patented June 13, 1854.

This saddle-tree is constructed of two plates of spring steel, about two inches in width, with a high pommel and cantle. The bars or plates of steel are riveted together at both ends, with one rivet at each, which is permitted to serve as a hinge, so as to enable the saddle to be adjusted to fit the backs of animals of different sizes.

Claim.—The introduction of a hinge into the pommel, and one into the cantle, in connexion with screws; by means of which the saddle can be made to enlarge and contract, and thus to fit any horse, substantially as described.

No. 11,069.—J. KEECH and S. STILLWELL.—*Improvement in Winnowing Machines.*—Patented June 13, 1854.

The improvement consists in furnishing an ordinary winnowing machine with a removable trunk C, to be inserted vertically in hopper A, provided for the purpose with grooves *a a*, and to rest upon plate L, so as to receive the grain from the hopper through aperture *g* whenever it is thought proper to expose the winnowed grain to an ascending blast.

Claim.—The movable trunk C, for the purpose of converting the open horizontal blast of the ordinary winnowing machine into a vertical blast separator.

No. 11,070.—WILLIAM MONTGOMERY.—*Improved Mode of Making Cards.*—Patented Juue 13, 1854.

This invention consists in forming the card-teeth from a plate or sheet of metal, cut and bent into the form of two triangles, united to and standing with their planes at right-angles to a rectangle.

In the accompanying drawing, the two triangular teeth are seen at *a b*, as arranged parallel to one another, and standing with their planes perpendicular to a rectangular base *c*.

Claim.—The making of each two teeth, and the base thereof, of a metallic plate formed and bent substantially as described.

No. 11,071.—J. V. MERRICK.—*Improvement in Exhaust Fans.*—Patented June 13, 1854.

The exceptionable practice of driving a blast of air in front of or under the grate, as well as that of obstructing the smoke flue with the fan or blower, is avoided by this invention. It is placed with an arrangement of dampers on one side; and whilst it does not, at any time, obstruct the draught, it may be made to aid it to any required amount.

The patentee disclaims the use of suction-blowers for increasing draught in a chimney, as this has been long known.

Claim.—The combined arrangement of the valves L M N O, and the external exhaust-blower E, operating in the manner and for the purpose substantially as hereinbefore described.

No. 11,072.—ANDREW OVEREND.—*Improvement in Printers' Friskets.*—Patented June 13, 1854.

The improvement consists in constructing a metallic frame, notched along its outer sides like saw-teeth, and then stretching longitudinally

and transversely across the frame A B C D elastic strips M N and O P, etc., having at each end a clamp F G and H I, etc. These clamps are indented, and can be slid along the sides of the frisket-frame, or they will remain permanently in any position in which they may be placed. By this means a movable barred frisket-frame is formed, which can be altered or adjusted at convenience, without involving any loss of material.

Claim.—The construction of the movable barred frisket-frames, by the combination of elastic bars, clamps, and toothed frisket-frame, arranged and operating as herein described.

No. 11,073.—CHARLES A. WILSON.—*Improvement in Valves for Steam-Pumps.*—Patented June 13, 1854.

This invention consists in operating the conical valve B by a slotted rod 11, moved by the engine as usual, and a double weighted lever 12, the second or extreme weight 16 being jointed. The slotted rod serves to shut the lever. The lever moves the valve by hitting against studs or jogs of the slotted rod, and then the weights carry the lever and valve after the centre has been passed, the jointed ball or weight preventing the rebound.

Claim.—The double-weighted lever, having one fixed and one jointed weight, for opening and closing the valve instantaneously, without a rebound, at the end of each stroke of the piston.

Also, connecting the slotted rod, or its equivalent, with the valve by means of the weighted lever and the jogs on the valve, to allow the valve to remain stationary until the piston is at the point of finishing its stroke, and then instantly opening and closing them by the weighted lever, the lever turning freely on its fulcrum, causing no motion of the valve thereby.

No. 11,074.—M. NEWMAN 2d, N. C. WHITCOMB, and G. C. COLE.—*Improvement in Couplings for Carriages, etc.*—Patented June 13, 1854.

This improvement consists in the mode of applying and operating the spring button H, for the purpose set forth.

No. 11,075.—DAVID LATOURETTE.—*Improvement in Mills.*—Patented June 13, 1854.

The increased amount of grinding surface which can be brought into service is the chief peculiarity of this arrangement.

Claim.—The combination of the revolving wheel with a roll or rolls, or with a block or blocks, or their equivalents, arranged in any of the ways or for any of the purposes set forth.

No. 11,076.—BRONSON MURRAY, assignor to T. R. SPENCER, assignor to J. S. WRIGHT.—*Improvement in Harvester Cutters.*—Patented June

No. 11,081.—SAMUEL PERKES.—*Improvement in Crushing and Grinding*

No. 11,076.—Bronson Murray, assignor to T. R. Spencer, assignor to J. S. Wright.—*Improvement in Harvester Cutters.*—Patented June 13, 1854.

The improvement and claim consist in making the rear serratures of the sickle-blade B sickle-edged, except the rear projecting points, back of the knife-bar, which latter construction is disclaimed as being the invention of Henry Green.

No. 11,077.—Richard L. Kownover, assignee of David N. Kownover.—*Improved Mode of Closing Wickets in Canal Gates.*—Patented June 13, 1854.

This improvement and claim consist in attaching the rod D with roller I to the wicket-rod C of the canal lock-gate; by means of which the wicket will close when the gate is opened, as shown.

No. 11,078.—Lyman Clark, assignor to Lyman Clark and Joseph Sawyer.—*Instrument for Trimming the Welts of Boots and Shoes.*—Patented June 13, 1854.

This instrument is constructed with a broad, flat guard C, formed by the extension and flattening of the shank *d*. Nearly at right-angles with the guard is the blade *f*, having its cutting edge set at an angle somewhat less than a right-angle with the side of the guard. See figure.

Claim.—The welt-knife, constructed substantially in the manner as set forth, and represented in figures of the drawing.

No. 11,079.—Charles Perley.—*Improvement in Adjustable Rails for replacing Cars on the Track.*—Patented June 13, 1854.

The patentee disclaims the invention of L. B. Flanders; also, the switch in a groove; also, the form of joint.

Claim.—Connecting an inclined groove rail to a shoe or box sitting on the railroad track, by means of a joint, or to an intermediate section or sections, so that said grooved incline *f* can be turned to any position to coincide with the flanch of the wheel, and replace the same on the track, substantially as described.

No. 11,080.—Chares Perley.—*Cable Stoppers.*—Patented June 13, 1854.

This improvement consists in hanging the pawls *e f* on an inclined hinge, attached to the deck *d*, and sustaining them when they compress the cable by the projections into which their upper ends fit.

No. 11,081.—Samuel Perkes.—*Improvement in Crushing and Grinding Quartz and Minerals.*—Patented June 13, 1854. Patented in England October 12, 1852.

Powerful conical crushing rollers are driven by bevel gearing, reducing the mineral masses to fine dust; this being mixed with water and mercury, the separation of the earthy from the metallic constituents is economically and expeditiously effected.

The patentee does not claim any of the parts when separately considered.

Claim.—The combination of the vessel *a*, the trough *c*, the conical crushing roller *j*, the hollow axis K, and the arrangement for applying water, substantially as herein described.

No. 11,082.—Merritt F. Potter.—*Improvement in Railroad Odometers.*—Patented June 13, 1854.

The patentee does not claim transferring the motion of the axle by means of the endless screw.

Claim.—The arrangement by which the pinion *h*, upon the upright shaft *g*, attached to the car, is adapted directly to the axis J itself, so that while the rotation of said axle causes a revolution of the pinion through the endless screw *k*, the endwise movement of the axle, in turning the curves, acts upon the pinion, so as to move it independently of the rotation of the screw, in the same or opposite direction, according to the course of the curve, the screw exceeding in length the arc of the circle through which the axle would move.

No. 11,083.—Ebenezer N. Price.—*Improvement in Bridle Bits.*—Patented June 13, 1854.

This improvement consists in extending from each of the bars *a a*, forming a common bridle bit, a nipper or jaw *b*, so as to project rearward from the bit, and against the sides of the lower jaw of the animal, when the bit is placed in the animal's mouth. The nippers or jaws are short pieces of metal, about three inches in length, permanently riveted to the bit, and they may each be provided with an eye or hole at the rear extremity, for the reception of a chain, or leather strap.

Claim.—The improvement of making the bit with the nippers or jaws, made to operate against the jaw or under lip of a horse.

And in combination with the nippers or jaws, the strap, as applied to them, and made to operate with them, substantially as specified; not meaning to claim a strap, or its equivalent, separate from the jaws, nor its application to the bars of a common bit, but meaning to combine it directly with the nippers, so as not only to keep them from spreading outwards, but to preserve the bit in place, or prevent it from rising too high in the mouth of a horse, essentially as specified.

No. 11,084.—I. Sparks and L. Perrigo.—*Spoke Machine.*—Patented June 6, 1854.

The improved device for holding the piece while being operated on by the revolving cutters *e*, as seen in figure. This clamp is operated by the tail screw at C. The spring *c*, upon relaxing the screw at C, forces the round part *a* through a hole in the head stock B, and allows the piece to be turned by the hand to any required position; and the square part *b* being forced by a screw at C with the head stock B, retains it in position.

The claim is to this device.

No. 11,085.—James L. Rowley.—*Riding Vehicles.*—Patented June 13, 1854.

This alleged invention consists in the combination and arrangement of the spring-reach with the swivel-joint coupling, by means of which greater ease and comfort are obtained.

Claim.—The employment of a spring-reach, in combination with a swivel-joint on the front end of the same, substantially in the manner set forth.

No. 11,086.—Ira Reynolds.—*Improvement in Harvesters.*—Patented June 13, 1854.

The improvement refers, 1st, to the cutters, which are arranged on a bar *k*, along the whole front of the platform, in pairs; each pair consisting of an upper, o^1, and under blade, t^1, pivoted separately by screws r^1 s^1 to bar *k* in their centre, and supported at their rear ends by bars t^1 and k^1; said bars, when set in reciprocating motion by levers *i i*, impart to the blades a shear movement extending each way, so as to make every blade form a scissor alternately with each of the two blades of the opposite range, and thus to insure the cutting of every grain-spire passing between them.

2d. To the mode of working the reel *t y z*, consisting of an endless slat-apron, by means of lever d^1, and from the driver's seat *d*; for the purpose of accommodating the elevation of its forward extremity *y* to the height of the standing grain or grass.

Claims.—1st. The arrangement of a double series of double edged shear-blades, supported at their rear ends by the reciprocating bars to which they are pivoted and regulated by temper screws, substantially as and for the purposes set forth.

2d. The grain gatherer, so arranged that its forward portion can be elevated or depressed from the driver's seat without stopping the machine, substantially in the manner and for the purposes set forth.

No. 11,087.—Charles Schinz.—*Improvement in Processes for Hardening Tallow.*—Patented June 13, 1854.

The improvement consists in using the nitrate and the sulphate of ammonia for the purpose of hardening tallow, in lieu of using the nitrous or sulphurous acids directly; which substitute, besides being cheaper, is alleged to better retain the acids within the solution during the operation. The solution of the nitrate or sulphate of ammonia to be used, has to be of such strength as to contain effectively two pounds of nitrous or one pound of sulphurous acid to every 400 pounds of tallow under treatment.

Claim.—The use of either the nitrate of ammonia alone, or conjointly with sulphate of ammonia, for the purpose of hardening fats used for the manufacture of candles, as described. No illustration.

No. 11,088.—John Stowell.—*Steering Apparatus.*—Patented June 13, 1854.

This improvement consists in the application of the curved sectoral rack D, and the rest of the steering mechanism, direct to the rudder-head A, so that such can rise and be elevated or depressed by the rudder-head, in combination with supporting the rack upon the deck by posts E E, formed with shoulders F F.

No. 11,089.—Peter Sweeney.—*Steam-Boiler.*—Patented June 13, 1854.

Claim.—Dividing the interior of the boiler by an annular casing B C, filled with non-conducting material, or by a non-conducting tube *o*, so as to form an external water space *c*, which exposes a thin body of water to the action of the fire, and an inner or central cylinder C, in which the water is kept at a comparatively low temperature.

No. 11,090.—William Shove.—*Improvement in Buckles.*—Patented June 13, 1854.

The nature of this invention consists in connecting the two ends of the bow of the buckle together by means of a dovetail *b*, and perfectly securing said dovetail, or preventing it from being disconnected or separating, by having the "cone," or end of the tongue, which is secured around the base of the bow, pass around and clamp the dovetail, as will be apparent by reference to the annexed figure.

Claim.—Making the union of the two ends of the buckle bow by a common dovetail joint, which by itself resists tension lengthwise, and which requires only the common tongue to hold it in permanent connection.

No. 11,091.—E. H. Sprague.—*Improvement in Locking up Printers' Forms.*—Patented June 13, 1854.

Claim.—The manner of locking and unlocking printers' forms in the chase by means of tapering bars D C, and intermediate wedges E, extending lengthwise and crosswise of the chase on the side and end, and operated by a hand-lever G, by which the composer is enabled to dispense with the usual sticks and quoins.

No. 11,092.—Thomas Silver.—*Improvement in Tightening Windows.*—Patented June 13, 1854.

This improvement consists in the arrangement and combination of the swell or lateral bearing C C with the oblique ball B B, represented in the drawing; thereby producing an opposite bearing of the sash on the window-frame near the top of the sash, which bearings tighten the sash when in one place, and thus prevent shaking and the production of noise or rattling.

No. 11,093.—David I. Stagg.—*Controlling Plurality of Doors with one Key.*—Patented June 13, 1854.

This improvement and claim consist in combining with double lock-bolts *h*, or double-acting lock-bolts *s*, on the doors, the sliding-hasps *a*, constructed and operated as shown.

No. 11,094.—G. B. Simonds & Abel Breaer.—*Spark-Arrester.*—Patented June 13, 1854.

Claims.—1st. So arranging the conical deflector D, in the upper part of the case A, and in relation to the flange E, which is around the draught-opening and extends down inside from the top of the case, that the exhaust-steam will be caused to act upon the sparks, and force them into their chambers, substantially as described.

2d. The employment of the elliptical-shaped cone D, within the elliptical case A, in combination with the spreaders G G.

3d. Regulating the escape of the sparks by means of the adjustable flange E, arranged round the discharge opening.

No. 11,095.—Henry C. Sergeant.—*Feed-Water Apparatus for Steam-Boilers.*—Patented June 13, 1854.

The claims indicate the improvement.

Claims.—1st. The combination of the balance-valves F F, float K, and valve H, all arranged within, or applied, substantially as shown, to the box A, connected with the boiler and a reservoir.

2d. The cup I, sunk below the pipe D, which supplies the box with water, or otherwise applied inside of the valve H, for the purpose of receiving and retaining a small quantity of water every time the box is charged, for the purpose of facilitating the condensation of steam.

No. 11,096.—Thomas, Earl of Dundonand.—*Improvement in Composition for Coating Telegraphic Wires, and for other purposes.*—Patented June 13, 1854; in England October 6, 1852.

The ingredients to be used, and their proportions, are described as follows: 10 parts of shellac, 4 to 5 parts rosin, 1½ part of viscid oil of petroleum, or equivalent—all by weight. To give the compound elasticity, about 15 parts of India rubber; and to give it permanency, asphaltum, or mineral pitch, is to be added, to suit the purpose for which the composition is intended. If intended for embankments, water-pipes, tanks, and the like, sand and gravel may be added.

Claim.—The combination of gum shellac, rosin, tar, the unctuous oils, or the viscid oil of coal tar, bitumen, asphaltum, or mineral pitch, and India rubber, for the coating and insulating telegraph wires, and for other purposes, as herein set forth and described, or any other specifically the same. No illustration.

No. 11,097.—T. Chalkley Taylor.—*Improvement in Soap Compounds.*—Patented June 13, 1854. Patented in England September 17, 1853.

One pound of bran of cereal grains is mixed with two gallons of an alkaline solution of about 1.08 specific gravity, stirred occasionally, and after three hours, strained. This composition is in itself a soap, or it may be used as an ingredient in the manufacture of hard soap, or be boiled up with soap already made.

Claim.—Dissolving the bran of cereal grains in caustic alkali, and using the product as a substitute for, or as an ingredient in, the manufacture of soap, substantially as described. No illustration.

No. 11,098.—T. Chalkley Taylor.—*Improvement in Soap Manufacturing Processes.*—Patented June 13, 1854.

An alkaline solution of from 10 to 15 degrees by hydrometer is warmed, and potatoes or similar vegetables added to it, in the proportion of about fifty pounds to eight gallons of the solution; when the whole is boiled until it forms a uniform creamy mass. Grease, rosin, or other materials used in soap making, may now be added, and the process completed in any known manner.

Claim.—The process herein described of treating by alkali, in a cold or tepid state, potatoes with their skins on, in the manner and for the purposes set forth. No illustration.

No. 11,099.—Anthony Vittaly and Carl Kolb.—*Improved mode of Fastening Shoemakers' Tools to Handles.*—Patented June 13, 1854.

Claim.—Securing the tool E to the stock or handle A, by means of a screw-rod, block, or collar, and a dowel-pin, constructed and arranged as set forth in specification.

No. 11,100.—George Yates and Eli Clayton.—*Improvement in Looms.*—Patented June 13, 1854.

The object of this invention is to prevent the shuttles, reeds, or temples from being broken in case of any obstruction, or when the thread of the web is broken.

The invention is an improvement upon the contrivance of H. T.

Robbins, patented September 14, 1852; mainly intended for the same purpose.

In the drawing, A is the shuttle, having a groove and flange on its upper side corresponding with a groove in the lathe-cap B. The shuttle passing to and fro is prevented from flying out by the edge; when the shuttle rises over cross-threads or other obstructions, it immediately fastens into the groove of the cap, which keeps it in its proper course, and thus the edge D of the groove in the shuttle, and the edge C of the groove in the lathe-cap B, acting against each other, prevent the shuttle from flying out.

Claim.—An improvement upon the contrivance of Robbins, which consists in the grooved shuttle in combination with the grooved lathe-cap.

No. 11,101.—JOHN BEVAN.—*Improvement in Railroad-Car Ventilators.* Patented June 13, 1854.

The object of the invention is to prevent the entrance into railway cars of dust, cinders, or other bodies suspended in the air through which such cars are passing swiftly, and at the same time to constantly renew the atmosphere and provide for their ventilation.

Claim.—Arranging on either side of a suction fan-blower, and on the same shaft with the same, a series of revolving separating blades E F, or their equivalents, for the purpose of creating a strong revolving current of air above the top of the car, which acts centrifugally upon the cinders, dust, and other heavier particles than air accompanying the current created by the rapid motion of the cars, and causes them to be deflected, and to fall to the ground instead of entering the car; while the fan-blower acts centrifugally upon the air thus separated or stripped of its impurities, until it enters the blower, and then causes it to pass into the car and ventilate the same agreeably, and in a very perfect manner; the whole being constructed, arranged, and operated in the manner substantially as herein described.

No. 11,102.—JAMES WIGHTMAN.—*Steam-Boiler.*—Patented June 13, 1854.

This improvement consists in the arrangement of the arch or roof A of the fire-box extending through to the uptake H, and connecting with a counter-arch C in such manner as to form an elliptical flue to form a communication between the furnace and uptake, in connexion with a series of small return flues G above the roof of the fire-box and elliptical flue, and in a curve concentric therewith; so that the upper side of the highest flue will be at the same distance, or thereabouts, below the upper surface of the water within the boiler, whether the latter be upright as when a vessel on which it is placed is on an even keel, or inclined, as when the vessel is careened, substantially as set forth herein.

No. 11,103.—G. W. WOOD and L. O. WEBSTER.—*Improved Canal-Lock Gates.*—Patented June 13, 1854.

This improvement consists in the combination and arrangement of the shackle bars H and I, the levers M and N, and their attachments and fixtures, as described, by means of which the opening and closing of the gates are facilitated, and the means of re adjustment are provided, whenever any derangement shall take place, without being obliged to separate or remove the fixtures.

Claim.—1st. The hooked form of the levers M and N, and the curving of the shackle bars H and I. 2d. The adjustable lever-box, including the mode of adjusting the valve-rods and tightening the valve-gates by screws or their equivalent. 3d. The combination of the hooked levers with the curved shackle bars, and the adjustable lever-box, as described, and for the purposes described; the whole being constructed and arranged substantially in the manner and for the purposes above set forth.

No. 11,104.—G. WESTINGHOUSE.—*Improvement in Endless-Chain Horse-Power.*—Patented June 13, 1854.

The claim distinctly sets forth the nature of this improvement.

Claim.—The construction of the gearing substantially as herein set forth, having a pinion permanently affixed on the ends of each shaft, to either of which the hubs of either the driving or band-wheels fit and are fastened.

No. 11,105.—JOSEPH WEIGHT.—*Improvement in Machinery for Napping Cloth.*—Patented June 13, 1854.

This invention relates to a new and useful machine for raising a nap on cloth, and consists in the employment of an endless card-sheet in combination with a transverse card-belt.

Claim.—The combination of the endless card-sheet C and the endless transverse card-belt E, arranged and operated as described.

No. 11,106.—EDMUND VICTORY, assignor to D. M. LINSLEY and GEORGE GOULDING.—*Improvements in Machinery for Spinning Wool.*—Patented June 13, 1854.

This invention has reference to a well-known arrangement for drawing and twisting simultaneously the sliver or rover of a revolving head, through which the sliver passes, carrying drawing-rollers in front, said rollers revolving with their head as well as rotating on their own axis. In the accompanying drawing, A is the revolving head, placed immediately behind the rollers *a a*, which conduct the roving to the flyer. It consists of a short cylinder, with a concentric tube *b* at the back, which is fitted to work in bearings. The sliver is taken from a spool by a pair of rollers *o o*, which revolve at a slower speed than the drawing rollers *c c*, and the latter are thereby made to draw or stretch it, while the

motion which is given to the axis of the rollers by the revolution of the head A gives a twist to the thread; thus the thread between the rollers *o o* and the rollers *c c*, is drawn and twisted at the same time. After passing the rollers *c c*, the thread is conducted by the rollers *a a* to the flyer *i*, by which the final twist is given.

The patentee disclaims the employment of drawing-rollers revolving with the head, and made, in addition, to rotate at a suitable velocity on their own axis, for the purpose of drawing and twisting the sliver or thread, as such have been before used.

Claim.—Arranging the drawing-rollers to operate as specified within the revolving tube or head, while the head is sustained by a sufficient bearing on its whole circumference outside of the said rollers, as described; whereby the double movement of the drawing-rollers, on their own axis and with the head, is rendered perfectly steady, and that vibration prevented which tends to produce an uneven thread.

No. 11,107.—EDWIN ALLEN.—*Machine for Polishing Veneers.*—Patented June 20, 1854.

The veneer P is passed beneath the roller K, and is polished by the moving-belt I, which has on its surface sand-paper. The cylinder K is constructed of India-rubber cloth, and partly filled with water, thus enabling it to press the belt against any inequalities of the veneer. This pressure-cylinder has no bearings, and is kept in place by two rollers J.

Claim.—The combination of the cylinder K with the belt I.

No. 11,108.—JOHN ALLENDER.—*Grommet for Sails.*—Patented June 20, 1854.

This improvement consists—

1st. In making that portion of the tube put through the ring E to correspond with the corners of the canvass or cloth, so that when they are bent down upon the canvass, they double or bend it over the edge of the ring, and there confine it.

2d. The scores F in the ring, which correspond with the corners of the cloth and with the points of the tube, in combination with the points of the tube.

3d. Scoring or roughening the surface of the rings A and E, where they come in contact with the cloth.

4th. Making or inserting points D in or on one or both of the rings, to extend through the canvass into the opposite ring.

5th. Riveting the points of the tube which are bent over on the cloth, or otherwise, substantially as described.

No. 11,109.—D. C. AMBLER.—*Improvement in Quartz Crushers.*—Patented June 20, 1854.

The novelty here introduced into this class of machinery consists in making use of the gravitating force of the balls, as well as their friction upon the substances to be pulverized—the object being effected by attaching the balls, as claimed, to shafts, so as to impart their peculiar motion.

Claims.—1st, the combination of a revolving trough, with balls located therein, said balls being attached to shafts substantially as herein described, whereby quartz, or other similar substances, may be stamped, crushed, and pulverized.

2d. The combination of a revolving trough with balls revolving therein by friction; but this is claimed only when these balls are attached to shafts, substantially in the manner herein specified, whereby quartz, &c., may be pulverized and crushed, as herein specified.

No. 11,110.—D. C. AMBLER.—*Improvement in Setting Steam-boilers.*—Patented June 20, 1854.

This improvement consists in having a grate-surface *f f*, extending the whole length of the boiler, when the same is employed in connexion with a midriff location, as shown, and causing the products of combustion to traverse in reverse directions. Also, in the use of the tiles *h h h*, located as shown, and for the purpose of forming the midriff *m*.

No. 11,111.—GABRIEL BLONDIN.—*Improvement in Process for Treating Paint.*—Patented June 20, 1854.

The improvement consists in preparing the pigments usually employed in distemper painting, with dry albumen uncoagulated, and such as is usually found in commerce in a dried state.

The proportion is about 1 part of albumen, by weight, to 18 parts of pigment, using less for the crystallized, and somewhat more for those of globular form. As soon as the color thus prepared is applied and gets dry, it is passed over with alcohol, a jet of steam, or any other coagulating agent, provided the latter be not apt to decompose, to bleach, to stain, or otherwise to injure the painting. The albumen, thus coagulated, protects the color againt the influence of air and moisture. The painting may be washed and cleaned with soap, and, if varnished over, assumes the appearance of oil-paint.

Claim.—The hardening and fixing of paint of which albumen is a constituent, by coagulating the albumen after the paint has been spread, substantially as herein set forth. No illustration.

No. 11,112.—GABRIEL BLONDIN.—*Improvement in Paint Composition.*—Patented June 20, 1854.

The improvement in this composition consists in the admixture, to the usual pigments employed in distemper painting, of dry uncoagulated albumen, in the proportions, and for the purpose, stated above, [No. 11,111,] thus giving origin to a new product useful in the art of painting.

Claim.—To the described product, as such. No illustration.

No. 11,113.—Frederick H. Bartholomew.—*Method of Governing the Action of Valve-cocks.*—Patented June 20, 1854.

This invention is to provide a governor to the valves of cocks adapted to the purposes of water-closets, by means of which the valves may be made to open or close gradually, and while opening or closing to admit a limited supply of water to pass through, and thus avoid the necessity of employing any cistern, or reservoir of water, below the main supply and basin.

Claim.—The method specified of controlling the motion of a valve by means of a variable chamber S S combined therewith, the chamber having a small opening M, or T, communicating into it, through which the chamber shall fill or discharge, and thus govern the opening and closing of the valve E.

No. 11,114.—Thomas H. Barlow.—*Cut-Nail Machine.*—Patented June 20, 1854.

This improvement consists in combining with the pairs of fixed stocks and cutters K J, the vibrating stocks and cutters H I, when said vibrating stocks and cutters are so arranged as to be capable of being operated from one rock-shaft C, by one cam D, and lever F, and the pair or sets of stocks constitute the griping-jaws.

Also, in combining with the vertical oscillating mail-plate holder the escapement U, for the purpose of gauging and feeding up the mail-plate.

Also, operating the mail-plate holder from the heading levers through the medium of the arms T, sliding-bars S, lever V, and escapement U.

No. 11,115.—Mark S. Bassett.—*Flour-Sifter and Renovator.*—Patented June 20, 1854.

This invention forms a useful household utensil, in which radial rollers, actuated by a vertical shaft, break up lumpy meal or flour, force it through a coarse sieve to a set of brushes fixed to the same shaft, and during this last operation all coarse particles and impurities are separated, by forcing the flour through a fine sieve.

Claim.—The arrangement of the radial rollers *a a*, and horizontal brushes, with the coarse and fine sieves *m* and *n*, for the purpose of renovating damaged and lumpy flour, in the manner herein set forth.

No. 11,116.—Joseph Bone.—*Improvement in Grain Winnowers.*—Patented June 20, 1854.

The improvement consists in so constructing two or more blast or suction-spouts of a winnower—as, for instance, in the drawing, the passages B^1 I^1 and passages B^2 I^2, with hoppers A K, L, and N—as to enable the operator either to permit the grain originally fed at A, and then passing successively through B^1 I^1 and K, when arrived at the hopper L, to escape through the bottom of the spout B^1,

or, by dropping shute M, to divert it again through hopper N into hopper A, and from the latter into spout B^1, to undergo a repeated cleaning, as often as desired.

Claim.—The arranging and connecting of a series of two or more sets of separating passages, substantially as set forth, so that the grain may be carried through the entire series as often as required for thorough cleaning and separation.

No. 11,117.—Benjamin Crawford.—*Improvement in Steam-Engines.*—Patented June 20, 1854.

The claim allowed indicates the invention.

Claim.—The method of producing a vacuum in condensing engines, by allowing a part of the exhaust steam to escape into the atmosphere, without resistance, by a flap-valve *b*, before the condenser is opened, and then condensing the remainder by opening the communication between the cylinder A and condenser C.

No. 11,118.—Thomas Crossley.—*Machine for Printing Woollen and other Goods.*—Patented June 20, 1854.

The carpet or other fabric to be printed is fastened by hooks to the endless chains F, which, in motion, are forced apart by divergence of the ways upon which they travel, and the fabric to be printed is thus evenly stretched, preparatory to being printed.

The chain, having moved a distance equal to one block, stops; while this is taking place, the pin in the crank is passing through the curve in the section X, the blocks remain motionless over the cases H^1, and the latter are raised through the operation of the cam A^1; the color is thus given to the block. The crank-pin now enters the straight portion a^1 of the cam-groove W, and the blocks are carried in with a slow motion. The cam-shaft E continuing to revolve, the cams Q force down the followers N^1, which, in turn, bear upon the studs *p*, in the centre of the plates S, to which the printing block is secured; thus the impression is made. The motion being continued, the fabric is passed from one block to the next, receiving an additional color and impression from each, to any desired extent.

No. 11,119.—Benjamin F. Day.—*Double Cylinder Engine.*—Patented June 20, 1854.

This invention consists in expanding and non-expanding cylinders.

Claim.—Interposing between the first and second cylinders a steam-chest E, with valves F F, for controlling the passage of steam from the first to the second cylinder.

No. 11,120.—Samuel Fay.—*Improvement in Weaving Double Cloth.*—Patented June 20, 1854.

This invention consists in uniting two warps—the one of cheap, strong material, for a foundation, the other of wool for the finished sur-

face—by two weft threads, one of cheap material and the other of wool, in such a manner as to keep all the wool on one surface, and all the linen or cotton on the other surface, without permitting any portion of either warp to pass entirely through the other to the surface.

Claim.—The manufacture of a fabric which has one face of wool, and the other of cotton or linen, in such a manner that in no place does the warp which is upon one side of the cloth extend into the surface of the other side of the cloth. No illustration.

No. 11,121.—F. A. Gleason.—*Improvement in the construction of Reed Musical Instruments.*—Patented June 20, 1854.

The improvement consists in forming vibrating air-chambers F under each reed to increase the volume of sound, and in arranging a small hammer G within each of these recesses, so as to strike the reeds, causing instantaneous sound; also, in constructing a series of chambers H above the reeds, to soften the sound, each chamber having an outlet for the wind at *f*.

Claim.—The hammers G, arranged in each vibrating air-chamber, in connexion with a wire-spring and valves; also, in combination with it, the vibrating air-chambers F under each reed, and the modulating air-chambers H, with the small apertures *f* over the reeds, all arranged and operating as described and represented, and for the purpose substantially as herein before specified.

No. 11,122.—G. W. Griswold.—*Tool Handle.*—Patented June 20, 1854.

Claim.—So combining a double-acting pawl, and a star-shaped ratchet, with the stock and handle of a screw-driver, or its equivalent, that by pressing the finger on one arm of the pawl, and turning the handle, a screw may be driven into the wood; and by pressing the other arm of the pawl, and continuing to turn the handle in the same direction, the screw or gimlet may be withdrawn.

No. 11,123.—Charles S. Harris.—*Improvement in producing Continuous Circular from Reciprocating Rectilinear Motion.*—Patented June 20, 1854.

The patentee does not claim a rack and pinion, or the duplication of the same, or a combination of two racks and pinions, or two racks and a semi-pinion, so applied as to produce circular motion from rectilinear motion; nor does he claim the combination of a bow and string or band with a pulley, for obtaining a circular motion from a rectilinear motion, nor the mere duplication of such devices.

Claim.—The so combining with the bow or bar D, and the two bands E F, and the handle I, or its equivalent, a vibratory or rocker lever G, that during the reciprocating rectilinear movements of the bar or bow D, caused by the power applied to such rocker bar, it shall be made to operate so as to alternately tighten and loosen each cord upon the pulleys of the drill-stock, as specified, and so cause the drill-stock to be rotated as described.

No. 11,124.—John Henry.—*Improvement in Cast-Iron Car Wheels.*—Patented June 20, 1854.

The patentee does not claim a central plate running from the hub to the rim, and not connected with the inner and outer plates, as such a wheel has been patented by Frederick Harback, November 6, 1847.

Claim.—The intermediate continuous plate *e*, extending diagonally from the hub to the rim, in a cast-iron wheel having double plates or disks, and connecting the two plates of the wheel together, substantially as described.

No. 11,125.—Frederic Howes.—*Extra Yard to Top-Sails.*—Patented June 20, 1854.

This improvement consists in applying and supporting an extra top-sail yard, as shown by the drawing.

Claim.—The application of an extra yard, supported by truss, crane, or brace, as herein described, or any other substantially the same, and which will produce the same effect.

No. 11,126.—Solomon T. Huntington.—*Carriage Tops.*—Patented June 20, 1854.

This invention consists in supporting the top by means of an inverted bow *c* attached to the back of the seat, which can be readily detached from the catch in the back, in connection with the extension of the jointed brace *e* forward, so as to form a handle or lever within reach of a person sitting on the seat, whereby the top may be lowered or raised at pleasure.

No. 11,127.—Nathan Johnson.—*Improvement in the mode of making Bricks.*—Patented June 20, 1854.

The mortar is distributed at once from the mill into the moulds, and the moulds filled, and surplus mortar struck off by means of a "lute."

The patentee disclaims in general the forming of bricks from mould frames placed upon the ground, as herein described, this having been done before.

Claim.—The mode of at once distributing the mortar, filling the moulds, and removing the surplus material, namely: by means of the lute, applied as herein described.

Further, that with them bricks can be made without the assistance of off-bearers, and at one fourth less expense than can be made in any other way.

No. 11,128.—Charles C. Lloyd.—*Improvement in Gas Meters and Regulators.*—Patented June 20, 1854.

The nature of the improvement consists in so constructing the valve P P^1 with its valve seat, as to preserve by its form both the purpose of equalizing or regulating the pressure of the gas within the meter, and

of shutting off the gas when the meter gets too low, and, at the same time, to be actuated by one single float only within the meter; two effects which could not be obtained heretofore but by the employment of two separate valves and two floats.

In the drawing, the position of the float K and lever O, the water-line being at the normal height *a b*, is indicated by continuous, and the position of the same during an undue depression or elevation of the water-line, by dotted outlines. The lever O being pivoted at S, and pitman Q connecting it with valves P P^1 being pivoted to it at R, it is apparent that the maximum of the supply of gas to the meter through pipe J takes place while the water-line *a b* is at its normal height, and is diminished or stopped up entirely at every fluctuation of this line either way, until the normal height is again restored.

Claim.—The application of the principle or mode of operation herein described, whereby the double purpose, above stated, is effected by combining the valves with one and the same float, all within the meter, substantially and for the purpose as herein described.

No. 11,129.—John L. Martin.—*Improvement in Painters' Brushes.*—Patented June 20, 1854.

The nature of this invention consists in providing the bristles of the brush with an elastic binder, to extend from their connection with the handle, and around the pack, and down to the print or working end of the brush.

Instead of employing an inelastic thread or wire, as heretofore used, an elastic tubular binder is made of vulcanized India rubber, or other suitable material.

Claim.—The improvement above described, namely, the application of an elastic tubular binder to a brush, instead of an inelastic cord or binder, as commonly used, the said elastic binder being composed of caoutchouc, or other suitable material or materials.

No. 11,130.—Thomas G. McLaughlin.—*Improvement in Radial Arms for Car Brakes.*—Patented June 20, 1854.

The patentee does not claim the means for raising radial arms to operate the brake of a tender.

Claim.—The employment of the radial arms A, in combination with the catches or lips J formed on the radial arms A, for the purpose of relieving the horizontal shaft B, on which the radial arms A are firmly secured, of the pressure or force which may be exerted against the ends of the radial arms A, when operating the brakes of the several cars in a train, by the means that have been heretofore invented for the purpose.

No. 11,131.—D. E. McDougall.—*Burglars' Alarm.*—Patented June 20, 1854.

In the drawing, M represents a cylinder to contain a charge of gunpowder. A clamp C is placed against a door, and another, A, on the

floor, where it is held by the points *a a a*. The dog H is adjusted by the screw J, and when pressed disengages the hammer F, which explodes the powder, and thus gives the alarm.

Claim.—The clamp C, brace B, guard D, the hammer F, the spring G, and dog H, as constructed and arranged.

No. 11,132.—Anson Merriman.—*Steam-Engine Regulator.*—Patented June 20, 1854.

Claims.—1. To the chamber *g*, cock *m*, safety-valve *n*, holding a portion of steam in store, and, in combination with the pump, drawing from and returning it to the same source, and acting on the piston E during the dead-points of the engine.

2. The aperture *m*, chamber *g*, and safety-valve *n*, so weighted as to hold the steam at greater pressure than in the boiler, in combination with the pump or pumps for forcing the steam into the said chamber *g*, for forming a magazine to feed the cylinder F at the moment the engine is passing the dead-point.

No. 11,133.—Nathan S. Mathewson.—*Improved Watch-Chain Swivel.* Patented June 20, 1854.

The hook A is constructed of one piece of metal, swivelled at the part D. The spring-slide C, containing the opening section B, is made to fit over a square portion *c*, above which it is to be raised and turned when the hook is to be opened; and when closed, the spring pressing the square opening of the slide C, over the squared part *c* of A, prevents liability to accidental disengagement.

No. 11,134.—E. Morris.—*Slate Frame.*—Patented June 20, 1854.

Two pieces A, each containing a half-groove for the slate, are formed, with the grain in one at right-angles to the grain in the other. These are glued together, holding the slate between them.

Claim.—Constructing a slate-frame of corresponding halves, of such a shape that a single joint combines them with each other, at the same time that it firmly secures the slate between them, substantially as set forth.

No. 11,135.—Orwell H. Needham.—*Improvement in Breast-Pumps.*—Patented June 20, 1854.

This apparatus consists of a bellows-pump *b a*, a flexible tube *c*, a bulb-tube *d*, with perforations at *f*, to be closed by the finger, and opened to admit air when the action of the pump creates pain, and a flexible nipple-shield. A modification is employed for cupping. The separate devices are not new.

Claim.—The combination of an air-pump, operating substantially as above described, with a nipple-shield, or cupping shield, made of flexible material, substantially in the manner and for the purposes set forth,

by means of a flexible tube; so that the motion of the working of the pump will not be felt upon the parts operated upon, so that the patient can operate it herself, and regulate the action in a manner never before effected.

No. 11,136.—J. P. Osborn.—*Turning Bodies of Barrels, &c., out of Solid Blocks.*—Patented June 20, 1854.

The bodies are cut from blocks without injuring the cores, by means of knives D D¹, connected with cross-head E E¹, and revolved by a belt over pulley M. The fixed knives D D¹ are adjustable for different sizes by means of notches F F¹; and as the two mandrels *c c*¹ are caused to approach each other, the core is cut from the block, and the outside turned also.

Claim.—The tool-bearers D D¹, cutting in contrary directions, in combination with the cross-heads E E¹; also, the combination of these cross-heads with the connecting-rods R and feed-screws I; and also the method, substantially as herein described, of adjusting the position of the tool-bearers D D¹.

No. 11,137.—Charles Parker.—*Improvement in Cast-Iron Vises.*—Patented June 20, 1854.

Claim.—Casting the movable jaw or chap of a vise so as to enclose or secure, by the operation, one or more wrought-iron bars *b* within the tail or guide-rod at or near the point of greatest strain, said bars being enlarged or bent at the ends, the better to secure the same to the castings, in order to act as a chord or chords to resist tensile strain, and thereby secure the maximum of strength with the minimum of metal, as described.

No. 11,138.—Benjamin F. Reimer.—*Improvement in Railroad-Car Brakes.*—Patented June 20, 1854.

A sliding-frame A operates all the brakes at once, while by means of the lever K each brake can be operated independently.

Patentee does not claim the mode of operating all the brakes simultaneously.

Claim.—The brake, consisting of the perpendicular rod E, the guides G G, the rollers C C, the chain D, and the mode of attachment; the whole being arranged substantially as above described, for the purpose of operating either by the mechanism for acting simultaneously upon all the brakes in the train, or independent of the same, by the lever K.

No. 11,139.—Jesse Reed.—*Windlass for Ships.*—Patented June 20, 1854.

This invention consists in the arrangement of the movable capstan A, with the two windlasses G G¹, as shown.

Claim.—This arrangement, that either windlass may be operated in either direction, by operating upon the single capstan.

No. 11,140.—S. Brockway Robinson.—*Machine for Drying Grain.*—Patented June 20, 1854.

This machine includes an arrangement of devices for more effectually drying grain than heretofore, the various parts being indicated in the claim.

Claim.—In the above-described machine for drying grain and other articles, a trough or cylinder with a perforated bottom, provided with a conveyor or stirrer, in combination with a blast of heated air forced through the perforated bottom above mentioned, constructed and arranged substantially as described, and for the purposes set forth.

The figure represents a top view of the apparatus.

No. 11,141.—Warren Shaw and Parley G. Green.—*Improvement in Tentering Cloth.*—Patented June 20, 1854.

The nature of this invention consists in the combination of the adjustable, obliquely situated tenter-wheels G G, provided with laterally playing tenter-points *j j*, with the oscillating guides *i i*, arranged and operating in such a manner as to seize the cloth and stretch it uniformly, at the same time bringing its edges perfectly even and straight, in which condition it is delivered to the tenter-points of the drying-apparatus, to be retained thus till dried and received by the folding apparatus.

Claim.—The adjustable, obliquely situated tenter-wheels G G, provided with laterally playing tenter-points *j j*, in combination with the oscillating guides *i i*, arranged and operating in such manner as to seize the cloth and stretch it uniformly, at the same time bringing its edges perfectly even and straight; in which condition it is delivered to the tenter-points of the drying-apparatus, to be retained thus till dried and received by the folding apparatus, as set forth.

No. 11,142.—Adrian R. Terry.—*Mode of Protecting Gas Retorts of Iron.*—Patented June 20, 1854.

The protection is effected by covering the retort externally with wire gauze, and filling the meshes of the latter with repeated layers of mortar, prepared of 30 parts of blue clay, 66 parts of silicious sand, 4 parts of borax, or other flux, and water. This coating, when dry, is brushed over three or four times with a glazing prepared of 10 parts of clay, 10 to 15 parts of potash or soda, 50 parts silicious sand, 30 parts litharge, and as much water as to give the mixture the consistency of cream. The latter glazing is to be applied to the inner surface of the retort also.

Claim.—The application to gas-retorts of a coating which consists of a series of layers, or laminæ, of luting and metallic wrapping, substantially as specified.

No. 11,143.—Charles E. Wethered, John Wethered, and Samuel Wethered.—*Application of Ordinary and Superheated Steam for Heating Purposes.*—Patented June 20, 1854.

In this invention, steam is made to leave the boiler by two different tubes, one of which passes through the fire-chamber to superheat the steam, which is then combined with ordinary steam in the other tube, and the mixture is employed to perform the various services, as set forth.

Claim.—The application of the combination of ordinary steam and superheated steam; which combination is effected by bringing them together in pipes of any convenient form, before or at the point where their contents are discharged, for the purpose of boiling, evaporating, drying, melting, and heating.

No. 11,144.—Joseph R. Winchester.—*Carriage Tops.*—Patented June 20, 1854.

This invention consists in the combination and arrangement of the horizontal cross-brace *a a* attached to the outside braces *b b* at *c c*, with the outside pointed braces, as shown in the drawing; which combination enables a person riding in a carriage to raise or let fall the top without inconvenience, and without getting out of the carriage, by means of the horizontal brace *a a* above mentioned.

No. 11,145.—William C. Wright.—*Improvement in Machines for Folding and Measuring Cloth.*—Patented June 20, 1854.

The essential features of this machine consist of a moving table formed of a segment of a cylinder, and having a reciprocating rotary motion imparted to it, the length of which motion may be adjusted for different lengths of folds, said table operating with a pair of guiding folders working alternately to form successive folds of the cloth, and a pair of adjustable holders at each end of the traversing table to hold the folds as they are made; these holders being so arranged as to be lifted up at the time the end of each fold is approached, and shutting down upon the same as soon as the table begins to reverse its motion.

Claim.—Making the folding table *g g* of the machine move with a reciprocating motion, so as to make the folds and determine their length.

Also, making said motion adjustable, in order to change the length of the folds to be made and measured.

Also, the combination of the moving folding-table *g g* with the guiding folds *t t*, and the elongated holders *u u* at each side of the table, for folding, holding, and guiding the cloth.

Also, making said holders adjustable upon the ends of the folding-table, so as to accommodate different lengths of folds.

Also, relieving the cloth, when folded, from the folders and holders, so that it may be removed from the folding-table, by raising all of them simultaneously by means of the treadle connected to the said folders and holders, through the mechanism described, or any substantially similar.

No. 11,146.—S. V. Collins, assignor to W. O. Hickok.—*Mode of Setting and Holding Pens for Paper-Ruling.*—Patented June 20, 1854.

The object of this invention is to rule paper with several different colors, all at the same time. It consists in attaching one or more extension-pens N to the rests K L, in common use, by an additional adjusting-beam O, by means of which the different colors used are kept from mingling.

No. 11,147.—Luther Hill, assignor to Luther Hill and Lorenzo Stratton.—*Improved Machine for Stamping out Soles of Boots and Shoes.*—Patented June 20, 1854.

Claim.—The improvement of combining with the under side of the follower and with the cutter, as described in specification, a sole-bender or former M, or projection in relief of the form necessary to bend the sole into the shape it is to have when fixed on a boot or shoe; the said sole-former, by bending the leather, causes its edges to stand perpendicularly to the plane of the outer edge of the upper surface of the concave side of the sole, as specified.

No. 11,148.—Levi W. Mallory, assignor to William Morris.—*Improvement in Omnibus Registers.*—Patented June 20, 1854.

Claim.—The combination of the rod M, guide Q, lever N, spring U, coupling O, and eccentric ratchet or trigger P, operating substantially as set forth, to prevent the ringing of the bell until the fare is registered.

The parts M N O P Q and U compose what the inventor calls a trigger or catch, which prevents the possibility of ringing the bell without registering the fare; thus it will be seen, when the hammer has been drawn up, the rod M working through the slide Q is also forced up by the spring U working under the lever N, to which is attached the coupling C connecting said lever and the trigger P; thus, if the driver pulls the handle of the register, the trigger P flies up around a screw in its lower extremity, so as to bring its notches under a rod J, and prevent it (J) from coming back until the fare has been registered and the bell struck.

No. 11,149.—Stephen White, assignor to Henry C. Jones.—*Padlock.* Patented June 20, 1854.

This improvement consists in making the sliding bolt *h* with a shoulder *m* in combination and acting with the turning bolt *c*, both entering the mortise of the shackle in opposite directions.

Claim.—Making the sliding-bolt with a shoulder, or its equivalent, acting substantially as specified, in combination with the turning bolt, both entering the mortise of the shackle in opposite directions, etc.

No. 11,150.—Jonathan Amory and William P. Parrott.—*Improvements in Steam-Boiler Furnaces.*—Patented June 20, 1854.

The improvements herein secured are applied to "Baker's steam-boiler furnaces;" and for further economizing the heat and promoting combustion, such gases as are no longer serviceable for this purpose are drawn into the stack and allowed to escape by a pipe included within another, the latter being used for the purpose of introducing fresh air into the fire-box, which, while in its passage, becomes heated by the noxious gases passing out.

Claims.—1. Conducting of the carbonic acid gas, or other heavy and incombustible gases which check combustion, by means of a pipe which communicates with the bottom of the furnace, at or near one end of the same, and with the smoke-pipe or flue, as above described.

2. Including a portion of the air-pipe *h h* within a larger pipe or jacket *i i*, through which the heated or incombustible gases pass in their exit from the furnace, substantially as described and for the purposes specified.

No. 11,151.—Jesse Banman.—*Improved Cider Mill and Press.*—Patented June 20, 1854.

This improved arrangement of devices for carrying on the various parts of the process for making cider, is clearly set forth in the claim and accompanying illustration.

Figure 1 is a perspective view of the mill, part of the top-cover E being broken off.

Figure 2 is a section through the pressing box H.

Figure 3 is a side view of the secondary mill.

Claims.—1. Use of the wheel C, provided with off-sets or planes *a b*, and teeth or spokes, as described, in combination with the spring D D for grinding the fruit.

2. The arrangement of the grinding-wheel C, springs D D, with the cam E, pressing-box H, and pomace drawer N, with spring O, for the purpose of pressing the pulp and delivering the pomace, substantially as set forth.

3. In the secondary mill the arrangement of the spring R, concave Q, and cam-shaped rasping-wheel or grinder P, for the purpose of reducing the fruit to a pulp.

No. 11,152.—Charles H. Beatty.—*Improvement in Coffee and Spice Mills.*—Patented June 27, 1854.

The grinding-nut is adjusted for coarse or fine grinding by the tempering screw C, which, in being turned by hand, is brought to bear upon the additional piece or lever affixed to the handle.

Claim.—Adjusting the movable grinder of coffee or spice mills by a handle or lever composed of two parallel pieces and a tempering screw, substantially as set forth.

No. 11,153.—S. Oscar Cross.—*Improved Grape Frame.*—Patented June 27, 1854.

This invention consists in bringing the frame near the ground, to render it capable of being raised to air or sun the vines, and of being depressed to protect the vines from cold, or to facilitate the picking of the grapes. The applicant proposes also, by a late crop of oats grown among the prostrated vines, to protect the latter during winter.

Claim.—An adjustable elevating and depressing grape-frame, with or without supporters attached, made of any known material, for the better cultivation of the grape, which it is believed will secure all the advantages hereinbefore specified.

No. 11,154.—Thomas H. Dodge.—*Improvement in Regulators for Equalizing the Flow of Gases and Fluids.*—Patented June 27, 1854.

This improvement consists in the construction of the regulator, as shown in the drawings. A and B are two chambers communicating at the base by the opening *a*, and at the top by the opening *b*, chamber D, and opening *c*, the latter controlled by valve C, acted upon by float E. A^1 is the supply-pipe of the gas or fluid to be regulated in its flow, B^1 the discharge-pipe for the same; thus the gas or fluid is supplied to consumption by the way indicated. A certain amount of supply and consumption given of either gas or fluid, water or any heavier liquid is introduced through pipe F into chamber A, until, by the communination in *a*, it ascends to such a height in B as to determine an opening in *c*, answering said given proportion of supply and consumption. If the opening is consecutively required smaller, fluid is added at F^1; if wider, fluid is drawn off at G. For smaller disturbances, arising either from accidental changes in the supply or in the consumption, the tendency of the water or any other heavier fluid at the bottom of the chambers A B to come to a level, will so affect the opening *c*, that whatever those disturbances be, the flow of the gas or fluid will not be affected thereby at the point or points of consumption.

Claim.—The employment for regulating the flow of gases and fluids of two chambers, furnished and arranged, and operating, as described.

No. 11,155.—George Esterly.—*Improvement in Mowing Machines.*—Patented June 27, 1854.

The invention is confined to two devices, viz: the cutter-bar A A and the track-clearer or plough J. The cutter-bar is formed of detached pieces, every other of which has on its rear rectangular projections, which serve both the purpose of supporting the cutter-bar upon the platform bar L while set in operation, and of cutting away gummy matter and clearing the blade. The under side of the bevel of the cutting edges is also ground away (figure 3) for aiding in the latter effect.

The plough J is designed to turn the previously-cut grass to one side out of the way of the shoe C which follows it.

Claims.—1st. The construction of the sickle in such manner as to

have projections on alternate sections of the sickle sliding upon bar L, operating as and for the purposes set forth.

2d. Grinding off the raised feather-edge made by the chisel in cutting the sickle, as set forth.

3d. Attachment of plough J to the sickle-beam by a screw pivot, to fit said plough to the surface of the ground.

No. 11,156.—Joel A. H. Ellis and Alexander Gordon.—*Improvement in Reversible Capstans.*—Patented June 27, 1854.

The nature of this invention consists in combining with the capstan 49 a shifting spur-wheel 53, connected to the shaft of the capstan by feathers, and operated by a lever 54, or its equivalent, for the purpose of reversing the direction of the revolving of the barrel of the capstan, without reversing the direction of the sweeps to which the power is applied, and without stopping its operation, and giving the barrel of the capstan an increased backward motion over that of its forward motion.

Claim.—The shifting spur-wheel 53, connected to the shaft of the capstan by feathers, and operated by a lever 54, or its equivalent, for the purpose of reversing the direction of the barrel and the capstan without reversing the direction of the sweeps, and giving said capstan and increased backward motion, substantially as described in specification.

No. 11,157.—J. Durell Greene.—*Breech-Loading Gun.*—Patented June 27, 1854.

This invention consists in the introduction of a self-adjusting thimble into the rear end of the barrel, (see *a* and A.) which thimble, being not absolutely secured to the barrel, is kept down upon its seat by the force of the discharge, and may be also driven out against its seat when, from the wear of the parts or other cause, the joint between the barrel and the breech becomes loose, thereby tending to prevent the escape of gas from the joint, and its attendant evil consequences. It also consists in the peculiar manner of locking the barrel to the breech by means of the wedge-formed ears L and the hooks M, in combination with the method of controlling the forward and revolving motion of the barrel by means of the cylinder E, the sleeve F, and the spindle *c*, the whole being connected together by the key K, in the manner set forth.

No. 11,158.—William Hall.—*Door Locks.*—Patented June 27, 1854.

The improvement consists in the slotted slides K, which are allowed to arrange themselves upon the steps of the former M, to form the bits of the key in combination with the pin *l* when the tumblers are operated by turning the key.

No. 11,159.—Daniel Hill.—*Improvement in Seed Planters.*—Patented June 27, 1854.

Connected with this seeding machine are a harrow and roller. The hopper *k* contains an agitator *a*. The teeth of the rotary harrow are seen at *f f*, and the second roller at *a*, above which is the driver's seat at *b*. In figure 2, S is a reversible directing board, having one side smooth for sowing broadcast, and upon the other cleats *t* for drill-sowing. This board is placed under the hopper to direct the seed in falling.

Claim.—The reversible directing board, plain on one side and furnished with converging slats or ridges on the reverse side, for the purposes of either drill or broadcast sowing.

No. 11,160.—Julius Hotchkiss.—*Improvement in Suspender Ends.*—Patented June 27, 1854.

The nature of this improvement consists in attaching the straps to each end of the buckle by a double connexion, whereby a self-adjusting action is obtained, thus adapting the suspenders to fit easily without regard to the positions of the body of the wearer. See figure, at *c c*.

Claim.—The double attachment or connexion of the straps with the buckles, substantially as above described and set forth.

No. 11,161.—Walter Hunt.—*Improvements in Sewing Machines.*—Patented June 27, 1854.

The nature of this invention consists in the manner of feeding in the cloth, and regulating the length of the stitch solely by the vibrating motion of the needle.

The patentee disclaims broadly in the sewing machine the feeding of the material to be sewed by the needle.

Claim.—Sustaining both ends of the needle whilst moving the cloth to effect the feed by means of an inclined guide *n*, made adjustable and placed under or upon the shuttle side of the cloth.

Also, the rotary table-top *o*, in combination with the guides or ways underneath the same, arranged and operating as set forth.

No. 11,162.—H. M. Johnson.—*Improved Rotary Cultivator.*—Patented June 27, 1854.

This cultivator consists of a series of cutting revolving disks *a a*, followed by other disks *b b* and *c*, all armed with knives *w w*.

The patentee does not claim disks or rotary coulters sharpened at their periphery, nor disks having transverse knives on their periphery.

Claim.—A system of sharpened disks or rotary coulters, a part of which are armed upon their periphery with knives projecting laterally, said knives being set obliquely to the radius of the disk, as above described, the whole being combined and arranged in three several sets, so that the two sets armed with knives shall cut alternate sections of the soil, substantially as set forth.

No. 11,163.—D. W. KENNEDY.—*Improvements in Machinery for Tentering and Drying Cloth.*—Patented June 27, 1854.

In the accompanying drawing, A A are two standards which support in bearings the shaft B B, which carries the open disks C C¹. The shaft B B is hollow, and is connected at one end with a steam or hot-air pipe E, and at the other end with a discharge-pipe F. It is enlarged at that part between the wheels in the form of a drum G. The disks C C¹ are furnished with arms *b b*, and a spiral strip *c c* attached to said arms, and making several revolutions, and a rim *d*: one is made of a form exactly the reverse of the other, in order that when the spiral strips *c c* face each other, they may correspond exactly. The tenter-hooks *e e* are secured in the spiral strips. The disk C is secured to the shaft B; the other, C¹, is movable, so that by turning it on the shaft, the distance between the two series of tenter-hooks may be varied for cloths of different widths. H is a guide-roller.

The patentee disclaims the revolving-reel or heads, having the cloth to be dried wound spirally between the heads, with a continuous air-space between the volutions; and also disclaims, in itself, for drying cloth, the employment of a revolving hot-air or steam drum.

Claim.—The reel constructed as described, in combination with the hot-air or steam drum arranged upon its shaft, whereby the cloth near the shaft may be dried equally with that upon the outer diameter of the reel, and thus equalize the shrinkage of the cloth throughout its whole length.

No. 11,164.—GEORGE W. LA BAW.—*Improved Mitering Machine.*—Patented June 27, 1854.

This invention is designed to facilitate and perfect the finishing of miters; and consists in a tool so constructed that it may be fastened to a bench and almost instantaneously be set to any angle whatever.

Figure 1 is a perspective view of the machine.

Figure 2 is a view of the chisel, together with the spring and nut attached to it.

Claim.—The combination and arrangement in the manner described, or in any manner equivalent thereto, of the several specific parts, or their equivalents, of the machine, without confining himself to any particular arrangement of the parts, for the purpose set forth.

No. 11,165.—ALEXANDER B. LATTA.—*Improved Hydro-Pneumatic Force-Pump.*—Patented June 27, 1854.

The drawing presents a sectional view of this pump, more particularly the internal arrangement.

Claims.—1st. Discharging the air from the cylinder, before the end of the stroke of the piston, by causing the piston to move beyond the end of the cylinder, and into the enlarged chamber.

2d. Inclining the top of the water-chambers upward from the end of the cylinders to the discharge-valve V¹.

3d. The protrusion of the end of the piston from the end of the cylinder, at the end of each stroke, in combination with the upward inclination of the top of the chamber leading to the discharge-valve V¹.

No. 11,166.—JOHN MCF. LYETH.—*Improvement in Coffins.*—Patented June 27, 1854.

This invention relates to the method of constructing coffins of marble slabs, joined by hook-belts *e e e*. The lid is secured by screw-bolts. Handles B B are at the sides *f*, yet connected to the bottom through rods *a a*. The applicant is aware that coffins are made of stone, porcelain, and other materials.

Claim.—The method herein described of constructing marble-slab coffins, so that the joints shall be tight and strongly secured to each other and to the bottom, and, when raised by the handles, the weight shall come upon the bottom slab, substantially as described—the whole forming a new article of commerce not hitherto known or used.

No. 11,167.—WILLIAM MALLERD.—*Improvement in Gas-Burners.*—Patented June 27, 1854.

The ever-varying pressure, arising from several causes, which produces the flaring and flickering in gas-lights, is obviated by this invention. Small perforated diaphragms set at different spaces in the burner, and some of them slightly loaded, give an equable and uniform flow of gas to the burning orifice, retarding the emission under increased pressure, and keeping a small quantity in reserve for a supply under diminished pressure.

Claims.—1st. The perforated cups or partitions, with their edged rings encircling the perforation, in combination with the perforated disk-valve, and the pin-points to support it.

2d. The series of two or more valve-chambers, as described, each succeeding valve having a smaller perforation than the preceding one, and a slight increase of weight; the whole arranged and operating substantially in the manner and for the purpose set forth.

3d. Making the holes in the jet so as to burn at low pressure in combination with a regulator.

No. 11,168.—WILLIAM MALLERD.—*Improvement in Gas-Burners.*—Patented June 27, 1854.

The claims, as set forth, sufficiently indicate the nature of the improvement secured by this patent.

Claims.—1st. Making the tip A, where the jet or jets of gas are burned, of pure tin, or other metals of which tin forms a large proportion, thickly coated with tin, for the purposes set forth.

2d. Making the tube B, and inner portion of burners, of tin, or any other metal thickly coated with tin, to prevent corrosion, and to avoid the use of solder.

3d. Punching the holes through the tips or jets of gas-burners, in-

stead of drilling or sawing, which can be done by a hand-punch, but with more accuracy and despatch by a small machine, for which machine William Mallerd has applied for letters patent in England, in October, 1853, to be taken out in Michael Hollins's name by Newton & Son. The punching of the holes creating a smoother channel, obviates all the difficulties caused by sawing or drilling.

No. 11,169.—JOHN H. MCGOWAN, JR.—*Improved Double-Acting Force-Pump.*—Patented June 27, 1854.

Claim.—The combination of an air chamber communicating with the pump above all the valves, with a vacuum chamber communicating with the pump below all the valves, whereby the elevation of the water is rendered more equable, and effected with a saving of power.

No. 11,170.—JOHN MELENDY.—*Improved Fruit Picker.*—Patented June 27, 1854.

This fruit gatherer consists of a stellated grapple B, upon the end of a pole, which also carries basket C, the latter being capable of sliding downward by means of cord *g*, and of being pushed upwards again by coiled spring F.

The applicant is aware that a pole carrying two tines similar to his has been employed, with a basket suspended below to prevent the apples from falling, and also a basket whose upper edge is surrounded by a series of arms to seize the fruit.

Claim.—The application of the star or serrated cover or separator B and the sliding basket C on the pole, so as to extend entirely around it on the pole, and so that the serrated cover shall be stationary relatively to the pole, and the basket be made to slide or move towards and away from the cover, and be operated substantially as specified; the whole construction and arrangement of the parts rendering the instrument far more convenient and effective in use, and less liable to bruise or injure the fruit gathered by it, than any of the others to which reference has before been made.

No. 11,171.—DANIEL MINTHORN.—*Improvement in Inhaling Tube.*—Patented June 27, 1855.

This apparatus is designed for inhaling medicated vapors. Into bottle *a* the air enters, through tube B, and, ascending through the medicated liquor *c*, passes through the flexible tube D and to the mouth at E.

The applicant does not claim inhaling tubes as such.

Claim.—The bottle or flask, with an air-tight stopper, and a tube with the lower end submerged in said fluid, and the inhaling tube, in combination with the flask and tube, for the above-named purposes.

No. 11,172.—WILLIAM J. MILLER.—*Brad Cutting Machine.*—Patented June 27, 1854.

This improvement and claim consist in the arrangement of the vibrating shear *d*, in relation to the revolving shears or cutters *e* e^1, as connected, so as to change the position of the cutting edge of the vibrating cutter, and cause it always to stand parallel with the edges of each revolving cutter, until the nail has been cut off, substantially in the manner set forth.

No. 11,173.—THOMAS PENROSE.—*Improvement in Road Scrapers.*—Patented June 27, 1854.

This improvement consists in the combination of the tail-piece *d* with its adjustable brace *f*, and this again combined with the flat scraper *a*, having the points of attachment of its draught-chains near its lower edge, as shown in the drawing; by means of which the scraper may be kept inclined at the most effective angle for scraping up and conveying its load, and its tendency to trip and discharge its load prematurely, at the same time prevented.

Claim.—To the tail-piece, with its adjustable brace, when combined with a flat scraper, having the points of attachment of its draught-chains at its lower edge, etc.

No. 11,174.—T. H. PEAVEY.—*Improved Charger for Fire-Arms.*—Patented June 27, 1854.

This invention consists in the combination of a chambered cylinder A, confined between two plates B B^1, with a spring catch F, or its equivalent; by means of which the chambers *a a* may be severally held in communication with holes *f f* and the muzzle-piece D made in and attached to one of these plates, as shown in B^1.

No. 11,175.—OLIVER PIER.—*Trap for Animals.*—Patented June 27, 1854.

This trap is constructed in the same manner with the ordinary steel-traps used in catching beavers, rats, &c., differing only in the form of the jaws, which are one and two pronged, and pointed as represented in the drawing, at *e e*, and *f*.

Claim.—The lever treadle-set or fall, and the elbow catch-latch, in combination with the single and double prong grapple, together with the folded spring, specifically as described and represented by the drawings.

No. 11,176.—L. L. PLATT and A. L. PLATT.—*Improvement in the Manufacture of Wooden Buttons.*—Patented June 27, 1854.

This invention consists in compressing the blanks or circular pieces of wood *a*, so as to render the wood compact and dense, thus causing the button to be more durable and stronger than those hitherto in use.

Claim.—Manufacturing wooden buttons by cutting the blanks from slabs which are of a greater thickness than the buttons are intended to be, and reducing said blanks *a*, by pressure, to the desired thickness *b*, for the purpose of forming durable and well-proportioned buttons, as set forth.

No. 11,177.—Hiram and S. H. Plumb.—*Improved Mortising Machine.* Patented June 27, 1854.

This improvement consists in the employment of two chisels for cutting the ends of the mortise, and a reciprocating chisel or planer working horizontally for cutting out the wood between the two end chisels, as the latter are forced gradually into the wood.

Claim.—Cutting mortises by having two chisels G G forced gradually into the wood or stuff, and a reciprocating chisel or planer K working between; the chisels G G cutting the ends of the mortise, and the chisel or planer K cutting out the wood between them; the above parts being arranged and operated as herein shown, or in an equivalent manner.

No. 11,178.—B. D. Sanders.—*Improvement in Grain Separators.*—Patented June 27, 1854.

This improvement consists in a modification of the arched trunk of winnowers, of the description as patented to the inventor in 1844; said trunk, represented here by A, is divided by partitions *a a*, into three compartments *b c d*, the lower ends of the subdivisions forming an inclined plane, at a little distance under which is placed a screen E; so that the grain introduced into the spout A, by the hopper F, is not winnowed at once and all together, but, rolling down the inclined screen, is taken up by the successive suction of the subdivisions as it reaches them by its specific gravity, thus admitting not only of cleaning but separating the grain into sundry qualities.

The valves *e f g* regulating the blast in the several compartments, and also the strap *h h h*, are disclaimed.

Claim.—The combination of an inclined screen next adjoining the feeding hopper, with the suction spout, subdivided into two or more compartments, the lower ends of the partitions extending downward nearly to the screen, in the manner and for the purposes herein set forth.

No. 11,179.—William H. Saunders.—*Improvement in Carriage Axles.* Patented June 27, 1854.

This invention and claim consist in the combination of a taper axle having an enlargement at the root, with a box having a similar inside enlargement at its rear, and a diminution of size outside, with concentric rings or grooves upon it for allowing it to be wedged in the hub, the whole being for the purpose of strengthening the axle without enlarging the box, and to enable the carriage-maker to use smaller hubs, with a sufficiency of wood therein to preserve the necessary strength, substantially as represented.

No. 11,180.—P. Seaver.—*Calipers.*—Patented June 27, 1854.

These calipers are operated by a dog B; by means of a nut and screw on shank of B, the cams on the extremities of arms A impinge against this dog, and are moved by it.

The claim covers this combination.

No. 11,181.—Isaac Straub.—*Improvement in Corn and Flour Mills.*—Patented June 27, 1854.

By means of the train-blocks 24, the faces of the mill-stone are rendered parallel, and remain in that state, so as to render any interference on the part of the miller unnecessary.

Claim.—The combination of the permanently adjusted tram-blocks 24 for supporting the upper stone, and the bridge-tree 15, which is adjustable at both its ends, for supporting and adjusting the spindle and the lower stone or runner upon it, to the upper stone, substantially as described.

No. 11,182.—Thomas Sumner.—*Steam-Hammer.*—Patented June 27, 1854.

This improvement consists in the arrangement of the hinged guide-frame D, which carries the hammer, in relation to the anvil B, by supporting the said guide-frame on a trunnion below, situated at the back of or on one side of the anvil, and at the same level, or thereabouts, as that occupied by the bar or work under operation on the anvil, the said hinged guide-frame being furnished with a counter-balance weight, to facilitate and steady its swing and relieve the swinging parts from strain when occupying an oblique position.

No. 11,183.—Hartwell L. Turner.—*Improved Head-Gate for Water-Wheels.*—Patented June 27, 1854.

The nature of this invention consists in a simple method of operating the head-gates of re-action water-wheels, which prevents leakage and overcomes the difficulties incident to other methods of hoisting and lowering them, and also renders them less liable to get out of order. The improvement is equally adapted to wheels of every size.

The drawing presents a vertical longitudinal section of a flume, pitch, &c., showing the improved head-gate, in which A represents the head-gate attached to the cross-head B by the jointed bar C, that swings freely on the pin *a* which connects the bar C and the eye-bolt D; this latter passes through the cross-head and has a thread on it, upon which is screwed a nut, by means of which nut and screw the gate is adjusted

to clear the fall block E. F is a lever to the front cross-head G, and hinged on its back end to a connecting-rod H, which rod is also jointed to the rod I, which is hinged to the fall block E, the two forming a knee-joint. J is a rod connecting the head-gate to this knee-joint. The lever being depressed, raises the gate as shown in dotted lines.

Claim.—The manner of constructing, arranging, and operating the head-gates of re-action water-wheels.

No. 11,184.—Enoch Thorn.—*Ventilating Sewers.*—Patented June 27, 1854.

This invention consists in providing a common sewer with an aperture in the crown of the arch, in which is placed a self-acting valve B, which will be opened by the force of the confined air when the same is found to exert a certain amount of pressure, before there is danger of injury to the sewer by bursting.

No. 11,185.—Philo Washburn, H. G. O. White, and George A. Copeland.—*Improvement in Coffins.*—Patented June 27, 1854.

In this coffin there is a cushioned apparatus to raise or lower the head, and the cover may be quietly removed and replaced by means of hooks *b* and eyes *d;* the small door B in the lid is bound with metal, with which the doorway is also lined.

Claims.—1st. A movable and adjustable head-frame, round or otherwise, consisting of the following parts, namely: The head-frame G, the bar O, the uprights I I, the head cushion F, the straps S S, and the hooks F F F, as represented in the accompanying drawings.

2d. The method by which the cover is secured to the coffin, namely: The edges E E E E, the hooks *b b*, the eyes *d*, and the thumb-screws or pins J J, as represented in the drawing.

3d. Facing the edges of the lid and its corresponding aperture with metal, all for the purposes and in the manner substantially as herein described.

No. 11,186.—Henry Weed.—*Improved mode of forming Wire-Frames for Bonnets.*—Patented June 27, 1854.

This improvement consists in the arrangement of pins B, which are placed perpendicularly upon a plate or board A, in suitable positions for the design or form required, and around which the wire D is wound and thereby formed.

Claim.—The method described of forming wire-frames for bonnets, namely: by winding the wire round pins or stays, or their equivalents, arranged on a plate or board, thereby securing uniformity and exactness in every particular, as specified.

No. 11,187.—William E. Woodbridge, assignor to Charles Humphrey.—*Improvement in Whistling Tops.*—Patented June 27, 1854.

The figure represents a section of one of these tops, A being the body of the top. A hole B is made at right-angles to its axis in its greatest diameter; this is made to communicate with an opening C in the line of its axis, in which the whistle or a reed is placed. The whistle represented is composed of two metallic plates with central apertures, through which the air is drawn, when the top is spinning, to supply the air thrown out of the passages B, by centrifugal force, producing the desired sound in its passage.

No. 11,188.—William F. Collier, assignor to W. F. Collier and Joseph Boyden.—*Machine for Feeding Paper to Printing Presses.*—Patented June 27, 1854.

The object in this invention is for feeding paper to printing presses in single sheets, which is accomplished by means of a bellows O, an elastic tube or pipe Q, and a rotary lifter R, which is exhausted by the bellows O. The paper is laid on the inclined table F[1], from which it is taken by the lifter R, having apertures *c c*, against which the paper is drawn by exhausting the lifter when it is turned against the lips T, and carried forward towards the rollers C B, each sheet being kept separate by intermediate contrivances.

Claim.—The specified parts of the machine, as arranged and combined for the purpose set forth in the title.

No. 11,189.—M. D. and L. W. Whipple, assignors to L. W. Whipple and R. B. Fitts.—*Process of Engraving or Printing upon Glass.* Patented June 27, 1854.

The invention consists in causing a metallic cylinder, having the desired figures or letters engraved on it, to roll in contact with the surface of the glass to be engraved; emery, either dry or mixed with water, being kept constantly at the point of contact between the two.

A second claim covers machinery represented, which accomplishes the above purpose by means of a vibrating lever R, to insure an equalized pressure of the roller L and the glass E.

No. 11,190.—F. C. Goffin, assignor to A. B. Ely.—*Powder Channel for Doors of Safes and Vaults.*—Patented June 27, 1854.

The use of gunpowder by burglars and bank robbers for exploding the locks of vaults and safes has suggested the application of the device here referred to, the operation of which will be to allow the powder, if inserted into a lock, to find its way down by a funnel-shaped canal to the floor of the apartment, and so defeat the intended object of injuring the lock.

Claim.—The construction of channels, or hollow chambers, in connection with the doors of safes, vaults, &c., the same being open at top

and bottom, and reaching from the lock to the bottom of the door, substantially in the manner and for the purposes set forth.

No. 11,191 —David Brown, assignor to J. F. Clark and D. Brown.—*Machines for Forming Moulds for Castings.*—Patented June 27, 1854.

This improvement consists in the arrangement of the pattern T, and piston-plate G G, surrounding the pattern, within a chamber or piston-box A S, in relation to the half-flask H; whereby we are enabled to protrude sand into the half-flask from the piston-box or chamber and around the pattern, and thus effect a compression of the sand at the parting instead of at the central portion of the mould, as has heretofore been done, for the purpose of producing more perfect castings.

No. 11,192.—Ira Carter.—*Improved Pump.*—Patented June 27, 1854.

Claims.—1st. The mode of attaching the log S to the cylinder *n n n*, and the grooves to contain the packing.

2d. The form and operation of the induction-valves *p p*, being housed in by the lug of the cylinder, enclosing an air-chamber T between them, and closing the port-holes against the water after it passes them, thereby obviating loss of suction.

3d. The form and principle of the core *o o o*, which may be made a stationary part in a pump, or an operative part, by changing the locality of the induction-valves *p p*.

4th. The mode of oscillating by two cranks C C, with friction-wheels B B on their wrists, being brought to act upon a lever D between them, vertically attached to that part of the pump to be operated; and the said cranks being made firm on two parallel horizontal shafts H H, geared to revolve at equal speed.

Figure 1 is an external view of that end of the pump where the cranks are applied to the lever.

Figure 2 is a transverse vertical section.

No. 11,193.—Augustus F. Dalson.—*Apparatus for Dessicating Alimentary Substances.*—Patented June 27, 1854.

This apparatus consists of a circular shallow evaporator A A. The substance treated rests in the circular border depression, and an agitator *t* and roller *r* constantly produce a fresh surface of the liquid during evaporation. To and in the latter, currents of air are constantly drawn or forced over the surface of the liquid, between the evaporator A A and the cover C, and down through the central pipe P. The liquid is heated by steam-jacket B B, or steam-pipes *p*, or otherwise.

Claim.—The combination of the shallow pan A with a rapid current of air underneath the cover C, and thence through the central draught-pipe P, together with the apparatus for continual stirring, by means of the revolving cover C and its fixtures *t r*, substantially as described.

No. 11,194.—Jonas Eberhardt.—*Mode of Preparing the Extract of Archil.*—Patented June 27, 1854.

The process consists in using calcined magnesia instead of ammonia, putrid urine, and other substances, as a mordant in dyeing with archil. Thirty-two parts of the archil extract are mixed with four and a half parts calcined magnesia, and from thirty-four to seventy parts of gum-water (agreeably to the shade desired;) and the goods dyed in the mixture require no treatment with acids for the fastening of the color.

Claim.—The preparation of the archil in the manner and for the purpose stated. No illustration.

No. 11,195.—Henry B. James.—*Machine for Scouring and Cleaning Grain.*—Patented June 27, 1854.

This machine consists of a vertical rotary beater and fan. The specific point of invention is the throwing of the grain from side to side of the trunk, while it crosses the air-blast each time, as from P to N, and from N to M, and so on; thus producing the effect of sending the grain through a series of blasts before it arrives at the scouring chamber.

Claim.—The combination of hopper P, air-trunk N, spiral air-passage L, and separator O; said combination being effected by a common air-tight casing, in the manner and for the purposes set forth.

No. 11,196.—Alfred D. Kelley.—*Improved Machine for Cutting Heels for Boots and Shoes.*—Patented June 27, 1854.

The main feature of this machine consists of a series of pattern-blocks B, a flexible yoke E, a spring-knife D, and an adjusting-screw C. The spring-knife is caused to conform to the shape of the pattern-block, of any required size, by means of the yoke, which is constructed of common band-iron, or its equivalent, and the screw; the screw being applied in such a manner as to draw the band or yoke with the flexible knife closely around the pattern-block. (See figure.)

Claim.—The combination and arrangement of the flexible yoke and its screws with the spring-blade for the former or pattern, the flexible yoke and screw enabling a person to change the form of the cutting edge of the knife, or to adapt the knife to any pattern-block, substantially as specified.

No. 11,197.—Edward Lindner.—*Magazine, Repeating, and Needle-Gun.*—Patented June 27, 1854.

This invention consists of the rack E, situated between the gun-barrel A and the cartridge-barrel B, and the construction of the piston W, in combination with said rack, for the purpose of pressing the cartridges into the revolving breech-piece as the gun is cocked and discharged.

2d. In the arrangement of the spiral spring around the needle, to-

gether with the toggle-joint *b*, at the upper end of the hammer L, constructed as set forth, and acting upon the needle in such a manner that after said toggle-joint has pressed the needle sufficiently far to ignite the cartridge, said toggle-joint is forced upwards, allowing the needle to be forced suddenly back by the spring under the toggle-joint, by which quick returning motion any heating of the needle is prevented.

Claim.—1st. The application of the rack E, situated between the gun-barrel A and the cartridge-barrel B, and the construction of the piston W, in connexion with the said rack, for the purpose of pressing the cartridges into the revolving breech-piece. 2d. The spiral spring round the needle, together with the toggle-joint at the upper end of the hammer L, constructed as set forth, and acting upon the needle in such a manner that, after said toggle-joint has pressed the needle sufficiently far into the cartridge to unite the priming, said toggle-joint is forced upwards, allowing thereby the needle to spring suddenly back and pass under the toggle-joint, by the action of the above-mentioned spring, and by which quick returning motion any heating of the needle is prevented. 3d. Disclaimed is the revolving breech-piece with spiral grooves on the outside circumference; but claimed is the arrangement and manner of working the pin, by which the revolving breech-piece is made to turn substantially as described. 4th. Covering the bottom of the cartridge with a thin skin, to facilitate the piercing process of the same. 5th. The ramming-hammer, worked in the manner and for the purpose herein set forth.

No. 11,198.—Abner N. Newton.—*Improvement in Breech-Loading Gun.*—Patented June 29, 1854.

This invention consists in the mode of operating the sliding breech-pin D, by means of the bar *e e*, the thumb-lever F, and the spring *f*, all applied to the arbor E, which forms the tumbler-shaft, as shown.

Also, in locking and unlocking the sliding breech-pin, by means of a locking piece *k k*, which slides in grooves in the stock of the gun, and a lever H, having a stud *o*, working freely in a slot of suitable form, in a plate G, attached to the same arbor as the levers by which the breech-pin is operated, as shown.

Also, in fitting the cock and tumbler, or other equivalents, (usually secured to the tumbler-shaft E,) loosely to the said shaft, within the stock, and causing the cock to be driven back, to cock the piece by means of a pin *s*, attached to the lever E E, by which the sliding-breech is moved back and forth; whereby the sliding-breech is allowed to return after the cartridge is introduced, and leave the piece cocked, as shown.

No 11,199.—James Noble.—*Improvement in Preparing Cotton and other Fibres.*—Patented June 27, 1854.

This invention consists in combining two rotating rings of teeth, one ring revolving within the other, but eccentric thereto, so that, at one point of the revolutions of the two rings, they come nearly or quite in

contact. In the drawing, *a b* are two rings of comb, revolving upon the fixed bed *c*. The ring *a* revolves within the ring *b*, but is eccentric thereto; so that at one point upon the rings *a b* they approach towards and then recede from each other. The lower bars *h h* have brushes *m m* projecting from them, by means of which the fibres are raised out of the teeth of the ring *a*, and are carried forward into a position over the teeth of the two rings *a b*, just previous to their coming in contact.

Claim.—In combination with brushes and draw-rollers, or their equivalents, the combining of two rotating rings of teeth, so that not only shall one rotate in and be eccentric to the other, but so that, at or near one point of the revolution of the two rings, they shall come nearly or quite together; such rings, by their co-operation, being made to separate the long from the short fibres.

No. 11,200.—Thomas Pearsall.—*Ventilated Flour Barrels.*—Patented June 27, 1854.

This method of preserving flour in casks against souring, consists merely in securing a tube through the centre of the barrel, open at both ends, to admit the free passage of air through said tube.

No. 11,201.—Jacob Revercomb.—*Improvement in Ploughs.*—Patented June 12, 1854.

This invention consists in fastening the reversible point *b*, by means of a common key or wedge entering the slot *c* in the land-side.

Claim.—The mode of fastening the points; the same consisting in the insertion of the key through an opening in the land-side, substantially as set forth, in combination with a slot so placed in the stem of such points that, in the different or reversed position of the points, the slot shall be in place for the reception of the key.

No. 11,202 —Philos B. Tyler.—*Improvement in Cordage Machinery.* Patented June 27, 1854.

The nature of this invention consists in connecting with the bobbin a variable friction, which shall keep up an exact balance of resistance, without regard to the unevenness of the yarn or the quantity on the bobbin.

In the accompanying drawing, *a* is the frame, *b* the flyers, *c* the bobbins. Between the front-head of the flyer and the bobbin there is a disk of metal *d*, which is connected with the bobbin, and turns loosely on the spindle of the flyer, as the bobbin does. There is an oblong hole *l* in the bobbin, into which, when it is in place, the spring *m* on the face of the disk *d* enters, and causes it to turn with it, the spring acting as a catch to revolve the bobbin. Upon the outer perimeter of this disk a friction-brake e^1 bears, which is attached to the flyer, and carries the bobbin around with it when not unwinding. Upon this brake the inner end of a short lever *e* bears. This lever passes through the head of the

flyer, in which it has its fulcrum, and projects upon the opposite side, where a spring *f* presses it outward, making its inner end bear the brake down upon the disk, causing the bobbin to turn with the flyer, and preventing its unwinding with a force equal to the strain required upon the strand.

Claim.—The regulator, as described, wherein the tension of the strand so acts upon a friction-brake, as to make a uniform resistance, and consequently a uniform tension of the strand or thread.

No. 11,203.—Abraham Gesner, assignor to the Asphalt Mining and Kerocene Gas Company.—*A. Kerocene.*—Patented June 27, 1854.

Petroleum, maltha, asphaltum, bitumen, and bituminous rocks, when subjected to dry distillation, at a heat not exceeding 800° Fahrenheit, yield a fluid which, when settled, divides into three distinct strata. The uppermost of the latter is drawn off and redistilled at the lowest possible temperature. From the product of this second distillation, when settled, the supernatant liquid is again drawn off and mixed with five to ten per cent. of sulphuric, nitric, or muriatic acid, (according to the quantity of tar present,) and from one to three per cent. of peroxide of manganese (according to the turbidness of the liquids.) The impurities being thus precipitated, the clear supernatant liquid is again drawn off, and, after an addition of about two per cent. by weight of freshly calcined lime, distilled once more.

At a heat raised to 160° Fahrenheit, a fluid is obtained which, as alleged, has a specific gravity of 0.750, boils at 150° Fahrenheit, is no solvent of gums, and when mixed, at 60° Fahrenheit, in the proportion of 35 parts to 65 parts with alcohol of 844 specific gravity, is highly inflammable and burns in jets like gas. This the inventor calls *A. Kerocene.*

The temperature being raised to 260° Fahrenheit, the fluid obtained is alleged to be of 0.775 specific gravity, to boil at 250° Fahrenheit, to soften gums slightly, and, when dissolved in the proportion of 25 parts with 75 parts of alcohol, under the above conditions, to be moderately inflammable, and to yield an inferior light. This fluid the inventor denominates *B. Kerocene.*

Finally, the distillation being carried on up to a heat raised to 360° Fahrenheit, a liquid is alleged to be obtained of 0.800 specific gravity, boiling at 350° Fahrenheit, being a good solvent of gums, and itself insoluble in alcohol, and not inflammable, burning, however, in an Argand lamp with a button over the wick. This fluid is denominated *C. Kerocene.*

Claim.—The new product or composition of hydro-carbon, for illuminating and other purposes, called *A. Kerocene.* No illustration.

No. 11,204.—Abraham Gesner, assignor to the Asphalt Mining and Kerocene Gas Co.—*C. Kerocene.*—Patented June 27, 1854.

Claim.—The above described composition, denominated *C. Kerocene.* No illustration.

No. 11,205.—Abraham Gesner, assignor to the Asphalt Mining and Kerocene Gas Co.—*B. Kerocene.*—Patented June 27, 1854.

Claim.—The above described composition, called *B. Kerocene.* No illustration.

No. 11,206.—Galusha Jonas Bundy.—*Improved Machine for Digging Potatoes.*—Patented July 4, 1854.

The improvement and claim consists in the construction of the mould-board D of a potato-plough, with slots or passages *b b* standing vertically, or nearly so, and having their respective planes parallel to a vertical plane passing through the draught-beam of the machine, substantially as stated.

The object of the improvement is to allow the dirt to pass through the passages *b b*, and to retain the potatoes by the vertical bars *a a*, to be thrown free from dirt on both sides of the furrow opened by the progress of the plough.

No. 11,207.—Henry G. Bulkley.—*Improvement in Evaporating Pans.* Patented July 4, 1854.

The rectangular pan is divided into three chambers, F G H, by the partitions E E[1]. The brine, or other liquid to be evaporated, is caused to pass by overflowing from F to G, and from G to H, thus admitting the deposition of all foreign matter in F G, and reserving the chamber H solely for the purpose of crystallization. The flues C C, heating the liquid, are disposed somewhat elevated from the bottom, and near the surface of the brine, to expose the weakest portion of the latter to the greatest heat, and thus to prevent the salt from settling upon them; also, to admit the construction of the bottom of the pan of wood.

Claim.—The employment of a series of pans, F G H, arranged in communication with each other, and heated by a flue passing through them in succession, substantially as herein described, so as to heat the brine, or other solution, and cause the deposite of the impurities, previously to its entering the pan in which the crystallization takes place.

No. 11,208.—Aury G. Coes.—*Screw-Wrench.*—Patented July 4, 1854.

This improvement and claim consist in the arrangement of the elevating screw E, of the tube G, on the external surface of the tube, and so as to extend below the milled head H and the screw I, in combination with the arrangement of the screw F within a socket-tube P, on the handle, substantially as specified.

No. 11,209.—Thomas Cox.—*Improved Machine for Bending Felloes.*—Patented July 4, 1854.

The nature of this invention consists: 1st, in the combination of the vibrating felloe-mould B with the flanged bending-wheel M.

2d. In the manner of perfectly bending the last end of each felloe, and securing it upon the mould when completely bent, namely, by the combined action of the bending-wheel M and the wedge-clamp G.

Figure 1 is a side-elevation of the machine, showing its position when a felloe is about half bent. Figure 2 is a horizontal section of the machine, with the felloe about half bent.

Claim.—The combination of the vibrating felloe-mould B with the flanged bending-wheel M, and the manner of perfectly bending the last end of each felloe, and securing it upon the mould when completely bent, by the combined action of the bending wheel M and the wedge-clamp G, constructed and operating substantially as herein set forth.

No. 11,210.—A. S. T. COPELAND.—*Improved Mechanism for Operating Saw-Mill Carriages.*—Patented July 4, 1854.

The drawing shows the machinery in perspective. On one end of the centrifugal spindle I, stands cam M; to this cam is connected an upright handle X, which is furnished with two pins *i*, on its reversed side; said handle works through catch 2, up and down, as occasion may require. On the other end of centrifugal spindle I stands spring-cam H and cam K; a pin in this cam works in the slide of cam G, and to this cam is connected a triangular shaft J, which is furnished with a pinion 5. Immediately under this pinion are two right and left double-threaded endless screws E and E^1; and in the right or left of these screws said pinion works according as it is required to move log-carriage L forward or backward. Thus, by setting the upper pin 1, of upright handle X, below catch 2, triangular shaft pinion 5 is thrown into the left screw, and three distinct reverse motions are made.

A pin *i*, on log-carriage L, coming in contact with latch Y, sets upright handle X off from catch 2; whereupon spring-cam H reverses cams M, K, and G, and triangular shaft J, to their rectilinear position, making six reverse motions. By raising upright handles X until the lower pin *i* is above catch 2, the triangular shaft pinion 5 is thrown into the right screw; then the second pin on the log-carriage L coming in contact with the latch Y, the spring-cam H sets the triangular shaft J in its rectilinear position, making twelve reverse motions.

Claim.—The combination of the triangular working-shaft T, the mechanism for shifting it into and out of gear, with the right and left handed endless screws E and E^1, in any manner substantially the same as described, and for the purpose set forth.

No. 11,211.—ARCHIBALD H. CROZIER.—*Improved Machine for Creasing and Bevelling Barrels.*—Patented July 4, 1854.

Figure 1 is a front elevation.

Figure 2, a section.

Figure 3, a plan of the cutters, and the mechanism by which they are operated.

Claim.—The movable platform B, and movable cutters *l m*, arranged in such manner that the cutters may be moved from the barrel, and freed from the crease, when the platform and barrel descend, and moved towards the barrel when the platform and barrel are raised.

No. 11,212.—THOMAS W. CURRIER.—*Improvement in the method of constructing Sofas, Settees, Cradles, and Cribs, or Crib-Beadsteads.*—Patented July 4, 1854.

The nature of this invention consists in applying pairs of half-circles *d* d^1, each pair being united by a rocker *e* e^1, or otherwise, to the legs or supports of a settee, for instance, constructed in the usual manner, and the two pairs of circles being connected by a bar *f*, so that by turning or rolling the structure upon the half-circles, the settee may be raised upon rockers and used as a cradle, or to a still higher elevation and used as a crib-beadstead, as may be desired.

The patentee does not claim in general the attachment of movable rockers to chairs or sofas, as that is not new.

Claim.—The combined arrangement of the cam-wheels and the rockers carried by the cam-wheels, whereby by rotating the cam-wheels the chair or sofa can be raised or lowered at pleasure, and also the rockers brought into play when desired.

No. 11,213.—JAMES A. CUTTING.—*Improvement in the preparation of Collodion for Photographic Pictures.*—Patented July 4, 1854.

To twelve ounces of collodion, in a pint bottle, add one drachm of the iodide of potassium dissolved in alcohol. When thoroughly mixed, add eighteen grains of refined gum camphor.

This collodion is suitable only for positive pictures on glass; it does not receive sufficiently opaque impressions for negative photographs.

Claim.—The use of camphor in combination with iodized collodion.

No illustration.

No. 11,214.—DEXTER DENNIS.—*Improvements in Pressing or Finishing Palm-leaf Hats.*—Patented July 4, 1854. Ante-dated January 4, 1854.

Claim.—The mode of stiffening and finishing hats by covering the outer surface of the hat-holder A with the stiffening composition, and applying the hat thereon, and subjecting it to the action of the heating flats.

Also, the combination of the round-corner flat M, with the crown and side flats L H I K, so as to operate in connexion with them.

Also, the improvement of using a hat-holder, elliptical or oval, in its horizontal section, in combination with applying to the side-flat K a spring-bar N, or contrivance that will allow it to spring or move while the hat-holder is revolved, and adapt itself to such hat-holder, as described.

Also, in combination with the crown-flat, and the elevating and depressing machinery thereof, a fan apparatus to regulate its downward descent on the hat.

Also, in combination with the frame C and the crown-flat, the toggles T, and levers R V W, and the projection S, the springs and connecting cords; the whole being to enable the frame C and the top or crown flat to be operated.

No. 11,215.—C. H. EISENBRANDT.—*Improved Valve for Wind Musical Instruments.*—Patented July 4, 1854.

The *claim* is for arranging the rotating valve *a a* on a pivot-axis *b b*, the extremities of which are pointed or arranged so as to work in the end of an adjusting-screw *d*, passing through an elbow-support *x* attached to the cap *e* of the air-chamber *f*, and the end *b* working in a tightening-screw rest *h*; the said valve-axis *h* attached to a rotating double-jointed lever device *i j k*, combined with the finger-plate *m*, &c., &c.; by which combination a perfect trill or shake can be produced and modulated so as readily to afford the crescendo and decrescendo effects, not hitherto accomplished in the valves of brass wind musical instruments.

No. 11,216.—WILLIAM FINKLE.—*Improvement in Dressing Mill-Stones.*—Patented July 4, 1854.

By this invention the feeding in the grain at the eye, and the ventilation of the stones, are accomplished more easily than heretofore. The peculiar dress of the stone concentrates the grinding near the centre, whilst it secures a brisk and regular discharge of the flour at the skirt.

Claim.—The skirt furrow, isolated both from the leading and from the intermediate furrow or furrows for the object before stated, but parallel to the succeeding leader, in order to facilitate the delivery of the meal as it is ground, either in connexion or otherwise with the flared and deepened entrances of the leading furrows, as described.

No. 11,217.—ROBERT B. FORBES.—*Improvement in the Application of Lightning Conductors to Ships or other Navigable Vessels.*—Patented July 4, 1854.

The nature of this invention consists in constructing and applying a system of socket-tubes to some convenient point on the head of the lower mast, and from thence branching off to the two after-shrouds, or any other of the shrouds, and over and against the outside of the hull to the copper sheathing, or down to such depth on the hull that the lower end of the conductor shall always remain immersed in the water under the ordinary rolling or pitching of the vessel when at sea.

The applicant disclaims any idea of attempting to improve on the "Harris conductor," as fitted to pass through the hold of the vessel, but affirms that his plan of constructing a conductor applied to the mast and shroud and led over the side of the vessel, instead of down

through the hold, and attached to the copper, or extended down towards the keel, as stated, has advantages which are not possessed by said Harris's plan, which cannot be attached to the shrouds; the applicant's plan being particularly applicable to the merchant service, where he believes it will be the means of saving lives and much property.

The applicant disclaims also the system of permanent conductors, as applied to the mast of a vessel in the manner well known as that of Sir William Snow Harris, wherein the conductor is carried down the mast and through the hold and keel of the vessel. Nor does he claim either the common chain or rod conductor, or the mode or modes of applying the same. Neither does he claim making the conductor of fixed lines of metal extending down the mast to near the lower mast-head, and from thence down the after snifters to the ship's side. Neither does he claim making that part of the conductor extending down on the after snifter or shroud, as one long tube of metal.

Claim.—Composing the conductor of a system of socket-tubes and slide-tubes, and confining the same to one of the shrouds of the rigging and over against the outside of the hull, and either to the copper sheathing thereon, or down to such a depth on the hull that the lower end of the conductor shall always remain immersed in the water under the ordinary rolling or pitching of the vessel while at sea; all substantially as specified.

No. 11,218.—J. FREY and D. B. BURNHAM.—*Sub-Marine Battery.*—Patented July 4, 1854.

This arrangement, as it is claimed, consists in introducing port-hole cases of cast iron, built in firmly with the sides of the boat, and with water-tight gates before and behind the gun, which rests in each one of these cases. The gun has a peculiar projectile with conical head and flange outside of the bore, which being packed close down upon the muzzle, shuts out the water from the interior of the gun while the outer gates are open. The gun is fired by means of the touch-rod Y when it comes in contact with the object, its rear end disengages a spring A^1, which acts upon a touch-rod B^1, which again acts upon a rod C^1, which acts upon the percussion priming D^1 and explodes the gun. (See figures.)

Claim.—The arrangement of guns in the hull of a boat under water with port-holes and gates, in such a manner that the guns may be loaded and fired at pleasure.

No. 11,219.—HEMAN GARDINER.—*Improvement in Quartz and Ore Crushers.*—Patented July 4, 1854.

Claims.—1st. Suspending the basin E at the centre by a fixed shaft D above a bed A, in the manner substantially as described, whereby, while every part of its circumference is in turn depressed by an arm H and roller V, or their equivalents, revolving on the shaft, the lowest part of the basin, where the greatest weight is, always rests upon the bed, and the shaft is relieved of the greater portion of the weight of the basin and its contents.

2d. The supplemental ball I, suspended or attacned in the manner substantially as described from the pulley G, or its equivalent, revolving above the basin, so that it is always in contact with the inclined part of the basin, where the quartz or ore is most thickly distributed.

No. 11,220.—Thomas Greer.—*Steam-Boiler.*—Patented July 4, 1854.

The inventor claims the arrangement of inclined and horizontal tubes *c* and *d*, as shown in the engraving.

No. 11,221.—Joel Gleason.—*Improved Milk Strainer.*—Patented July 4, 1854.

This invention consists in constructing an adjustable milk-strainer, which can be applied to any pail of suitable dimensions by means of catches and a packing attached to the strainer.

Claim.—The combination of the packing L with the hinged catches J and K, the strainer being supported on the pail by means of the packing in combination with the catches, and the packing being fixed to the body of the strainer E by locking the tin on to the packing on the under side of the body of the strainer, as shown at *a*, all operating in the manner and for the purpose substantially as herein described and set forth.

No. 11,222.—John R. Hague.—*Machine for Punching Rivet-Holes in Hose.*—Patented July 4, 1854.

The object of this invention is to punch the rivet-holes at uniform distances apart on each side of the strip of leather of which the hose is to be made. The machine is constructed with a gate *m*, having a vertical reciprocating motion, and at each end of the gate *m* is attached a punch *n*. The punches, as the gate descends, come in contact with the strip of leather, which is placed upon a sliding table, and held in place by a pressing-board *c*, said table being caused to move longitudinally upon a frame between guides *i i* by means of cog-wheel and rack *r*. The holes are punched at the same time on both edges of the strip of leather, and immediately opposite each other.

Claim.—The use of the sliding-table and the pressing-board, which holds the leather in place, in combination with the rack work, the lever, and the finger, for the purpose of moving forward the leather on the sliding-table during each stroke of the punching-gate, and in combination with the punching-gate and punches.

No. 11,223.—William C. Hibbard.—*Improvement in Steam-Engines.* Patented July 4, 1854.

Claims.—1. To isochronal eccentric I.

2. To the combination of the isochronal eccentric I with a governor or regulator, in such a manner that the governor shall control the amount of its eccentricity, and thus regulate the velocity of the engine.

No. 11,224.—Enoch Hidden.—*Improvement in Reading and Writing Stands.*—Patented July 4, 1854.

This invention consists in the peculiar combination of brackets and screws for the purpose of adjusting the position of the desk either horizontally or vertically, as may be required; and the application of sliding-clasps for securing books and papers; and the mode of adjusting the lamp-bracket to the various angles the desk may be placed in.

The patentee does not claim a stand with an adjusting-screw on the top of the pillar, as his invention; nor does he claim a double-jointed bracket; nor does he claim a desk with a box-part attached, for containing writing materials, &c., with a hinged top, and means of retaining such at any angle; nor does he claim the attaching of a jointed bracket as a lamp or candle holder.

Claims.—1. The combination of the double-jointed bracket D and E, and screw C, for adjusting the position of the desk both horizontally and vertically, as and for the purpose herein set forth.

2. The application of the sliding-clasps, with an India-rubber or other elastic band, for securing books, papers, &c., in the position desired, as herein set forth.

3. The mode, herein described, of fixing the bracket supporting the lamp or candle holder, admitting of adjustment at every angle the desk may be placed in.

No. 11,225.—Fenton Humphrey.—*Improvement in Spike Machines.*—Patented July 4, 1854.

Claims.—1. The manner of pointing, by which a change in the place of labor on the rollers is obtained at every revolution.

2. The arrangement and combination of the levers *f*, H, and J.

No. 11,226.—Samuel Ide.—*Improved Distributor for Seed-Drills.*—Patented July 4, 1854.

The invention is confined to a series of connected chambers *e e*, arranged around the centre of a seed-distributing disk A, so that the seed which falls through the cavity D into said chambers *e e*, and thence through cavity *c*, may be discharged in a continuous stream into the drill, the arm e^1 e^1 between the chambers acting, while the seed-disk is in motion, as stirrers, to keep the passages from clogging.

Claim.—A series of connected chambers, or recesses, around the centre of the rotating cog-wheel A, constructed substantially as described, whereby a uniform and continuous distribution of the seed is effected.

Figure 3 represents the chambers on a larger scale.

No. 11,227.—Joshua K. Ingalls.—*Improvement in Vault-Cover Fastenings.*—Patented July 4, 1854.

Claim.—The additional lip or nose 2, with the recess 5, for the eye of the cover to fit into, and to hold the catch unlocked, as arranged in relation to the other parts of the catch, as shown.

No. 11,228.—Philip H. Keck.—*Improved Wash-Board.*—Patented July 4, 1854.

The nature of this invention consists in constructing, in the bottom of the wash-board, a channel, communicating, at both extremities, with the upper surface of said board; so that the rubber will force the water, at each stroke, through the channel and over the top of the board, for the purpose of wetting the clothes, and otherwise facilitating the washing operation.

Claim.—The construction of the wash-board with the chamber *h* and closely-fitting slide *s*, in combination with the channel *c* and springs *d* and *e*, for furnishing a constant supply of water to the clothes, substantially as herein fully set forth.

No. 11,229.—Joseph F. Laird.—*Improvement in Ore-Stamping Machines.*—Patented July 4, 1854.

This is an alleged improvement on Ball's patent. The arrangement consists in making the lifters operate on the adjustable weight attached to the stamping-rod; which lifters, when raising said rod, give them a partial rotation by a peculiar contrivance. This is the result of the relative position of the lifter to the periphery of the head on the stamping-rod, so that, without any groove, catch, dog, or other device, it lays hold of the periphery as the stampers are rising, and gives them a rotating movement. The necessity of this motion is, to prevent the unequal wear of the stamper.

Claim.—The arrangement of the lifters, by being so placed as to operate on the periphery of the tappet head, for the purpose of giving the stampers a partial rotation, without requiring other mechanism, in the manner set forth.

No. 11,230.—Joseph Leeds.—*Improvement in Regulating the Draught in Stacks or Kilns for Burning Lime, &c.*—Patented July 4, 1854.

The nature of this invention relates to the covering of stacks or kilns, where great heat is employed, with double domes D, which are made to spread the fire through the body of the stack A A; the under dome having its opening around its outer edge or perimeter, and the upper one at its centre; and also in augmenting the draught, or adding for that which may be taken away by covering the top of the stack, by the use of an auxiliary draught-chimney E. (See figure.)

Claim.—Controlling or regulating the draught of lime, brick, or other kilns, by means of a double dome, in the under one of which the openings are at its outer edge, and in the centre of the upper one, so as to force the draught from the centre to the outside of the kiln.

Also, in combination with kilns controlled by the double-domes, the main auxiliary chimney for increasing the draught in the kiln, substantially as described.

No. 11,231.—William H. Muntz.—*Improvement in Paddle-Wheels.*—Patented July 4, 1854.

Claim.—Attaching each of the paddles or floats to wheels or rims, wherein that to which the broad surface of each of the paddles is attached is of greater diameter than the other, and the position of the paddles is in, or about in, a line parallel to a radial line, or one drawn through the centre of the wheel-shaft, and the face of the paddle is oblique to the plane of this line, which stands perpendicularly to the axis of the shaft.

No. 11,232.—John A. Pitts.—*Improvements in Horse-Powers.*—Patented July 4, 1854.

The pin *a*, or journal upon which the wheel B turns, is so arranged in the frame as to be slightly loose, so as to have a slight eccentric motion around its fixed point. The box which fits upon this journal also works loosely, the whole being intended to admit of the main-wheel adjusting itself to the spur-wheels E, which must have their journals permanently fixed. By this means, the cogs of the gear-wheels are prevented from binding each other, or cutting or slipping by each other, when under an unusual strain in the work.

Claim.—The box *e*, and set-screws *l j*, in combination with the bridge-piece H, for the purpose of adjusting the spur-gear and bevel-wheels to the main driving-wheel, to prevent binding or cutting, substantially as described.

Figures 1 and 2 represent the piece H, on a larger scale.

No. 11,233.—Benjamin Leverson.—*Improvement in Cast Iron Car Wheels.*—Patented July 4, 1854.

The nature of this improvement consists in having the disk of the wheel corrugated at or towards the rim, the corrugations being replaced by brackets at the hub.

The patentee does not claim any part of the rim or hub, nor connecting them with a solid web, neither common corrugations nor brackets.

Claim.—A cast-iron web deeply corrugated where it joins the rim, with the corrugations gradually lessening in depth as they approach towards the centre of the wheel, so as wholly to disappear at or near the hub; when it is used for the purpose of uniting a rim and hub, and has its central part strengthened by means of brackets, substantially as set forth.

One half of figure 1 represents the rear-side, and the other half the front side of the wheel.

No. 11,234.—JOHN S. SPEIGHT.—*Improvement in Brick Kilns.*—Patented July 4, 1854.

The object of this invention is to effect the burning of brick with coal in an economical manner. The nature of the invention consists in the arrangement of fire-grates and air-passages, whereby the combustion can be regulated at all parts of the kiln.

Claim.—The long grates C C, with air passages H H, which extend clear through the kiln below them, and have doors D D, to admit the air at either or both ends, in combination with small air-passages *a a* between them, having lateral openings to throw the air under the middle of the fire, for the purpose of regulating the admission of the air to any part of any grate or every grate so as to regulate the combustion, and thereby regulate the heat in all parts of the kiln.

No. 11,235.—M. J. WHEELER, G. W. ROGERS, H. W. PIERCE, and M. B. TIDEY.—*Improved Bevelling Plane.*—Patented July 4, 1854.

Figure 1 is a side elevation.

Figure 2 a transverse section, taken through the body of the plane.

Claim.—Attaching the two bevel-cutters *f f* to two wings B B, which are hinged by a three-flanged hinge *c*, *c*, *c*^{1}, or otherwise so secured to the body of the plane A, as to be capable of swinging a certain distance around a common pivot or axis *l*, for the purpose of being adjusted to set their faces and the edges of their cutters at any angle to each other, and to the face of the fence F.

No. 11,236.—JEROME B. YOUNG.—*Mode of Hanging Bells.*—Patented July 4, 1854.

The method of constructing and operating the bell will be readily understood by reference to the drawing B; the bell is supported on an arm H D, set in a door or any convenient place. To ring the bell, it is necessary to depress the outer end of the lever C C, and its inner end raises the striker E, which gives the required signal.

No. 11,237.—WILLIAM H. POINDEXTER, administrator *de bonis non* of JOHN R. REMINGTON, deceased.—*Improved Cement.*—Patented July 4, 1854.

Melt thirty pounds of rosin; throw into the mass from one half to a pint of ashes of cotton-seed, or any other seed of an oil-yielding vegetable, and as much charcoal dust or bituminous coal dust, or lamp-black, or Spanish brown; then stir in dry sand until the mass falls short from the stick, when it is ready for moulding in the usual way. Ground emery added makes the mass fit for grinding purposes.

Claim.—The use of cotton-seed ashes, or the ashes of any other oil-yielding vegetable substance, as an ingredient of a cement, substantially as herein set forth, whether it be mixed with rosin and earthy matters, or with oil and earthy matters.

No illustration.

No. 11,238.—HENRY BURT, assignor to the NEWARK PATENT HOSIERY COMPANY.—*Improvements in Machinery for making Looped or Netted Fabrics.*—Patented July 4, 1854.

The nature of this invention consists:

1st. In a new method of constructing and operating the sinkers, whereby the machinery is simplified.

2d. In so producing the motions of the yarn-carrier, that by arrangement before commencing work, the travel of that is effected to the distance necessary to produce a fabric of any uniform width, as well as to hold the yarn-carrier locked at each extent of throw, during the time required for the accomplishment of the motions of the other parts of the machine.

Claim.—The hollow bar C, or its equivalent, in combination with the extended ends *a*^{1} of the sinkers *a*.

Also, the radius bar *n*, in combination with the cylinder *l* and the collar *h*, for the purposes set forth.

No. 11,239.—THOMAS DRAYTON, assignor to GEORGE W. MCCREADY.—*Method of Purifying Oils.*—Patented July 4, 1854.

The method consists of shaking the oil, (mineral, vegetable, or animal,) with about the fourth of its bulk of alcohol, for about two to five minutes, and then suffering the mixture to settle, when the purified oil settling in the lower stratum may be drawn off for use.

No. 11,240.—WILLIAM BUTTERFIELD, assignor to himself and EDGAR M. STEVENS.—*Improvement in Sewing Machines*—Patented July 4, 1854.

The object of this machine is to perform the operation of sewing with a hooked needle.

The patentee disclaims the combination of a needle slide and hooked needle, wherein the slide is made to operate so as to close or cover the hook, and prevent it from catching in the fabric whilst it is being drawn through the same; and also disclaims any arrangement of applying the closing slide of a hooked needle to the same side of a needle as is the barb, or hook, so that such slide may slide in a groove in the needle, or carrier thereof, parallel to the motion of the needle.

Claim.—The improvement in the chain-stitch sewing machine, operating with a hooked needle or hook to draw the thread through the material to be sewed, consisting of the "rest cast-off" H, in its combination with the hooked needle A, and as applied to and made to operate

with it and the material to be sewed, and in the loop of thread, as specified.

Also, the improvement by which the rest cast-off H is rendered capable of adapting itself to any ordinary thickness, or variation of thickness, of the fabric to be sewed; consisting in the mode of operating it by the spring F, applied to the carrier-lever E, and made to operate on the lower end of the recess C.

Also, the combination of the bobbin-holder U with the spring V, the friction-disk R, and the axle on which the holder turns; the same enabling an empty bobbin to be removed from the holder, and a full one put in its place, without disturbing the connection of the spring with the bobbin and friction plate or disk.

No. 11,241.—Solomon W. Ruggles.—*Improvement in Cheese Presses.*—Patented July 4, 1854.

Claim.—The general construction and application of the pressing power or mechanism as described in specification, or the arrangement of the pressure bars *c c* and the arms or pitman *e f*, and their application to the remaining stationary and movable parts of the press, as specified.

No. 11,242.—John Taggart, assignor to John Taggart and Richard Pitts.—*Improvement in Excavating Machine.*—Patented July 4, 1854.

This improvement consists in the combination of the gravitating weight *u* and its line *t* with the windlass barrel *s* and the brake-wheel u^1, so as to operate automatically and rotate both windlass and brake-wheel, and not only take up the slack of the rope *o* while the scoops are being elevated, as described, but at the same time to set the brake-wheel ready for the action of the brake, when it becomes necessary to drop the scoops in order to discharge their load.

Also, in the arrangement of the branch-lines *f g* of the line N^1, so as not only to operate through the ends of the scoop-levers, but also through guiding or sheave-passages of the boom; such an arrangement of the branch-lines producing an increase of draught on the scoop-levers during the operation of closing them, as specified.

Also, in combination with the above described arrangement of the line N^1 through the sheave-openings of the boom K and the two scoop-levers, or about their sheaves, as specified, the union of the branches into one line in combination with the carrying such line through a compensating passage of the boom K, and permitting it to slide freely through the same, in manner as described; the same being for the purpose of enabling the scoops to close together, or upon an object, whenever the movement of one of them during the operation of closing them together is arrested by contact with an obstacle.

Also, the combination of the boom K and the working ropes of it, and its scoops, with a crane, substantially as specified, so that the scoops may be free to be moved, not only vertically, but also in any direction either towards or away from, or laterally with respect to, the crane and its platform; whereby a lateral movement of the crane may be employed to effect leverage on the scoops in a lateral direction, so as to aid in discharging the article grasped by the scoops, without strain on the boom or the parts through which the boom slides.

No. 11,243.—John B. Hartson.—*Process of making Car-Wheels.*—Patented July 11, 1854.

Claim.—The converging or centripetal pressure rollers *e e*, arranged and operating as herein set forth, to form a tread or rim on the outer margin of a thin disk of metal, by thickening said margin and moulding it into the required shape, as described, whether the sides of the disk within the rim be supported by clamp rollers or not; and also, whether the disk be heated simultaneously with the compression or not.

No. 11,244.—Charles M. Guild.—*Improvement in Gas Heating Apparatus.*—Patented July 11, 1854.

This invention covers a device for opening and closing the gas supply-cocks, they being actuated by the weight of the article placed upon the shelf in the oven, open when it is introduced, and shut when it is withdrawn. A subsidiary orifice leading to the burner supplies enough gas to keep up a small flame when the oven is out of work, avoiding, by this means, the necessity of relighting the burner.

Claim.—The opening and closing of the valve which admits the gas to the heating apparatus by the act of placing and removing the vessel or thing to be heated, substantially as described.

Also, the small perforation leading from the gas-pipe to the burner or heating apparatus, acting independently of the valve, for the purpose of admitting a jet of gas barely sufficient to keep up the flame without unnecessary consumption of gas when the heater is not in immediate use, or when one article is removed and before another takes its place, substantially as described.

No. 11,245.—Elisha French.—*Improvement in Coal Lifters.*—Patented July 11, 1854.

Claim.—A coal screen in a box fitted with a sliding top and ends, and with rockers placed at right-angles to each other on the bottom, constructed and arranged in the manner and for the purpose set forth.

No. 11,246.—M. V. B. Darling.—*Slide-valve Motion.*—Patented July 11, 1854.

Claims.—1st. Combining the cam and yoke motion for opening the steam port, and the eccentric or cam and yoke motion for closing the steam port, and causing the two motions to act on the valve, by connecting with the valve the yoke-rod *e* of the cam and yoke motion which gives the movement for opening the port, and furnishing the rod *j* of the eccentric or cam-motion which gives the movement for closing the

valve with an eye *k*, or its equivalent, which plays between two stops or tappet-pieces *l l*', properly arranged on the rod *e*.

2d. Giving to the eccentric *h*, or cam which gives the movement to close the valve, a greater throw than the cam which opens the valve; in order that, at the proper time, the valve may be made to close the steam port, and cut off the steam very quickly, or by a very small part of the revolution of the main shaft.

No. 11,247.—C. W. Crozier.—*Clothes Refiner.*—Patented July 11, 1854.

The receipt for the mixture is the following: 8 oz. of spirits of turpentine, 4 oz. pure alcohol, 2 oz. spirits of camphor, 2 oz. of nitrous or nitric ether, 1 oz. aqua ammonia.

To use the mixture, 1 pound of soap is dissolved in 5 gallons of hot water, and three table-spoonfuls of the mixture added, and the clothes treated with it while hot.

Claim.—The combination of the several ingredients with camphor, to which a peculiar saponaceous and detergent quality is ascribed.

No illustration.

No. 11,248.—John W. Brewer.—*House for Mooring and Managing Balloons.*—Patented July 11, 1854.

This invention consists in building a circular house for the purpose of mooring and managing a balloon in.

Also, in the arrangement of the necessary machinery, steam-engine, gas-retort, &c., for the purpose of sending up and hauling down said balloon.

No. 11,249.—Collins B. Brown.—*Improvement in Machines for Harvesting Grain.*—Patented July 11, 1854.

The nature of the invention consists in the peculiar method of giving the requisite movements to the rake I of a harvesting machine, to deposite the cut grain in bunches for binding, to wit: By means of the main moving lever G, which receives a compound vertical and horizontal movement from the crank-pin *e*, that works in a suitable bearing in the same, about the distance of one fourth its length from its inner end; and the stationary pivot *g* which passes through slot *f*, formed in the portion of said lever that curves upward from the crank-pin *e* towards the inner end of the same, and is secured therein by the nut *i*; the said lever G imparting the required movements to the rake in consequence of its outer end and the outer end of said handle being jointed to the rake-handle H, at a point about one fourth its length from its outer end; and the outer end of said handle being jointed to the horizontally vibrating fulcrum-lever *h*, whose inner end turns in a fixed bearing situated over the axle, and near the inner side of the wheel A.

Claim.—Imparting the required movement to the rake I, by combining with its handle H the horizontally vibrating fulcrum-lever *h* and

the outer end of the lever G, which has a compound vertical and horizontal movement imparted to it by means of the crank-pin *e*, pivot *g*, nut *i*, and the curved slotted inner portion of said lever G, substantially as herein set forth.

No. 11,250.—C. F. Brown.—*Improved Implement for Blasting Rocks.*—Patented July 11, 1854.

This invention consists in placing the powder or charge within a tube or case A, and between two conical heads C D, attached to a rod B, the head D being confined by the nut E, whereby the force of the powder must be exerted against the sides of the case, thereby more effectually splitting the rock, and without the need of tamping or packing of clay. The said instrument may be used repeatedly.

No. 11,251.—John B. Wickersham.—*Improvement in Foundation for Pavements.*—Patented July 11, 1854.

This invention consists in making the foundation for street pavements of woven or other iron work B upon a bed of gravel, broken stone, or other suitable material A, and then placing suitable paving-blocks C above and upon said iron work.

Claim.—The employment, as a foundation for pavements, of a layer of woven, or interlaced, or other iron work, laid upon a bed of any suitable material, substantially as herein described.

No. 11,252.—John M. Thompson.—*Parallel Motion.*—Patented July 11, 1854.

The improvement and claim consist in producing a parallel motion, by connecting the link B to one end of a radius rod C, whose other end is attached to a crank or arm E on a rock-shaft F placed under the centre of the beam, and receiving motion from the same by gearing, substantially as set forth.

No. 11,253.—J^{r} B. Smith.—*Improved Machine for Mortising Sash Stiles.* Patented July 11, 1854.

Claim.—Such an arrangement of the parts as to constitute a machine capable of mortising both ends of sash stiles of any desired length, and cleaning out the mortises simultaneously with their completion, without the necessity of reversing the ends of the stiles or tightening or slackening the driving-belt.

Also, the combination and arrangement of the vertical power chisels B B^{1} and the stationary chisels N N, with the movable bed K and sliding carriage M, or their equivalents, independent of the arrangement of the driving-belt, when used for mortising sash stiles of only one length, and cleaning out the mortises.

The piece D to be worked upon is represented in dotted lines.

No. 11,254.—Gustavus Runge.—*Improvement in Trap-Doors.*—Patented July 11, 1854.

The nature of this improvement consists in attaching counterbalances to a folding trap-door, which is kept shut by a latch, after the opening of which the counterbalances will raise the door-folds, and keep them in a firmer perpendicular position, until they are pulled down again by means of a cord, and locked by the latch above mentioned.

No. 11,255.—David Rankin.—*Method of Applying Water to Cuniform Buckets of Flutter-Wheels.*—Patented July 11, 1854.

The drawing presents a side view of the flutter-wheel and a section of the fore-bay.

The patentee disclaims the wedge-shaped bucket and the eccentric water-way, when used separately.

Claim.—So arranging cuniform buckets upon the radial arms of flutter-wheels that, in passing through an eccentrically formed water-way, three buckets shall receive the volume of water in about the proportions described.

No. 11,256.—Robert G. Pine.—*Apparatus for Plating Metals.*—Patented July 11, 1854.

The improvement and claim consist in plating articles by fitting them within a female die J formed of thin sheet metal, or any other proper material, which is placed upon an elastic bed C, the foil K and solder being placed between the female die and article, and forcing a male die H in a heated state upon the article, for the purpose of fusing the solder and causing the foil to adhere and become firmly united to the article.

No. 11,257.—Charles F. Packard.—*Improved Sawing Machine.*—Patented July 11, 1854.

This machine is designed for sawing laths, pickets, &c., directly from the log; and the improvement consists in the employment of a vertical circular or reciprocating saw, and a series of horizontal circular saws, the latter placed on a single shaft, at a suitable distance apart, the shaft being attached to a vibrating frame operated in a peculiar manner, as described in the specification.

Claim.—The combination of the vertical circular saw D, or a vertical reciprocating saw, and the horizontal circular saws P, when said saws are constructed and arranged, and operated, in the manner and for the purpose set forth in the specification.

The drawing presents a longitudinal vertical section of the frame of the machine, showing the device by which the horizontal saws are operated.

No. 11,258.—William McCord.—*Improvements in Horse-Power.*—Patented July 11, 1854.

The great driving-wheel B in this invention, being sustained by gear-wheels on its inner periphery, is constructed without arms or spokes. The main wheel is also fitted with friction rollers above and below. The power is transmitted through the intermediate gearing to the driving-shaft.

Claim.—The precise manner herein described and shown of combining and arranging the parts herein specified so as to produce an anti-friction horse-power.

No, 11,259.—Andrew Mayer.—*Improvement in Gas Stoves.*—Dated July 11, 1854.

The heating power of burning jets of gas is here applied to warming the air of apartments. The construction is such as to make use of all the heat generated, it being given off by radiation from a mass of pumice or asbestos, and all unpleasant odor from the use of gas avoided, the products of combustion being made to escape by the pipe M.

Claim.—The arrangement of the tube D, hot-air chamber H, and disks K K, as herein shown and described, and for the purpose as set forth.

No. 11,260.—Hymen L. Lipman.—*Improvement in Eyelet Machines.*—Patented July 11, 1854.

The nature of this invention relates to the combining with the fastening apparatus of an eyelet machine a self-feeder, which will carry the eyelets from the reservoir underneath the fastener.

The figure shows the feeding apparatus.

Claim.—In combination with a fastener C and a reservoir of eyelets I, the conveying apparatus for carrying the eyelet from one to the other, made and operated substantially in the manner described in specification.

Also, the threading of the eyelets upon a rod or stem, from which they may be delivered, one at a time, to the carrying apparatus, as described.

No. 11,261.—Amos Lyon.—*Improvement in Lightning Rods.*—Patented July 11, 1854.

The nature of this invention consists mainly in the use of sheet copper, or other metal to produce the same result, made in such a form for a lightning-rod as to present to the electrical atmosphere a proportionally large amount of surface with a smaller amount of metal than is ordinarily used for the same purpose. The rod is made continuous when adjusted on a building, by letting the ends lap in the manner as shown in the drawing at B B.

Claim.—The metallic surface lightning-rod, made in the form herein described, or in any and every form where sheet copper, sheet brass,

or iron, (either of which may be coated with metal or not,) and where the surface is all, or nearly all, exposed to the electrical atmosphere, and is adapted to present points upon its edges throughout its entire length, according to the mode herein described.

No. 11,262.—Samuel Hunt.—*Improvement in the Method of Detaching Harness from Horses.*—Patented July 11, 1854.

The object of this invention is to release the horse from a carriage instantly, by means of a cord attached to the apparatus which constitutes this invention, the nature of which consists in fastening together the two sections of the saddle, which is divided vertically in the centre, the fastening apparatus being a spring-bolt running through a tongue and groove near the front of the saddle-tree, other portions of the harness being so constructed as to admit of being detached by analogous means.

Claim.—Uniting the two sections of a saddle-tree by a tongue projecting from one section and fastened in a corresponding groove in the other by a metal shaft and spiral spring, the whole being entirely concealed from view, and arranged and operating as described.

Also, arranging a set of terrets in two sections, each fitting into a dovetailed groove in the top of the front of one section of the saddle-tree, operating as specified.

No. 11,263.—Hiram W. Hayden.—*Ornamenting Metallic Buttons.*—Patented July 11, 1854.

This invention consists in submitting the blank to the separate operations of deadened and bright dies *g* and *h*.

Claim.—The method of ornamenting metallic buttons and similar articles by submitting the same to the separate operations of deadened and bright dies, constructed substantially as set forth for the purposes, and operating as specified.

No. 11,264.—Jonathan Ball.—*Improved Mode of Connecting Water-Pipes.*—Patented July 11, 1854.

This invention consists in casting a boss of soft metal onto the metallic tube *b*, and inserting a tube *c* by screwing it firmly, and then by passing a boring tool through the tube *c*, drilling the main pipe *b*, and thus constructing the water-pipes.

Claim.—The cock attached to the metal tube *b* in combination with the boring tool inserted through the cock, by which the pipe and cement are perforated in the manner as specified.

No. 11,265.—Harvey and S. E. Crosby.—*Improved Mode of Arranging Arch-Boards for Cistern-Arches.*—Patented July 11, 1854.

This invention consists in constructing an arch-board upon which to lay the brick or stone of a cistern-arch of angular curved segments or

sections A A, of such size that they can be drawn out through the throat of the cistern when the arch is completed, with dowels, or hooks and staples C D, so arranged as to be readily put together and taken apart.

No. 11,266.—James A. Cutting.—*Improvement in Compositions for making Photographic Pictures.*—Patented July 11, 1854.

This improvement relates to photographic pictures obtained on a prepared film, upon the surface of glass or other transparent medium.

The film employed is collodion, prepared as follows: Three ounces troy of pure, dry nitrate of potassa, pulverized, is mixed with 3½ ounces, fluid measure, of pure sulphuric acid. In this liquid 80 grains of clean, dry cotton is immersed, and kneaded about five minutes; the cotton is then taken out and washed, to remove every trace of acid. It is now found that the quicker it is dried, the better will be the collodion made of it; this is accomplished by displacing the water from the cotton by strong alcohol. A bath of 10 ounces sulphuric ether [60 Beaumé] and six ounces of alcohol is prepared, and the cotton prepared as above is added until the solution is of the thickness desired to coat the glass.

To excite this collodion take a deep one-ounce vial, introduce 2½ grains of bromide of potassium, add water drop by drop, to make a saturated solution; in this solution dissolve 2½ grains of iodide of potassium, and add one ounce of collodion, which, after being spread on the glass plate, is immersed in a bath of 30 grains nitrate of silver, two grains iodide, and one ounce of water. The negatives taken with the above are fixed and developed as usual.

Claim.—The use of alcohol to deprive the cotton of water, and the employment of bromide of potassium in combination with collodion, &c.

No. 11,267.—James A. Cutting.—*Improvement in Photographic Pictures on Glass.*—Patented July 11, 1854.

After a photographic picture has been fixed on glass in the usual way, another glass of the same size is prepared, and the two glasses are then connected together by a thin film of the balsam of fir, which encloses the film of collodion on which the picture is made between them, thus insuring its preservation from atmospheric effects, improving its appearance, &c.

Claim.—The combination of balsam with photographic pictures on glass, and with the additional glass, by which they with the balsam are hermetically sealed.

No. 11,268.—George F. Foote.—*Improvement in Ventilating and Heating Railroad Cars.*—Patented July 11, 1854.

By this combination of devices the air to be supplied to the interior of the car is taken from the top and outside, and passed down through

a shower of water to separate the dust, cinders, &c. Subsequently it is passed around or near a stove to be warmed, and through various openings in the floor of the car it is distributed uniformly to the interior.

Claim.—The arrangement and construction of the apparatus above described, or other made substantially the same, for ventilating a railroad car with purified or heated air, or both, as above set forth.

Also, the diffuser and its equivalents, for the uses and purposes herein specified.

No. 11,269.—Henry Phillip Gengembre.—*Fusible Marble.*—Patented July 11, 1854.

The residue of tar distilled at 300° Fahrenheit left in the retort is mixed, while yet hot, with previously pulverized and mixed clay and loam; the mixture having boiled for some time, sand and fine gravel are stirred in. This cement is asserted to fuse at 500° Fahrenheit, and to admit of being cast and polished.

Claim.—The process of preparing fusible marble by adding asphaltum, or mineral pitch, aluminous clay, calcareous loam, and silex, in or about the following proportions, viz: aluminous clay 60 to 75 per cent., calcareous loam from 10 to 20 per cent., pitch from 30 to 40, and silex in quantity sufficient to give the desired hardness. The quantity of pitch is to be increased or reduced according to the temperature, or purposes for which the manufactured article is to be used.

No. 11,270.—Robert T. Fry.—*Improvement in the Construction of Inkstands.*—Patented July 11, 1854.

This is a two-part inkstand, with an elastic disk *f* secured to the upper part, and dividing it from the lower. The two parts are held together air-tight by a flanged cap or ring *d*, the ink being delivered through the funnel *e*; the advantages gained being the facility with which the top can be removed, by loosening the collar from a simple fastening on the base.

No. 11,271.—Rufus Porter.—*Improvement in Walking-Canes convertible into Chairs.*—Patented June 26, 1854.

Claim.—Constructing a chair or table by hinging four arms and four legs to a hub or hubs C, attached to or mounted upon a central vertical shaft B, and supporting said arms and legs by radial braces, which connect said arms and legs to sliding sockets E, in such a manner that the arms and legs may be closed up to a compact form, as described in specification.

No. 11,272.—J. Rabbeth.—*Improvement in Diaper Locks.*—Patented July 11, 1854.

The nature of this invention consists in arranging a slotted tube C permanently on one end of the pin-holder A, and inserting in said tube

another slotted tube D, which is capable of revolving. The slots in the tubes allow the point of the pin to pass into the inner tube, and when said tube D is turned, the pin is perfectly secured.

Claim.—The combination of the slotted permanently fixed tube C with the revolving slotted tube D, arranged and operated in the manner described, for the purpose specified.

Figure 2 represents a section on a larger scale.

No. 11,273.—Thomas B. Smith.—*Improvement in Cow-Catchers.*—Patented July 11, 1854.

The nature of this invention consists in having the two forward axles of a locomotive truck provided with screw-threads, reversed to each other, with which the frame of a forward projecting beam may be engaged alternately at the pleasure of the engineer, so as to sweep over the cow-catcher to the right or left as desired, in order to remove any obstructions taken up by the cow-catcher.

Claim.—The beam or scraper B in combination with the nut-piece C and screws *a* a^1, arranged and operating as herein described, to produce the alternate lateral movement of the beam over the surface of the cow-catcher, for the purposes set forth.

No. 11,274.—Franklin G. Smith.—*Improvement in Condensers for Steam-Engines.*—Patented July 11, 1854.

The invention consists in making the two tubes of two metallic plates, one thick with holes through it at varying distances, and the other thin without holes.

Claim.—The mode of constructing such tubes, by which the two offices of assisting the atmospheric pressure and transmitting the caloric of the steam to the surrounding cold water through the intervening metal of the tubes are separated, the pressure-resisting strength being gained from an interior tube of stiff metal having innumerable holes punched through it, and this being surrounded by a water-tight covering of thin sheet-copper or other suitable material, against the internal face of which the steam impinges by passing through the perforations in the strong inner tube, and is thus brought into the nearest possible contact with the surrounding cold water.

No. 11,275.—Josiah M. Smith.—*Improvement in Machines for Planing Stone and Metal.*—Patented July 11, 1854.

The object of this invention is to finish the surface traversed by the cutters a^1 b^1 c^1 d^1, before moving the metal or stone for a new cut. The cutters are of various shapes, and are placed in a revolving head or clamp C and brought to bear upon the material, one after the other, until the surface is finished in the line of their operations.

Claim.—The revolving disk C, containing a series of cutters sufficient

for completing the planing of a portion of the surface of an object, in combination with the rest or slide E, substantially in the manner set forth.

No. 11,276.—WILLET THOMPSON.—*Improvement in Ship Ventilators.*—Patented July 11, 1854.

The method of actuating disk ventilators by inclines has heretofore been used. In this invention the cap D, which closes the flue, is kept open and shut also by the spring F when turned off the incline *b b*, this latter device being used to keep it permanently open or shut.

Claim.—The combination and arrangement herein specified of the elevating spring F with the cap D, and its tightening inclines *b b*, for locking the cap when closed, the whole being constructed and operating as shown and described.

No. 11,277.—WILLIAM H. FULLERTON.—*Improved Machine for Hackling Corn-Husks.*—Patented July 11, 1854.

This invention consists in constructing the teeth, situated on the surface of the cylindrical drum of the machine, of an oval shape in their cross-section, and arranging them in such a manner that the longer axis of the oval shall be in the line of the greatest strain.

The drawing represents a cross-section and a side view of the oval-shaped tooth.

Claim.—The particular form of the teeth employed, of whatever material they are made, arranged in any way, on drums or otherwise, and the particular application of them for hackling corn-husks.

No. 11,278.—PETER SWEENEY.—*Improvement in Hot-Air Furnaces.*—Patented July 11, 1854.

The movable deflector g^1 l^1, suspended in the fire-chamber, is made in two parts, from between which air is admitted above the burning fuel. A dividing plate in the upper part of the fire-chamber regulates the distribution of heated air to separate parts of a building.

Claim.—The making such air-supplying apparatus movable and adjustable within the fire-pot or chamber, substantially as specified, for the purpose of adapting it to the varying height and condition of the charge of fuel, to effect the economical combustion thereof.

Also, making such air-supplying apparatus in two parts, substantially as specified and for the purpose specified.

Also, dividing the hot-air chamber into two or more compartments by partitions provided with apertures governed by dampers or valves, substantially as specified, for the purpose of regulating the supply of air to separate parts of a building, as circumstances may require, as set forth.

No. 11,279.—GEORGE WRIGHT.—*Improvement in Self-Acting Mules for Spinning.*—Patented July 11, 1854.

Claim.—Driving the carriage in and out by the continuous motion of the cone pulleys, in combination with some method of automatically shifting the belt, for the purpose of adapting the speed of the carriage to the requirements of the different parts of its traverse; by which means the complicated mechanism heretofore adopted for the attainment of the same end is dispensed with.

Also, the pulleys F and H on the shaft G, by which a continuous motion in one direction is given to the shaft G for the purpose of driving the carriage, and an intermittent motion to the twist-pulley D^1, when the winding on is accomplished by mechanism independent of the twist-pulley.

Also, the friction-pulley F^1, or its equivalent, in combination with any efficient method of regulating the speed of the spindles by the tension of the yarns as set forth; by which means the complicated machinery heretofore used to regulate the winding on is dispensed with, and the machine is enabled to run at a higher speed than can be attained in machines where heavy cogged gearings are constantly to be reversed.

No. 11,280.—WASHINGTON SPANGLER, assignor to W. SPANGLER, E. F. CHAMBERS, and WILLIAM F. WILSON.—*Improvement in Augers, Gimlets, &c.*—Patented July 11, 1854.

The drawing is a perspective view of the improvement.

Claim.—Inventing and constructing augers and gimlets out of any desired shape of metal, by filing, turning, or in any equivalent manner, or using tapering pieces of metal concave on one or both sides, and forming two bevel-cutting edges *d d*, on graduated or regularly diminished conical twists *o o*, as shown in the drawing, and substantially as described.

No. 11,281.—THOMAS W. GILLETT, assignor to JOHN MATHEWS.—*Improvement in Machines for Bottling Mineral Waters or Liquids under Pressure.*—Patented July 11, 1854.

The improvements consist in a safety-guard B^1, so constructed that the movement of the operator which brings the filling-socket *a* upon the neck of the bottle *c* also raises said screen B^1 around the bottle itself; so that, should it burst, the fragments will be retained within said screen, and cause no injury to the operator.

Claim.—Combining the safety cylinder or screen with the cross-bar *d* of the charging-socket, or other proper part of the bottling machine; so that the said screen will surround the bottle at the same time that the charging-socket is brought over the neck of the bottle, and kept there until the filling and corking has been completed, substantially in the manner and for the purposes set forth.

No. 11,282.—Ann G. V. McKinstry, administratrix of William McKinstry, deceased.—*Improved Adjustable Bearings for Circular Saws.*—Patented July 11, 1854.

Claim.—The bed-plate E, carrying the boxes D D, in combination with the set-screws *d d*, holding bolts *f* and *g*, shaft C, and circular saw B.

Figure 1 is a plan of the improvement.

Figure 2, a side-elevation.

Figure 3, the bed-plate detached.

No. 11,283.—Eden A. Baldwin 2d, administrator of Eden A. Baldwin, deceased.—*Improvement in Fire-arms.*—Patented July 11, 1854.

This improvement and claim consist in the peculiar arrangement and combination of the movable slide-chamber and loading magazine, whereby a series of charges or cartridges are successively carried from the magazine to the barrel by one sliding-chamber only.

Also, the combination of the depressing chamber or slide L and the tubular loading magazine, with the mechanism for removing the cartridge into the depressing-chamber when depressed into line with the loading magazine, as specified.

Also, the combination of the circular arc-projection *c*, and the correspondingly curved recess R, with the slide L and the lever K, and mechanism by which the cartridges are drawn towards the chamber of the slide L; the same being for holding the block L in place, or at rest, while the toothed sector *b* is out of engagement with the rack *h*, and the lever K is in movement to actuate the rod I, as described.

No. 11,284.—George A. Leighton, assignor to Nehemiah Hunt.—*Improvement in Sewing Machines.*—Patented July 11, 1854.

The nature of this invention will be understood by referring to the drawings and claim.

Claim.—Combining with the longitudinal movements of the two needles of the sewing machine, lateral movements of one needle, so that the forward and backward movements of each needle shall be respectively on opposite sides of the other, (instead of on the same side of it,) whereby the crossings of the loops are made to be drawn into or directly over the holes made through the cloth, and so as to produce a very flat seam.

No. 11,285.—Thomas Clegg, assignor to Clegg and Stevens.—*Improved Machine for making Heddle-Eyes of Wire.*—Patented July 11, 1854.

The nature of this invention will be understood by referring to the claim and the drawing.

Claim.—The combination of pressure-jaws or mechanism with machinery for doubling and producing the twist in the wire, the said pressure-jaws or compressing mechanism being for the purpose of flattening the twists of the wire, substantially as specified.

Also, in combination with the pressure-jaws or mechanism and the mechanism for producing doubling and twisting the wire blank, the movable carriage f^1 and its jaws d^1 e^1, or mechanical equivalents thereof, made to operate substantially as set forth.

Also, the combination of the stationary rest *t* and movable disk *s* with the slide or bender *m*, the shaft *k*, and the rotary notch-gear v^1, the whole being made to operate together, substantially as set forth.

No. 11,286.—Wm. G. Casselman, assignor to Elias A. Swan.—*Improvement in Machinery for Carving Marble, &c.*—Patented July 11, 1854.

This improvement pertains to that class of marble or other carving machines in which the article to be carved receives a reciprocating or rotary motion from its bed, while the tool has also its horizontal and vertical motions, and consists both in the adaptation of various pattern-wheels as controllers of the motions of the tools, and in an improvement upon the cutting itself.

The nature of this improvement will be sufficiently understood by comparison with the accompanying drawings.

Claims.—1st. The means herein described and shown for carving or cutting marble or other material, consisting of the adjustable or movable blocks or patterns (see 11, 13, 25, 26, g^2 and l^1) on a revolving wheel or wheels *f h*, &c., for determining the position of the cutting-tool or tools 10, either horizontally or vertically, in combination with a revolving or reciprocating bed d^1 as specified.

2d. Communicating motion from a pattern-wheel or wheels *s* constructed with movable or adjustable patterns, both on the circumference and on the sides 41, to the sliding tool or tools, by means of levers *w w* and *u* u^1, so set and operating as to place said tools in the required position as the parts move. (The parts referred to in this part of the claims are represented in figures 2 and 3, and are not shown in figure 1.)

3d. Constructing a cutting-tool or tools for carving marble or similar substances with blades or tools 21, 22, attached to the bottom and side of the stock *i*, which stock is so fitted as to receive a rotary motion, to operate as specified.

No. 11,287.—A. C. Gallahue.—*Improvement in Boot and Shoe Pegging Machines.*—Patented July 11, 1854.

This improvement pertains to a description of shoe-pegging machines before patented by the same inventor, and consists in placing upon the movable carriage B a rocking bed-plate C, upon which the shoe to be pegged is mounted. The bed-plate is attached to the carriage by pivots *b b*, and governed by a spring I, by which the edge of the sole of the shoe is made to bear against the gauge-block G, whereby the equidistance of the pegs from the edge is secured without the necessity of a cam or pattern.

Claim.—The employment or use of the rocking bed-plate C, when

such bed-plate is attached to a movable carriage B, as herein shown and described, for the purpose of causing the edge of the sole of the boot or shoe to bear against the gauge-block, as the carriage is moved, without the intervention of a pattern or cam.

No. 11,288.—Russell D. Bartlett.—*Improved Machine for making the Heads of Shovel Handles.*—Patented July 11, 1854.

Figure 1 presents a plan of the machine.

Figure 2, a front elevation.

Claim.—So constructing the dished wheel F and its cutters *i*, (applying them together as described in the specification,) in combination with so constructing the bearing-rest G with a shaft *l* and bearer-plate *m*, (or equivalent contrivances,) and applying it to the wheels, as to cause it to extend within the wheel, and enable a person to introduce the shovel-head into it, between it and the inner surface of the wheel, and support said shovel-head and turn it against the cutters, so as to cut it curved in two directions, as specified.

No. 11,289.—Andrew Lanergan.—*Improvement in Lanterns.*—Patented July 11, 1854.

Claim.—The combining with the lantern the mouth-tube, so as to enable a person to put out the flame of the lamp, substantially as described.

No. 11,290.—Charles Mettam.—*Improvement in Constructing Iron Houses.*—Patented July 11, 1854.

This invention consists in erecting the columns A^1 of the upper stories upon chairs C C, which can be adjusted easily to any desired position on the breast-summers B B, and which, when placed directly over the columns below, serve to connect the breast-summers in such a way as to provide for their longitudinal expansion and contraction.

Claim.—To the combination of the chairs C C with the breast-summers B B and the columns A, substantially in the manner herein set forth.

No. 11,291.—Joseph T. Martin.—*Improved Grapnel for Raising Sunken Vessels.*—Patented July 11, 1854.

This invention consists in a wooden frame T, graduated to the width of the beam of a vessel, with a series of arms B B, and claws or hooks P P and C C; said beam to be lowered on to the hull of the sunken vessel, and claws C C to take hold inside, and claws P P outside, of the frame; the whole to be raised by chains connected with suitable apparatus above.

Claim.—The combination of the plates, levers, and iron bars with the timber, constructed in the manner described, to form a marine grapnel to be used in the raising of sunken vessels, as being a more expeditious method of getting fast of sunken vessels than by the old-fashioned way of sweeping by chance, which is not always successful, and in all cases is more expensive than it would be if the marine grapnel was used.

No. 11,292.—Henry Outcalt.—*Improved Mode of Constructing Metallic Roofing.*—Patented July 11, 1854.

This invention consists in constructing a roof of plates of metal with the edges scrolled or rolled up, *d*, and each plate slipped one over the other, thus forming a strong and water-tight roof, and allowing for expansion and contraction.

No. 11,293.—William Loughridge.—*Freeing Canal Boats from Water.*—Patented July 11, 1854.

The invention, as claimed, consists in the arrangement of float B, valve *e*, and bent-tube *b*, in the bottom of the boat; by which the discharge of water is rendered automatic, and the boat freed from leakage.

No. 11,294.—William Lowe.—*Improvement in Cut-off Valves of Steam-Engines.*—Patented July 11, 1854.

This invention consists of the double rocking-shaft, one, C, passing through the other, A, the outer shaft to work the catches F and exhaust-valves E, and the inner shaft actuated by the catches to open and close the steam-valves D, and to effect the cutting off of the steam, in combination with the other parts of the mechanical movements, or their equivalents, as herein described.

No. 11,295.—James C. Kennedy.—*Improvement in Elevated Ovens used with Cooking Stoves.*—Patented July 11, 1854.

The claim designates the novel arrangement of parts comprised in this invention.

Claim.—The combination of two or more ovens in the elevated oven-chamber or shell, with flues for hot air between each end of the chamber and one of the ovens.

Also, with a flue between each oven, all the flues being provided with regulating dampers for the proper management of said oven and flues, substantially as described.

No. 11,296.—Abel Greenleaf.—*Improved Water-Wheel.*—Patented July 11, 1854.

The nature of this improvement consists in attaching to and combining in a laterally discharging water-wheel a series of vertical and

horizontal flanges, or buckets, constructed and arranged as described in the specification.

Claim.—The combination of the horizontal buckets C with the vertical buckets B, substantially as described.

No. 11,297.—Joel Green.—*Improvement in Hermetical Sealing.*—Patented July 11, 1854.

The object of this invention is the soldering or otherwise sealing a preserving canister or other vessel while within an exhausted chamber *a*, and while subject to the operation of heat. Solder being placed in suitable proximity to the perforations left in the cans for escape of air, and the cans being placed upon the plate *e*, and the heated bit *s* attached to the lower end of the rod, the receiver *a* is closed down over the cans, and steam is applied to either the coil *j* or the jacket *i*, or to both, and continued until the cans rise to such a temperature as will evolve vapor by the application of pump *b*, which being effected, the bit is promptly brought to bear upon the solder of one can after another.

Claims.—1st. The application of a steam-jacket, coil, or equivalent device, to an exhausted receiver, in connexion with a soldering apparatus, for the purpose of sealing or soldering preserving canisters, &c., under the combined agencies of heat and vacuum, for the purposes explained.

2d. The combined ball *m* and sliding air-tight joint *p* of the rod, as described, permitting the heating, insertion, and the vibratory longitudinal and revolving motion of the soldering bit, while excluding the external atmosphere, for the purpose of soldering in vacuo, as herein explained, and enabling the direct application of the heated bit without the intervention of any other substance.

No. 11,298.—Robert W. Genung.—*Improvement in Lifting-Jacks.*—Patented July 11, 1854.

Claim.—Making the lever capable of being adjusted so as to be thrown in and out of contact with the rack-bar with facility and ease, and retaining it securely in its place, after being adjusted, by providing the bearings *d d* with a curved slot *e* and two semicircular fulcrum rests.

No. 11,299.—William P. Chadwick.—*Improvement in the Whale-Blubber Press.*—Patented July 11, 1854.

The following claim explains the nature of this improvement.

Claim.—The arrangement of the screw D within the body of the box A, in connexion with fixing it firmly and immovably to the platen *c*, and so applying to it, and to one end or the bottom of the box, a rotary screw-nut and a set of gears and a crank-shaft, that by revolution of the screw-nut the platen will be forced towards the top (or other end of the box); the said arrangement and application of the power that operates the platen enabling the inventor to make a much more compact, efficient, and desirable blubber-press for ships' use than that heretofore patented by the inventor.

No. 11,300.—Stillman A. Clemens.—*Improved Valvular Arrangement for Diaphragm Pumps.*—Patented July 11, 1854.

The drawing is a central vertical sectional view of the pump, in which *d* represents the lever-stand, that serves as a packing-box for the pump-rod *e; a* and *b* are the upper and lower shells, united by flanges, between which at *f* is secured the periphery of the diaphragm *h; g* is a perforated disk that has a washer extending downwards from its lower fall, and lying upon the diaphragm where the pump-rod passes through it. Below the diaphragm is another disk *i*, that is secured to the pump-rod by a nut below, and is not perforated. That part of the diaphragm covered by the lower disk is perforated. *j* is a check-valve provided with pins that pass into the inlet-tube *k* to keep it in place.

Claim.—The mode of constructing and operating the valve, as set forth, in combination with flexible diaphragms; the valvular openings being in the diaphragm itself, or in a part of it, and the valve being attached to and worked by the piston in such manner that the diaphragm shall move to and from the fixed valve, and close and open the holes in the diaphragm valve.

No. 11,301.—Alfred Burwell.—*Improved Method of Stretching Shoes.* Patented July 11, 1854.

The nature of this invention consists in cutting a common last of any desired size, longitudinally and horizontally through its entire length, from heel to toe, and nearly parallel to the bottom, and then introducing into the ankle or comb of the last expanding screws B and E, by which the last is made to expand or contract at different points at pleasure. Also, in introducing plates C and G between the two parts of the last; by means of which a lateral pressure may be made when necessary, by means of a screw for that purpose.

Claim.—The construction and use of lasts, to be operated by two independent screws, in such a manner as to be able to stretch the shoe or boot at the instep or toe at pleasure.

Also, the expanding plates, with their projecting pieces of metal applied, operated by the wedge or cone-pointed screw.

No. 11,302.—Adolph and Felix Brown.—*Improved Hat-Shaping Machine.*—Patented July 11, 1854.

This machine consists of two segments A A, connected through the coupling B, having on one side a right-handed, and on the other a left-handed screw, which fit in corresponding bases fast on the segments; by means of which, by turning the coupling B either to the right or left, said segments are capable of being brought nearer together or further apart. Instead of making the screws in one piece with the

coupling, the same may be made fast to the segments, and made to enter into the coupling. From each end of the segments, and running as far as practical towards the centre, are parallel grooves C, into which two or more pieces *o* are fitted, flush on the outside of the segments, and capable to be moved backwards or forwards in said grooves, and held in any desired position by the nuts D, on the inside of the segments. The shape of the segments conforms to the interior circular shape of the hat.

Claim.—The application of the movable pieces *o*, with their set-screws S, working in a groove made in the segments, or the equivalents thereof, and bearing against any desirable point of a flexible plate fitted round the outside, thereby giving the same any desirable shape, for the purpose specified.

No. 11,303.—F. B. Smith.—*Improvement in Lifting-Jacks.*—Patented July 11, 1854.

The nature of this invention consists in forming a curved oblong slot D in each of the ears C, cast on the standard B, or guide-frame, in combination with a double-acting pawl G; said slots serving for the fulcrum F of the lifting-lever E to turn in, while the rack-bar A is being elevated, and also allowing the fulcrum of the lifting-lever E to have sufficient play to admit of the lifting-lever being moved out of contact with the teeth of said bar, and the double-acting pawl serving, when not in use, for preventing the rack-bar from falling, and the said lever is moved out of contact with the rack-bar, and its fulcrum caused to occupy a position in the upper part of the curved stop, to prevent all possibility of the fulcrum slipping down to the bottom of the slot, and thereby allowing the lever to come again in contact with the rack-bar while descending.

Claim.—The curved oblong slot D in combination with the double-acting pawl G and tooth *b* on the lever E, so that the lever may be adjusted as described, and, after being adjusted, prevented from again falling and coming in contact with the rack-bar before it has entirely descended.

No. 11,304.—Albert S. Southworth and Josiah J. Hawes.—*Mode of Taking Daguerreotypes for Stereoscopes.*—Patented July 11, 1854.

Claim.—A method of taking stereoscopic pictures, in which the two positions of the camera are upon a line making an angle of 45° with the horizon. It is accomplished by placing the camera as represented at figure 1, and after taking one picture changing its position to that represented at figure 2, and taking the other picture.

No. 11,305.—R. H. St. John.—*Improved Bedstead-Fastenings.*—Patented July 11, 1854.

The patentee disclaims the invention of the clevis, staple, and key, or wedge, as original devices.

Claim.—The clevis-clamp *a*, together with the double-mortised post, in combination with the key or wedge *b*, through all of which is produced a compensating bedstead-fastening, specifically as described and delineated.

No. 11,306.—Willis Straw.—*Improved Chain-Hook.*—Patented July 11, 1854.

This invention consists in attaching to a common chain-hook a safety iron guard F by means of a toggle-joint and rivet, which shuts down over the point of the hook I, thereby strengthening the hook and preventing it from catching, unhooking, and injuring the cattle.

Claim: to the iron guard, and the manner of attaching it to the hook.

No. 11,307.—George B. Snow.—*Improved Mode of Ringing Bells by Steam.*—Patented July 11, 1854.

The machinery is so constructed that a cylinder D, open at one end, admits of a piston acting by a head of steam in one direction only, so that a bell may be raised by a crank C and allowed to return by its own gravity, thus giving freedom and motion to ringing the bell more clearly than by the ordinary process of ringing by a double-acting steam-piston.

Claim.—The manner herein described of ringing the bell by the application of steam-power and the gravity and momentum of the bell combined, by means of the direct-acting engine, attached by chain, or other equivalent mechanical device, to the bell, and arranged, combined, and operating with the bell as specified, and so that the bell is swung in one direction by the engine, and then let loose or free to swing back in the opposite direction by its own gravity and momentum to produce the ring or sound, and the steam alternately admitted and exhausted from the engine by the action of the engine and movement of the bell combined, substantially as specified, whereby the same freedom in the swinging of the bell to produce a long and clear sound as is produced by the ordinary manual process, but with greater regularity and consequent increased clearness of note, is automatically obtained, as herein set forth.

No. 11,308.—Jabez C. Terry.—*Improved Screw-Wrench.*—Patented July 11, 1854.

The invention consists in attaching the shank C of the inner and stationary jaw B to the handle A by means of straps *c c*, or their equivalents, attached to the lower end of the shank; the straps passing through the screw-nut F and into the handle, and having grooves or recesses *d d* in them, which when the straps or handle are turned receive projections *b b* on the top of the handle, as herein shown and described.

No. 11,309.—Thomas B. Woodward.—*Improvement in Mills.*—Pat-

No. 11,309.—Thomas B. Woodward.—*Improvement in Mills.*—Patented July 11, 1854.

The claim clearly indicates the nature of this invention. The upper stone is permanently fixed by the screws *b;* the lower stone may be elevated or depressed by I J H. The nuts S T are fixed upon the spindle, and are moved vertically together to make an adjustment.

Claim.—The combination and arrangement of one or more cylindrical bruising or grinding nuts and chambers, or cylinders, with the stones of the mill, in such manner that the relative distance of the stones to each other may be varied without increasing or diminishing the distance of the acting surfaces of the nuts and cylinders, substantially as described.

No. 11,310.—Moses D. Wells.—*Improvement in Brakes for Light Vehicles.*—Patented July 11, 1854.

This invention consists in subjecting the brake-rubbers to the influence of intermediate springs *c c*, so arranged with respect to the rubbers that they will prevent within certain limits the direct action of the horse upon the rubbers, and permit the rubbers to operate notwithstanding the slight movements of the connecting-levers, caused by inequalities in the road, thereby obviating the constant jerking of the rubber from the wheels, caused by a single system of springs.

Claim.—To the combination of the two systems of springs with rods and levers, for so operating the brake-bar that the movement of the levers within certain limits shall have no action on said bar, as and for the purposes herein fully set forth.

No. 11,311.—William E. Ward.—*Improved Mode of Manufacturing Iron Slats for Window-Blinds.*—Patented July 11, 1854.

This invention consists in making the slat of sheet iron doubled and bent throughout its entire length in the direction of its cross-section to near each edge, curved in opposite directions, and with a bead *b* in the middle on both faces to contain the wire which forms the journals at both ends.

No. 11,312.—John Stouffer, Peter Brough, and John W. Barr.—*Improvement in Flouring and Bolting Process.*—Patented July 11, 1854.

Claim.—The arrangement of the bolts A and B, pipes E E, screw-conveyor F, and spout G, by means of which the specky flour first passes through the upper bolt A, is rebolted by being mixed with the stuffs (containing the bran) as received from the main burrs; by which the quantity of superfine flour is increased, while the quality or brand is maintained, substantially in the manner set forth.

No. 11,313.—Orin W. Fiske.—*Improvements in Machine for Manufacturing Paste-Board.*—Patented July 11, 1854.

The object of this invention is to apply paste to three rolls of paper at one and the same time, and to bring and compress them together, forming pasteboard. In the accompanying drawing, B and C are two cylindrical brushes, which are placed one above the other, and in contact, or nearly so. Each of these brushes works in contact with one or more paste-rollers D E, or F G. Each paste roller revolves in a trough, H, I, K, or L, for containing paste. P Q R represent three rolls of paper, from which three strips of paper M N O are led in contact with the paste-brushes B and C. The strip M is carried over with its under surface in contact with the top surface of the brush B. The middle strip N is carried between two brushes, so that not only its upper surface may be in contact with the surface of the upper brush, but that its lower surface may also be in contact with the upper surface of the lower brush. The third strip O is carried underneath and in contact with the lower brush C. From the brushes the three strips are carried towards a roller V, where they are brought in contact, and are all three made to pass together between two compressing rollers S T.

Claim.—The combination and arrangement of the cylindric paste-brushes, with three rolls of paper, and compressing and draught-rolls, whereby the two cylindric brushes are made to apply, at one operation, the paste to the under side of the upper strip of paper, the two sides of the middle strip, and the upper side of the lower strip.

No. 11,314.—Jacob J. Hatcher.—*Improved Pen and Pencil Case.*—Patented July 11, 1854.

The invention consists in permanently attaching the pencil A to the case in such a manner that the pen-holder F, containing the reservoir for leads formed by the tubes J and K, may work over and independent of the pencil, and protect it from injury when not in use.

When the pen is wanted, it is only necessary to reverse the position of the holder F J K.

Claim.—1st. The permanent attachment of the pencil to the case, operating by the tube as set forth. 2d. The hollow reserve for leads, with the pen-holder, working substantially in the manner set forth.

No. 11,315.—Matthew Walker, senr., assignor to M. Walker and Sons.—*Improved Iron Picket Fence.*—Patented July 11, 1854.

The drawings show the fence in perspective, and also a plan of the rails previous to the insertion of the pickets. The inventor *claims* the mode of making wrought-iron fences in the manner set forth; which consists in a compound wrought-iron rail composed of wrought-iron bars, corrugated by dies, so that they shall embrace the post or pickets at the proper intervals, and have their inner surfaces in contact between each, so that they may be riveted, in order to make a neat and firm fence.

No. 11,316.—William E. Bird.—*Improvement in Steam-Boiler Furnaces.*—Patented July 18, 1854.

The improvement and claim consist in the combination of the lower boilers or boiler A, and the upper boilers or boiler A^1, with each other, and with the furnace C, in such a manner that the top of the furnace will be formed by the upper boiler or boilers, and the rear of the furnace be principally formed by the lower boilers, while the flue-space from the surface passes between the upper and lower boilers, and communicates with the flues, returning through the lower boilers, substantially as herein set forth.

No. 11,317.—Israel F. Brown.—*Improvement in the Ribs of Cotton-Gins.*—Patented July 18, 1854.

The object of this invention is to construct the ribs in such a manner that the part of the ribs which wears out may be several times removed without taking the bars from the machine.

Claim.—The employment of a series of cast-iron ribs C, each having two or more arms *a a* a^1 cast with them, each of which arms is of proper form to combine with a short rib A, and with it form a complete rib, whereby, when the said hubs are secured upon a shaft B, arranged in a proper position, their arms may be successfully brought into combination with the short-ribs, for the purpose of renewing the wearing parts.

No. 11,318.—Leander W. Boynton.—*Improvement in Preparing Flock for Felting.*—Patented July 18, 1854.

This invention consists in preparing the flock, and spreading it on the web of wool, for making felt-cloth, &c., by the use of a revolving brush with one or more stationary brushes fitted on a concave, and a wire screen at the bottom to prevent any flock not fully prepared from falling on the web of wool, but allowing the brush to carry it up again, that it may be worked continually until it is prepared to pass through the screen.

Claim.—The combination of a wire-screen D with a revolving cylindrical brush E and one or more stationary brushes B, when the screen is placed below the revolving brush to prevent any of the flock from falling on the web of wool before it is fully prepared; and also to assist in preparing the flock, when the whole is constructed and combined substantially as described.

No. 11,319.—Hugh Burgess.—*Process for Coating Iron with Copper or Brass.*—Patented July 18, 1854; in England, February 7, 1853.

The iron is first well cleaned with dilute sulphuric acid, then washed in a solution of chloride of zinc or any salt of tin or cadmium, then dried and heated to about 250°, and plunged into molten copper or alloy thereof, through a layer of powdered charcoal, sand, or the like,

After a few minutes it is withdrawn into a tank filled with an atmosphere of steam and carbonic acid or carburetted hydrogen, or any disoxydizing gas flowing in streams or jets, where it remains until cool.

Claim.—The coating of iron sheets, bars, bolts, and other forms of iron, with copper or brass, by a combination of processes, as set forth.

The drawings 1, 2, 3, represent the vat used by the inventor, filled with molten copper or alloy thereof, for coating bolts and similar small articles. Figure 4, a tool to grasp small articles to be plunged into the molten metal.

No. 11,320.—Lewis R. Conard.—*Improvement in Slide-Valves.*—Patented July 18, 1854.

The claim is to forming the passages through the valve, so that the oblong steam and exhaust openings shall enter from the upper and lower surfaces longitudinally to its motion, and leave the opposite surfaces transversely thereto, as herein described.

No. 11,321.—Thomas Crossley.—*Improved Method of Making Printing-Blocks.*—Patented July 18, 1854.

Wooden blocks are cut with fine saw-kerfs *a*, in the usual manner, and the prismatic pieces are removed from the block, between the saw-kerfs, on those parts not covered by the figure. Gutta percha is then forced, while in a softened state, into the saw-kerfs, so as to fill them as represented at *b*, which binds together the pieces forming the pattern, and form a superior and durable printing-block.

Claim.—The within described method of making printing-blocks, the surface of gutta percha being applied to the surface of the wood, in the manner and for the purpose set forth.

No. 11,322.—Samuel and Thomas Champion.—*Improvement in Iron Bridges.*—Patented July 18, 1854.

This improvement and claim consist in the combination of tubular braces, or struts, made smaller by gradation, or tapering, as they extend from the pier or support, with suspension rods, also made smaller by gradation, or tapering, as they extend from the pier or support, substantially as specified.

Also, in the arrangement of the struts, suspension-rods, and clamp-posts; so that each suspension-rod shall extend from the top of the column or post C, over the pier or support, to the foot of one of the clamp-posts F, while each oblique strut shall extend from the foot of the post C, over the pier, to the head of each clamp-post, as described and shown.

Also, in the mode of construction of the tapering tubular struts of bridges, of not less than two concentric sheets, layers, or thicknesses of metal, the sheets of each layer abutting, and those of one layer breaking joints with the next, substantially as described.

No. 11,323.—J. A. H. Ellis and Alex. Gordon.—*Improvement in Excavating Machines.*—Patented July 18, 1854.

This improvement and claim consist in the mode of operating the excavating machine by placing it within the circuit of an endless chain, which passes over a pulley anchored at one point, and over or around a capstan at another point, so that the machine shall form a part of the endless chain, and be operated, forward and backward, by it.

Also, in attaching one or both ends of the chain to a drum or shaft connected with the machine, so that the slack of the chain may be taken up on said drum or pulley-shaft, to cause the machine to move steadily, without sudden strain, or let out the chain, when it becomes necessary to draw it out of its direct line, for guiding the machine in any desired direction, substantially as described.

No. 11,324.—Jacob Erdle.—*Improved Wind-Mill.*—Patented July 18, 1854.

The nature of this invention consists in so constructing a wheel that it shall be covered with fans or wings, which may be opened or closed by means of the pulley D that operates the square piston G passing through the hollow shaft B fitted into the hub A. To the piston G is attached, at its outer end, a pulley M, which serves to open or close the wings by means of the studs P and S, the pin V, the links O and N, the pulleys I, slide H, lever E, and regulator L. The drawings, sufficiently clear, show the construction.

Claim.—The manner of filling the whole wheel with fans or wings, and the mode of regulating their action, and starting or stopping the wheel through the centre of the main shaft.

No. 11,325.—Roswell Enos.—*Improvement in the Process of Tanning Leather for Soles.*—Patented July 18, 1854.

The improvement and claim consist in commencing the tanning operation upon the sides by the use of a salted infusion of sumac, and then completing said tanning operation by the repeated use of the strong oak or hemlock bark liquor, substantially as set forth. It is stated that solid sole-leather may be produced by this process in an unusually short time.

No. 11,326.—George W. Griswold.—*Process for Preparing and Separating Impalpable Powder for Paint.*—Patented July 18, 1854.

A current of dry or heated air is made to pass through a series of chambers A E E', superposed over each other, the lowest of which is provided with a hopper H to feed in the paint powders, and with a revolving chamber C, upon which said powder falls. The finer particles of the paint are carried up higher and higher, and the coarser fall to the ground. The current must be gentle, and nothing of the kind of a blast.

Claim.—The process of separating and collecting impalpable from coarser substances, such as ground coal, for the purposes of paint or other mineral substances, by means substantially such as herein described and represented.

No. 11,327.—Felix Huston.—*Improved Mode of Raising Vessels.*—Patented July 18, 1854.

This improvement consists in the application and use of floats, and chains passing under the vessel and attached to the floats, in such a manner that the vessel is raised by the careening of the floats; such careening of the floats being effected by means of weights and levers, as described and shown, or other equivalent means.

Claim.—The raising of sunken vessels by means of the careening motion of the side or auxiliary vessels, whether such careening motion is procured by weights run across the decks from side to side of said vessels, or aided by arms projecting beyond said sides, substantially as described.

No. 11,328.—William Russell Palmer.—*Improvement in Horse-Power.*—Patented July 18, 1854.

I claim the combination of the rib or projection upon the arms *a* with the bent pin or iron *c*, or their equivalents A B, constructed and arranged substantially as described, for the purpose of giving a short bend to the rope or band, and thereby preventing the slipping thereof, as herein set forth.

No. 11,329.—J. Augustus Roth and Joseph Lea.—*Improvement in Apparatus for Washing Fabrics in Continuous Sheets.*—Patented July 18, 1854; in England February 7, 1854.

This invention consists in an arrangement of rollers and revolving dashers in combination with a vat, whereby several continuous layers of cloth can be simultaneously washed.

Claim.—The combination of the distributing rollers a a^1 a^2, &c., b b^1 b^2, &c., and the dasher-wheels c c^1 c^2, &c., with the vat, in the manner and for the purpose described.

No. 11,330.—Ebenezer Murdock.—*Improvement in Cutting Tobacco.*—Patented July 18, 1854.

This method of cutting tobacco consists of first separating and cutting the stems, and then packing the product, in intermediate layers with the thinner portion of the leaves, into the cutting box, and pressing it to facilitate the cutting by overcoming the obstacles heretofore presented by the gummy matter in the leaves.

Claim.—The process of manufacturing cut tobacco, by mixing with the leaves, as stripped of their stems for cutting, the stems previously cu

up to a certain degree of fineness, the object being to facilitate, by the use of said stems, the advantageous cutting of the leaf itself, the mixed mass then to be cut up together to the requisite fineness, and then the stems to be separated from the cut leaf, which is then ready for use.

No illustration.

No. 11,331.—William G. W. Jaeger.—*Improved Mode of Manufacturing Lampblack.*—Patented July 18, 1854.

The house in which the matter for the production of the black is burnt is provided with two furnaces A and G, and subdivided into two compartments, which are so arranged, by means of valves and conducting-pipes, that the smoke from either furnace can be conducted through both divisions and around the whole house either way, thus permitting to continue the burning and collecting of black without interruption during any length of time; one furnace being used while the other may be cleaned and repaired.

The valve-chimneys F, L, N, O, are to be constructed so as to open some distance below the roof, as seen at D J, figure 3, by means whereof the lightest and best black is preserved and only the heaviest escapes.

Claims.—1st. The division of the house lengthwise, with the aperture B, figure 2, and the connection of the two houses by the chambers marked H and C, figure 1, by which the smoke can be carried around the whole length of the house and returned, rendering a superior quality and greater quantity of lampblack.

2d. The use of the two furnaces, the waste-chimneys constructed and arranged for the purposes as described.

No. 11,332.—James Spratt.—*Improvements in the Hermetical Sealing of Preserve Canisters.*—Patented July 18, 1854.

The screw-stopper *b* is formed in the shape of a cap. Between said stopper and the edge of the neck of the canister *d*, temporary gasket *c* is placed, which excludes the air until the canister is cooled down, when wax, or any equivalent thereof, is applied into the rim of the outer juncture *e* for the permanent closing of the canister, by means of which the insecurity of the gasket *c* is remedied, and the necessity of metallic solder superseded, and thus hermetical sealing rendered practicable in every household.

Claim—Is to the screw-cap and neck, substantially as described, provided with a gasket of gum-elastic, or like substance, at the inner junction, when this is combined with a trough for containing cement around their outer junction, for the hermetical sealing or closing of preserve canisters.

No. 11,333.—Thomas Stubblefield.—*Improvement in Steam-Gauges.*—Patented July 18, 1854.

Claim.—Having thus described my improved steam-gauge, what I claim therein as my invention, and desire to secure by letters patent, is the combination of the hollow cylindrical box A, perforated at both ends with a hollow cylinder of India rubber E, open at one end, and performing the duty of manometer-spring, as herein described, and also separating the perforations in the opposite ends of the box; the several parts being constructed and arranged, and the case connected with the boiler, and the India rubber with the index, as herein set forth.

Figure 1 is a section of box A, which is also shown in figure 2 on a smaller scale.

No. 11,334.—H. C. Stevenson.—*Improvement in Washing Machines.*—Patented July 18, 1854.

I claim as my invention, and desire to secure by letters patent, the arms E C, and the strings I, in combination with the rubber F and plate G, constructed and arranged substantially in the manner and for the purpose described.

No. 11,335.—Jacob Senneff.—*Improvement in Weavers' Heddles.*—Patented July 18, 1854.

The nature of this invention consists in fastening the wires of the heddle together to form the eye, by means of metallic clasps secured around and between them, in order to form a substitute for the knots heretofore made in connecting them, and to cause the heddles to occupy less space, &c.

Claim.—Forming the eye of the heddle, by casting or otherwise securing around and between the strands composing the same, metallic clasps C, in lieu of the cumbersome knots heretofore employed, curved on their sides, and made concave and smooth on their ends, between the strands or threads, where they form the ends of the eyes, in the manner set forth.

No. 11,336.—William W. Smith.—*Improvement in Buckles.*—Patented July 18, 1854.

See figure. A represents the band of the buckle, which is round and made of metal, with the exception of the space from 1 to 2, which is flattened to make a bed for the leather. B is the hook or tongue, which is cast solid or stationary with the band.

Claim.—The stationary hook or tongue attached to the body of the buckle, substantially as described.

No. 11,337.—Abram Snyder.—*Improvement in Railroad Car Trucks.*—Patented July 18, 1854.

The nature of this improvement consists in the application to a six-wheeled car, having a jointed or flexible truck-frame for turning curves, &c., of waved swivel or coupling-plates, so adapted to each other as to be slightly separated on turning upon each other, and thereby tending,

through the force of a spring, to preserve the wheels in, or restore them to, a direct line.

Claim.—Making the bearing surfaces of the disks on which the load swivels and is supported of an undulating form, substantially as described.

No. 11,338.—George H. Smith.—*Improvement in Manufacturing Steel Directly from the Ore.*—Patented July 18, 1854.

The claim is to the process of converting the iron ores known as the oxides and corbonates directly into steel, by subjecting the ore, in the comminuted state, with carbon, and with or without other flux, in a close oven, retort, or other vessel, to a high degree of heat, and then separating the metallic particles from the impurities, and either melting them in crucibles to produce cast-steel, or welding and bolling them in a re-heating furnace, and subjecting the mass to pressure by rolling or hammering to produce spring-steel. No illustration.

No. 11,339.—Peter Spilman.—*Apparatus for Describing the Curve of the Arm-Holes of Coats.*—Patented July 18, 1854.

This invention consists in a peculiar arrangement of the scales Nos. 1, 2, 3, 4, 5, forming an apparatus by which, when the location of the arm-hole is obtained, the proper curve is correctly given. It will be noticed that four only of these scales are placed radially, since the arm-hole is not of a uniform curve, varying in size merely; but the curve itself changes for different sized persons, and the position given to the scale No. 1, in combination with the other four, is designed to meet this requirement.

Claim.—The apparatus, consisting of the diagram in the drawings, constructed and operating in the manner and for the purpose described in the specification.

No. 11,340.—John F. Snyder.—*Improvements in Metallic Fire-Places.* Patented July 18, 1854.

For convenience in winding up the metallic screen, the strips or sections are constructed in a concavo-convex form, and occupy but a limited space in the upper part of the fire-place.

Claim.—The forming of the screen with metallic strips having a concave surface, connected by links, making them flexible, and easily coiled into a small space on a cylinder.

No. 11,341.—Seymour Tomlinson.—*Machine for Holding Docks of Horses.*—Patented July 18, 1854.

This instrument consists of an iron crupper, connected with a hip or back pad by spiral springs F, and a looped arm B, connected by joints C to the crupper, and raised more or less by strap L and spiral spring

E, together with a suspensory apron D, attached at either side of the curved arm by screw-nuts, and having cushions H and perforations I. The cushions support the dock of the horse, coming in contact with it only at the sides and near the border of the hair, whilst the skin, which was wounded by the knife in pricking, is not irritated by the instrument. The holes admit air to the wounds, and also the discharge of blood or pus.

Claim.—The cushions only.

No. 11,342.—Philos B. Tyler.—*Improvement in the Reeling Apparatus of Rope Machines.*—Patented July 18, 1854.

This invention consists in connecting with the bobbin of a spinning-frame, or the reel of a rope-layer, a variable friction, to be operated by the tension of the cord which is being wound, so as to regulate the winding with an even strain throughout; and adjusting the same by means of a spring, so as to wind the cord regularly, with more or less tension upon it.

Also, in so arranging a dog, or finger, for driving the reel, as to allow it to move freely on the spindle in its lateral motion, in combination with a guide which acts upon the rope as it is coiled, to move the reel laterally, so as to wind the rope regularly from end to end of the reel, the rope, as it is wound, forming a regular wedge for the purpose.

Claim.—The combination of the friction-brake and the sliding-belt, or its equivalent.

Also, driving the reel by its outer periphery by the employment of the finger *k*, in combination with the guide *t*, for causing the reel to traverse, the reduction of friction caused by the mode of driving enabling the guide to cause the reel to traverse without too much resistance.

No. 11,343.—Charles Watt and Hugh Burgess.—*Improvements in Pulping and Disintegrating Vegetable Substances.*—Patented July 18, 1854; in England, August 10, 1853.

The wood is reduced to shavings, (the finer the better,) boiled in a solution of caustic alkali, (time and strength to suit the wood,) washed and pressed, and exposed to the action of chlorine, or any composition of chlorine and oxygen, either gaseous or aqueous; washed and pressed again, using occasionally mechanical aid; and then placed in a weak solution of caustic alkali, when it it will assume the form of a brown pulp. The latter is freed from alkali by washing, and then bleached in the usual way.

Claim—Is restricted to the pulping and disintegrating of shavings of wood, and other similar vegetable matter for making paper, by treating them with caustic alkali, chlorine, simple or its compound, with oxygen and alkali, in the order substantially as described.

No. 11,344.—G. F. WILSON and J. M. WHITING.—*Improvement in Screw-Cutting Machines.*—Patented July 18, 1854.

The improvement consists: 1st. In arranging the cutters *a a* upon the periphery of a disk E, and bringing them up to the blanks by a continuous motion.

2d. The peculiar manner in which the chases *a a* are made and secured to the cutter head F, they being let into grooves or recesses in the head, and having their upper portions hinged to their lower portions, which latter are secured to the head by screws or otherwise.

No. 11,345.—MARY BURNS, administratrix of ROBERT BURNS, Jr., deceased.—*Improved Carriage Springs.*—Patented July 18, 1854; in England, June 7, 1853.

This invention consists in combining two or more India-rubber cylindrical compressing springs *k k* with a bar-spring or toggle-bar *a a*, capable of being lengthened or shortened by the screw-nuts *c c*, so as to sustain the required weight with a proper degree of elasticity.

No. 11,346.—GEORGE J. WARDWELL, assignor to HIMSELF and ELMER TOWNSEND.—*Improvement in Boot and Shoe Pegging Machines.*—Patented July 18, 1854.

This improvement pertains to that description of boot and shoe pegging machines which is grasped in the left hand, and, being applied to the work, is operated by a blow from a mallet in the right, and consists:

1st. In so arranging a guide-point F between the respective orifices for the awl D and the driver E, that by placing it successively in the holes as they are made, the driver will be over that preceding, and the awl at the proper distance for another hole.

2d. In the use of a depressor R, attached to the handle by an adjustable screw T, and operated by a spring S, which is operated by the thumb of the hand grasping the handle, and for purposes set forth in the claim.

3d. In the use of the spring-bottom M to the peg-wood carrier H.

Claims.—The combination and arrangement of the guide or setting point F with the handle, the awl or hole-punch, the peg-driving orifice, and mechanism, substantially as specified. Also, the combination and arrangement of the spring gauge-lever or depressor R, and the screw T, with the handle and peg-wood carrier, the object of the same being not only to gauge the space in the peg-wood carrier, so as to adapt it to peg-wood of any desirable width below the maximum that can be used therein, but also to enable a person to move the peg-wood downwards, and back of and below the edge of the knife when necessary, so that it may not be moved forwards under circumstances as hereinbefore stated. Also, so combining the spring M with the peg-wood carrier, peg-driver, and gauge-lever, that it shall not only serve to support the peg-wood, or constitute a bottom to the carrier, but also to force up the peg-wood after it has been depressed, either by the peg-driver or the gauge-lever, as specified.

No. 11,347.—ALBERT H. TINGLEY.—*Improvement in Machinery for Sawing Stone.*—Patented July 18, 1854.

This improvement pertains to a stone-sawing machine, for which a patent was granted to the same inventor March 19, 1850, and consists:

1st. In an arrangement of ratchet-wheels, pawls, &c., for giving the gang of saws a slow intermitting descent; and

2d. In an arrangement for the purpose of regulating the distribution of the water; the latter of which is sufficiently described in the claim.

To effect the former result, the arm *p*, which obtains a reciprocating motion from the driving-wheel, actuates a pawl *o* resting upon the loose ratchet-wheel *l*, of course advancing it a tooth at every stroke. Upon the face of the wheel *l* is a pin *m*, which in its revolution alternately impinges upon the pawls *e* and *f*, connected by a bolted rod *g*, by means of which their relative position is adjusted, so that while the head of one pawl (as *f* in the drawing) is bearing against the radial side of one of the teeth upon the wheel *d*, the head of the other (as *e*) will be resting upon the middle of the rising side of another tooth. This wheel *d* is fast to the axis of the sprocket-wheel U, and thus being released half a tooth at a time, it slowly permits the endless chain T, around said sprocket-wheel, to move and let the saw-frame down.

Claims.—The combination of the two spring-pawls, their slotted connecting-rod, the movable ratchet and its tripping pin, with the fixed ratchet of the shaft of the sprocket-wheel U, the whole being operated and made to operate together as described.

Also, the series of hooked pins on the water distributor, in combination with the series of notches applied to the connecting-rod for operating the water-distributor; the whole being for the purpose of regulating the motion to take place over either a portion or the whole entire surface of the stone, as occasion may require.

No. 11,348.—SOLOMON ANDREWS.—*Improvement in Labels for Mail-Bags and other Uses.*—Patented July 25, 1854.

The nature of this invention consists in the formation of a label by joining together two pieces of raised metal, or other suitable material, having the superscription on the convex sides, and open at both ends so as to admit a strap or chain to pass through it, and capable of being reversed.

Claim.—A label formed of two distinct parts and riveted or firmly secured together, having the superscriptions on the outside, and open at both ends to admit a chain or strap to pass through it; for the purpose of being changed from side to side, that the proper superscription may appear, according to the destination of the mail to which it is attached, substantially as specified.

No. 11,349.—THOMAS R. and GEORGE BAILEY.—*Improved Device in Machines for Cutting Round Tenons.*—Patented July 25, 1854.

Motion is communicated to the cutter F and the chuck D E, by means of a belt passing around the pulley C. The end of the rail g

is then shoved into the aperture in the outer plate E. The cutter F cuts a round tenon, that enters the bore of the tube or barrel of the cutter; and the cutter G cuts off the wood on the outer side of the tenon, about half way between its outer and lower ends, leaving a recess in the end of the rail. The rim C serves as a guide to the rail, and crosses the tenon to be cut precisely in its centre.

Claim.—The arrangement of the tube *c*, exterior to and concentric with the tube F, so that the rail may be steadied during the operation of the machine, and the tenon so cut that its axis shall be coincident with the axis of the rail.

No. 11,350.—Horatio N. and Jeremiah C. Bill.—*Improved Method of Securing Helves in Axes, &c.*—Patented July 25, 1854.

The drawing presents a perspective view of an axe and helve constructed upon the improved mode—a portion of the metal being removed to show more clearly the construction.

Claim.—The peculiar shape of the eye of the axe B, in combination with the helve C and wedge E.

No. 11,351.—William Bradley.—*Improvement in Nutmeg Graters.*—Patented July 25, 1854.

Claim.—What I claim as my invention, is the combination of the box or holder C, and its pressure-spring G, with the rasping surface of the grater A, when the whole are applied and made to operate together essentially as above described.

No. 11,352.—Edward W. Brown.—*Improvement in Looms.*—Patented July 25, 1854.

The nature of this invention consists in a peculiar construction of the parts employed to give motion to the drop-boxes of looms for weaving checks or plaids. The patentee disclaims the employment of two ratchet-wheels upon the same shaft, with teeth in reverse direction, and independent pawls driven by independent machinery.

Claim.—The combination of a single pattern-chain O and the double-acting pawls S S^1, constructed and arranged as set forth, with the two ratchet-wheels *a b* upon the cam-shaft F, for the purpose of driving the latter in either direction, as may be required; also the combination of the ratchet-wheels *a* and *b* upon the cam-shaft F, the gearing H I M, and the cam K, arranged as described.

No. 11,353.—Reinhold Boeklen and Henry T. Brown.—*Improvement in Bottles.*—Patented July 25, 1854.

The invention and claim consist in constructing bottles with an oblique stopper-passage B, extending downwards from the mouth *a*, and arranged in relation to said mouth and the neck A of the bottle in such a way, that while the lateral pressure on the cork is preserved,

the cork passage in no way interferes with or obstructs the straight communication through the mouth and neck *a* A of the bottle into the interior thereof. This improvement refers to an improvement in constructing bottles for corking, patented to William Clark, as recorded below under No. 11,357, and which is disclaimed.

No. 11,354.—Lewis W. Carpenter.—*Improvements in Section Globe Lanterns.*—Patented July 25, 1854.

For instantaneously detaching the oil-pot from a lantern, the levers J J, being pressed upon at Q, withdraw the studs M M from their apertures. A spring L keeps the whole arrangement fast when the parts are in combination.

Claim.—I claim the combination of the spring L with the levers J J, having the pins or studs M M, which work through the holes N N with a slot or groove, constructed and arranged in the manner and for the purposes set forth.

No. 11,355.—Lewis S. Chichester.—*Improvement in Cotton-Gins.*—Patented July 25, 1854.

This invention is mainly intended for ginning sea-island and other long staple cotton, but is equally applicable to other cotton. In the accompanying drawing, *a* represents the frame, and *b b* two vibrating plates having arms *d d d d*, those of the two at each end being connected by rods *e e*, with a vertical slide *f*, working in ways and provided at the lower end with a pin *g*, fitted to a groove *h*, in a wheel *i*, on a shaft *j*, receiving motion from a driving-shaft *k*, by which means a rotary reciprocating motion is imparted to the two plates. As the plates are vibrated back, two rollers *l l* are made to approach each other near enough to catch the pods and draw them through. These rollers may be covered with India rubber or other elastic substances, to prevent injury to the fibre.

Claim.—The mode of operation of the vibrating curved surfaces, for the purpose of forcing seeds out of the pods of cotton; also, in combination, making the said vibrating curved surfaces with recess 2, to form what is termed the upper griping edges, to act upon the pods near the seeds towards the end of the operation; also, in combination with the vibrating curved surfaces, the employment of rollers acting intermittingly as described.

No. 11,356.—Thomas F. Chapin.—*Improvement in Ploughs.*—Patented July 25, 1854.

In this plough the beam vibrates vertically upon the horizontal pin *a*, by means of a rock E and lever G, which are moved by a crank and the pinion F. These devices serve to elevate or depress the forward end of the beam, and thus to give the plough a greater or less tendency to enter the ground. Applicant disclaims the use of an adjustable beam and rack and pinion, separately.

Claim.—1st. Attaching the beam C to the mould-board A by a pivot *a*, for the purpose of allowing the outer end of said beam to be raised or depressed, as desired, and thereby give the share a greater tendency to enter the earth, and causing the furrows to be of the desired depth. 2d. The means herein shown and described for operating the beam C, viz: The box or socket D, having within it a rack E and pinion F, the rack being connected to the beam by a rod G, the above parts being constructed and arranged substantially as set forth.

No. 11,357.—William Clark.—*Improvement in Bottles.*—Patented July 25, 1854.

The invention and claim consist in forming bottles with an eye B, at the top of the neck *a*, said eye having a passage a^1 through it at right-angles, or nearly so, with the opening *b* of the bottle, for the purpose of receiving the cork *c*, and preventing the latter from being expelled by the pressure of the gases generated inside the bottle.

No. 11,358.—Jno. Clarke.—*Improved Door-Spring.*—Patented July 25, 1854.

The invention consists in the use of a secondary spring *k*, to close the door when it has been brought partially to by another spring.

Claim.—The arrangement of the several parts, (on the casings and on the door,) as set forth, when the whole is constructed and made to produce the result substantially in the manner herein described.

No. 11,359.—George A. Colehamer.—*Substitute for Sperm or other Oils, for lubricating purposes.*—Patented July 25, 1854.

The invention and claim consist in the following definite proportion of ingredients, to produce by simple mixture, forthwith, a lubricating compound, viz:

For a gallon compound, $\frac{5}{16}$ths linseed oil, $\frac{7}{16}$ths rosin oil, and 12 pennyweights of gum-camphor.

No. 11,360.—Thomas Coles.—*Omnibus-Step Protector.*—Patented July 25, 1854.

This invention consists in providing and attaching to the doors of omnibuses a covering for the steps and springs, so that when the door is shut, said cover will protect the steps and springs from wet and dust; also, prevent persons from riding thereon.

Claim.—1st. Constructing an appliance or covering for the steps of the omnibus, in form and manner described in the specification, (made of wood, sheet-iron, copper, or other material,) corresponding in width with the door; and the sides falling over the ends of the steps, secured to and moving with the door. 2d. To complete and carry out the design of the invention, forming metallic triangular plates, to be well secured

to spring-bar, or otherwise shielding the ends of the hind-spring, according to the specification and drawings, the whole combined affording the desired relief to stage-men.

No. 11,361.—Charles H. Dana.—*Improvement in Cultivator.*—Patented July 25, 1854.

The drawing and claim fully describe this invention.

Claim.—What I claim as my invention, and desire to secure by letters patent, is, constructing each of the outermost teeth G with a horizontal blade projecting more or less outwardly from its shank, and with an upright portion G, bent up at the extremity of said outwardly projecting blade, the edge of said upright portion being parallel, or thereabouts, with the longitudinal direction of the cultivator, for the purpose of cutting up the weeds close to the rows of corn or other plants, and at the same time drawing the weeds away from the rows, and also serving to guide the attendant in directing the cultivator, so as not to injure the plants by too near an approach to them, substantially as herein described.

No. 11,362.—George Deuble.—*Improvement in the Striking Part of Eight-day Steeple-Clocks.*—Patented July 25, 1854.

Claim.—What I claim as my invention and desire to secure by letters patent is, attaching to the beam or lever M, which is operated by a pin on the wheel O, and is provided with a detent for arresting the fly, the knee N, or its equivalent, to act in conjunction with the pins in the count-wheel H, as an inclined plane, to raise the lever till its detents take effect, and to escape from the pins when the lever is still further raised by the pin on the wheel O, as herein described.

No. 11,363.—Charles W. Dickinson.—*Improvement in Machines for Making Metallic Rings.*—Patented July 25, 1854.

The claim allowed is to forming the lower finishing die *s* s^1 in two parts, of which the part s^1 is capable of being raised to expel the finished ring or link.

No. 11,364.—L. A. Dole.—*Improved Arrangement for Lathe Chuck.*—Patented July 25, 1854.

Figure 1 is a vertical longitudinal section of the machine, a section of a hub being shown secured in the same, and partly bored.

Figure 2 is an inverted plan of the improvement. The inventor's claim is to the manner of combining and arranging the scroll-screw A, holding jaws B, screw or mandrel C, cutter C^1, adjusted nut F, gauge-plate G, sliding-catches *c d*, and notched and grooved barrel E, or their equivalents; for the purpose of constituting a machine which is capable of boring the hub entirely through in a true and perfect man-

ner, and also of being adjusted so as to cut a shoulder of the required depth, to enter the hub at the proper distance, and then being adjusted as the operation is proceeded with, in order to square up the shoulder in a perfect manner.

No. 11,365.—James and John Fishwick.—*Improved Mode of Driving and Straining Saws.*—Patented July 25, 1854.

Disclaiming the direct connexion of the saw with the piston-rod, and straining the saw by steam, or other elastic fluid, the inventors

Claim—Driving and straining the saw by two steam-cylinders and pistons of unequal size—the larger being of sufficient size to drive the saw during its downward or cutting movement, and only receiving steam during such movement; and the smaller, which always contains steam, being of sufficient size to keep the saw strained while cutting, and to raise it and the larger piston.

No. 11,366.—Charles Folsom.—*Improvement in Library-Tables.*—Patented July 25, 1854.

This is constructed so that when the leaves E F, and the centre-piece D, to which they are hinged, are dropped horizontally upon the table B, it may then be used as an ordinary table for reading, or for other purposes. If one of the leaves, E or F, be raised into a vertical position, the other remaining horizontal, it may be used for writing or copying—the vertical leaf supporting the sheet to be copied.

What I claim as my invention and desire to secure by letters patent is, the combination of the table B with the leaves C E and F, constructed and operating in the manner substantially as herein set forth.

No. 11,267.—Alanson Gale.—*Improvements in the Mowing Machine.*—Patented July 25, 1854.

The improvement consists in constructing the machine with an additional wheel A, for the purpose of supporting the weight of the cutter-bar and cutters without dragging them on the stubble. To effect this, said wheel A is placed at a point somewhere in advance of the centre of gravity of the whole machine, including the driver sitting erect on his seat, whereby the cutter-bar is lifted above ground whenever the machine is at rest or pushed back, or whenever the driver leans back in his seat, but keeps close to the ground all the time the machine is in motion, the draught of the team restoring the equilibrium.

Claim.—The claim is confined to the wheel A as above described, so constructed and combined with the frame of a mowing machine as to support the cutter-bar clear of the ground when pushed back, and lower it to its place when drawn forward

No. 11,368.—Daniel Gardiner, Jr.—*Improvements in Quartz and Ore Crushers.*—Patented July 25, 1854.

The stampers F, being raised and let fall by the operation of the cam-finger *b*, are caused to rotate rapidly in the basin and in contact with the substance under treatment.

Claim.—The employment of one or more stampers having such a jumping motion as to leave them for some time in contact with the quartz or ore after every descent, and such a rotary motion, that while they remain in contact with it between one descent and their next ascent, their rotary action will be sufficient to pulverize to a proper degree that which was prepared by the breaking or crushing action of their descent, substantially as herein described.

No. 11,369.—Abram J. Gibson.—*Improvement in Vehicles.*—Patented July 25, 1854.

This invention consists in placing the foremost pair of wheels forward of the point of attachment to the perch by means of a bent axle *b*, in combination with arch springs *r r*, *s s*, *p p*, connecting and bearing from axle to axle, thus enabling the vehicle to be made shorter and to turn in less space.

Claim.—To give the forward axle a bent-form, in combination with arch-springs connected and bearing from axle to axle, for the purpose and in the manner and form substantially as set forth.

No. 11,370.—Ezekiel Gore.—*Improvement in Butter-Workers.*—Patented July 25, 1854.

The nature of this invention consists in the employment of an endless revolving sack E for containing and confining the butter, and conveying it to and between the fluted or working rollers C and D, and through the water in the tub or box, as fast as the rollers operate upon it, until it is thoroughly worked, washed, and seasoned.

Claim.—A machine provided with an endless revolving sack, and having its parts arranged and operating essentially as herein described and shown, for working, cleansing, and seasoning butter, substantially as set forth.

No. 11,371.—George W. Griswold.—*Improvements in Portable Grates.* Patented July 25, 1854.

The shakers E extend from the front of the grate, where they are hinged, one for penetrating each pair of bars, to the rear part of the fire-box; a vibrating motion communicated to the shaker detaches clinker, and shakes down the ashes and refuse coal.

Claim.—The hinging of the shakers in front of the grate so as to give the ends thereof next the back the greatest extent of motion, and this in combination with the stop, which prevents the shakers from rising above the bottom of the grate, substantially as described.

No. 11,372.—Edmund P. Gaines.—*Improvements in Dressing Mill-Stones.*—Patented July 25, 1854.

humidity, and when soiled may be wiped off with a damp cloth or

No. 11,372.—Edmund P. Gaines.—*Improvements in Dressing Mill-Stones.*—Patented July 25, 1854.

Claim.—The manner of laying off the dress of the mill-stones, with four curved master-furrows I I I I, (by which I gain a draught equal to one-fourth the circumference,) in connexion with secondary furrows, laid according to the directions before given, for the purpose of more effectually grinding grain, increasing the quantity ground with a given power, producing a better yield of superfine flour, and avoiding both the choking and undue heating of the stones, in the manner substantially as set forth.

No. 11,373.—Benajah T. Hall.—*Improved Water-Wheel.*—Patented June 25, 1854.

Claim.—The combination of the bevelled or inclined curb A with the wheel, constructed as described, and the eccentric discharging orifice, or its equivalent, for the purposes above set forth.

No. 11,374.—A. C. Harig and D. C. Stoy.—*Improved Lock.*—Patented July 25, 1854.

Claim.—1st. To the self-adjusting guard *l*, arranged and operating in the "usher" C, in such a manner that the introduction of powder or picking instruments into the lock through the key-hole is effectually prevented. 2d. The arrangement and combination of the cam E which operates the bolt, the dog G, and the eccentric notch *i* in the usher, in such a manner that while the key or its substitute may be operating on the tumblers, the cam shall be intercepted by the dog, so that it cannot be brought into contact with the bolt till the key shall have moved the tumblers as far as it is capable of.

No. 11,375.—Mark A. Heath.—*Improvement in Windows.*—Patented July 25, 1854.

This improvement consists in the insertion of a flexible expanding strip *b*, formed in lengths, jointed or otherwise pliantly secured together so that the sash is made to slide smoothly in the frame, the several lengths of the strips expanding and contracting to accommodate themselves to inequalities in the grooves in which they slide; all for the purpose of forming a close joint between the sash and the frame, substantially as shown and described.

No. 11,376.—Walter Hunt.—*Improvement in Shirt Collars.*—Patented July 25, 1854.

This invention consists in making collars of a fabric composed of both paper and cloth, and in subsequently polishing the same by enamelling or burnishing; also, in covering the collars with a thin pellicle of transparent colorless varnish, to render them proof against injury from

humidity, and when soiled may be wiped off with a damp cloth or sponge.

Claim.—As a new article of manufacture, the above-described shirt collar, made of the fabric set forth, and polished and varnished as specified.

No illustration.

No. 11,377.—Henry Jackson.—*Improvements in Steam-Boilers.*—Patented July 25, 1854.

Claim.—1st. The arrangement of the vertical water-tubes *i i i* and spiral flues, in relation to the furnace, as shown.

2d. The arrangement of the vertical water-tubes, surrounded by the non-conducting material, and the upper and lower horizontal tubes *a a a*, in connexion with the heating surfaces, for the purpose of returning the water from the upper to the lower tubes.

No. 11,378.—William G. Lavers.—*Improved Device for securing ends of Wires in Fence-Posts.*—Patented July 25, 1854.

The nature of this invention consists in the peculiar manner of securing the horizontal and parallel wires B to the posts A, which is, by passing the ends of the wires through slots *d* in the posts, and forming hooks at the ends, and the ends of these hooks passing through slots immediately below those first mentioned; the wires being straightened and strained by means of the nuts and screws, as seen at D, and straining-posts being placed at each corner of the lot or field to be enclosed.

Claim.—The claim of the patentee is to the method of securing the horizontal wires to the posts. Figure 3 is a front-view of the fence. Figure 1 is a side-view of one of the posts, showing the manner in which the wires are secured in the posts. Figure 2 is also a side-view, showing the manner of crossing the hooks at the ends of the wires.

No. 11,379.—Griffith Lichtenthaler.—*Improvement in Cultivator.*—Patented July 25, 1854.

This invention consists in the method of attaching shares I to beams, and is sufficiently described by the claim.

Claim.—Having metal strips F, perforated with holes *f*, secured to the under-side of the beam A; and sockets, formed of two lips *g g*, made at the upper ends of the shares, and perforated with holes *h h*, in which holes *h*, and in the holes *f* in the plates E, wooden pins *i j* are passed, securing the shares to the beams, as set forth.

No. 11,380.—Hymen L. Lipman.—*Improvement in Eyelet Machines.*—Patented July 25, 1854.

The nature of this invention consists in forming the die and counter-die, or follower and anvil-block, so that an eyelet subjected to their

action shall be equally turned over, or riveted at both sides or ends, by a single operation, without turning over the folios or whatever is to be fastened thereby.

Claim.—The so forming of the die and counter-die, or follower and anvil-block, of an eyelet machine, by concave grooves, channels, or their equivalents, as that the eyelets may be riveted or clinched on both sides by a single operation and without turning them over, substantially as described.

No. 11,381.—NORMAN B. LIVINGSTON.—*Improved Coupling for Carriages.*—Patented July 25, 1854.

This invention consists in coupling the front axle to the reach by means of an eye-piece or collar having a shank, instead of by a central king-bolt, the shank being attached to said reach E, the collar or eye fitting loosely in a groove formed in the periphery of a horizontal circle-plate, which is secured fast to the top of the front axle, and made in two parts, so as to admit of the ring or eye-piece being fitted in the groove.

Claim.—Coupling the front axle to the reach, and also the whiffletrees of a wagon or carriage to the tongue, by means of the circular collar or eye-piece and grooved sectional circle-plate, constructed and arranged, and operating in the manner, essentially as herein described.

No. 11,382.—JOHN LYON.—*Improvement in Ditching Plough.*—Patented July 25, 1854.

This invention and claim consist of a plough, endless apron, guide-pulley, etc., so arranged and constructed, that a furrow of any depth may be cut, and the loose soil taken up and conveyed by the endless apron *a*, and discharged at right-angles with the line of travel; for the purpose of forming roads and foundations for fences, and for other purposes.

No. 11,383.—JORDAN L. MOTT.—*Improved Mode of Securing Staples to Walls.*—Patented July 25, 1854.

This invention consists in forming a cast-iron anchor with the wrought-iron staple attached, so shaped as to be locked in and become an integral part of the mason-work.

Claim.—Forming the anchor of a block cast on to the shank of a wrought-iron staple or eye, and provided with a thin wing, having flanches or ribs, all cast and forming one substance with the block, substantially as specified, whereby the cast-iron part shall hold the shank firmly, and at the same time become an integral part of the mason-work, and be firmly held therein by the superincumbent weight, as described.

No. 11,384.—JAMES R. NICHOLS.—*Improvements in Portable Soda-Water Fountains.*—Patented July 25, 1854.

The invention and claim consist in the combination of a cylindrical reservoir A, encasing a generator E, with a purifier H, in a peculiarly compact manner; and in the arrangement (above and partly within the generator E, in the way of a sliding-tube of a spy-glass) of a regulator F, provided with valve P, rod G, and screw L, to control the supply of the powdered chalk or soda into the generator, without opening the fountain.

No. 11,385.—ALPHONSE QUANTIN.—*Improved Mode of Stopping Mineral-Water Bottles.*—Patented July 25, 1854.

The invention and claim consist in composing the bottle-stopper of a metallic cone *c c*^{1}, provided with certain canals and grooves, the cork zone, and the India rubber valve G M, intended to enable the consumer of the mineral water to draw off any part thereof without spoiling the remainder in the bottle. Also, to serve permanently to stop the bottle as many times as it may be filled with new liquor.

No. 11,386.—WASHBURN RACE, assignor to H. C. SILSBY and W. RACE.—*Improvements in Regulating the Heat of Stoves.*—Patented July 25, 1854.

The amount of air admitted to stoves is regulated by opening and closing the damper E, through the intervention of the expanding bar C, the catch D F, and the screws B A.

Claim.—Adjusting the stove-regulator by attaching the nut and screw used for that purpose at the top end of the same, and at the top of the stove, in the manner and for the purposes set forth. And further than this mode of adjustment I do not claim.

No. 11,387.—ELIHU RING.—*Improvement in Machines for Working Butter.*—Patented July 25, 1854.

This invention consists in providing the machine with a block Q, having a spring in its rear side, so as to allow the block to traverse when the butter is forced against it by means of the piston H.

Claim.—Arranging the block Q to traverse as described, in combination with the spring R, or its equivalent, to force it forward, in the operation of working butter, substantially as described.

No. 11,388.—ELNATHAN SAMPSON.—*Improvement in Platform Scales.*—Patented July 25, 1854.

The principal part of this invention consists in supporting the platform upon a series of short levers G G, which extend transversely from the side of the platform to near its centre, and are there connected to a laterally vibrating lever E, which extends the whole length of the

platform, and from which the motion is transmitted to the scale-beam through the lever F; so that the use of *trussed levers* in scales, even of the largest size, may be avoided, and consequently the necessity of digging pits, deep in proportion to the size of the scale, wherever one is erected.

It also consists, in a peculiar manner, of connecting the platform with the above-mentioned levers G G, viz: in the use, within the stirrup *i* from which the platform depends, of a double concave auxiliary block *k*, upon the upper concave of which the bearing-edge of the stirrup *i* rests, and the lower concave of which rests upon the knife-edge *s* of the lever G; so that, as the two concaves are at right-angles, the platform is allowed to have a free swinging motion, either longitudinally or transversely.

Claim.—The combination of the short longitudinally vibrating levers G G with the laterally vibrating longitudinal lever E, by which the scales may be constructed of the largest size without using trussed levers.

Also, the combination of the platform with the beam actuating the double lever F, or its equivalent, through the medium of the longitudinally vibrating levers G G and the laterally vibrating lever E.

Also, inserting a double concave intermediate block *k* within the opening of each stirrup *i*, between the sharp edge of the cross-bar of the stirrup and the edge of the lower pivot, at right-angles therewith; for the purpose of enabling the platform to swing freely, in a lateral and longitudinal direction, without injury to said sharp bearing-edges, substantially as set forth.

No. 11,389.—J. Wheeler Smith.—*Improvements in Sheet-Metal Candlesticks.*—Patented July 25, 1854.

Claim.—Forming the base of a sheet-metal candlestick of two sheets of different metals, which are of such proportions, respectively, that the upper sheet is too thin to support the candlestick by itself, and has the requisite stiffness and strength imparted to its central portion by fitting and firmly uniting thereto the under sheet, substantially in the manner herein set forth.

No. 11,390.—Isaac Straub.—*Improvement in Corn-Cob Cutters.*—Patented July 25, 1854.

In this machine the rotary burr E carries a knife *c*, which meets blade *b* with a shear-cut to sever the ears of corn, which are fed in through hopper D, and, after being cut, are ground between the burr E and hollowing cylinder A.

Claim.—The combination of a rotating burr E, provided with a blade or cutting-edge on top, and with a toothed or roughened surface on its perimeter, and a stationary shell, also provided with a cutting-edge; said cutting-edges operating together, shear-fashion, for slicing off and reducing ears of corn preparatory to their undergoing a further reducing or grinding operation; the whole being combined in the manner and for the purpose substantially as set forth.

No. 11,391.—David Stouder.—*Improved Ditching-Spade.*—Patented July 25, 1854.

This invention consists in combining an obtuse-angled cutter E, with the side-cutters *c* sloping upwards, with a claw-hook *l*, so that a drain or blind ditch can be cut by the operator standing upon the surface of ground.

Claim.—The combination of the obtuse-angled bottom-cutter with the side-cutters sloping upwards, the light steel ribs, the foot-treads on the single or divided handle, and the claw-hook for deep trenching, in the manner and for the purposes set forth.

No. 11,392.—William H. Towers.—*Improvement in Horse-Shoes.*—Patented July 25, 1854.

The improvement and claim consist in the combination of steel springs, having corks B formed on their flexible end, and capable of being easily removed and attached with the main body of the shoe.

No. 11,393.—Jno. E. Vansant.—*Method of ascertaining the Draught of Boats.*—Patented July 25, 1854.

Claim.—The arrangement of tubes and indicators in the bow, stern, and quarters or wings of light-draught vessels, for the purpose of keeping them trimmed, by indicating the true draught throughout their length and breadth, and preventing the hogging or straining of the hull, substantially as described.

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o. 11,394.—Abraham Van Antwerp.—*Improvement in Paddle-Wheels.*—Patented July 25, 1854.

Claim.—The construction and use upon steamboat paddle-wheels of disconnected floats, of *cyma recta* and *cyma reversa* form, as shown in figure 1; the same being placed upon arms set obliquely on the shaft, being so formed and placed that the end of the float enters and leaves the water on a line parallel with the direction of the vessel, whereby the beating down of the water by the float when entering, and the raising up of the water when leaving, as in the ordinary transverse paddle, is prevented.

No. 11,395.—Charles A. Wakefield.—*Improvement in Seed Planter.*—Patented July 25, 1854.

This planter consists of a seed-chamber *a*, having a seed-valve B in its bottom, said valve being (by means of slot *g* and pin *f*) moved by

the plunger A, which, in its descent, carries before it the seed from passage D, and by a lip prevents the seed from escaping from the end of said plunger, as seen at G, whilst the obliquity of the plunger prevents the seed from escaping at the side opposite said lip. The handle E is placed oblique, to facilitate the oblique working of the plunger. The seed is thus closely imbedded in the soil, and the oblique hole is readily closed by the falling earth as the implement is withdrawn.

No. 11,396.—Benjamin Webb.—*Spring Polishing Wheel.*—Patented July 25, 1854.

Claim.—The forming of an elastic polishing wheel by the use of a series of springs placed under sections of the surface, moving vertically from the centre, and independent of each other.

No. 11,397.—Charles Williams.—*Improved Mode of Fitting Heads in Boxes.*—Patented July 25, 1854.

This improvement consists in putting heads in boxes by cutting grooves across the grain of the boards, and near each end, to receive those boards which are designed for the heads, in a manner similar to that practised for heading barrels. One end of the box is made perfectly secure in the first instance, and the other is put in when the box has been made ready for use. A, in the drawing, is intended to represent the grooves; B the angular end-pieces; C the key, as it might be called, which is put in after the other pieces have been put in their places, and which presses tightly against them, keeping them in place. C is kept in position by a pin that passes in at one end of the box.

Claim.—The angular form of the three pieces of heading, which allows these being put in securely, and often removed, without drawing a nail or moving a hoop.

No. 11,398.—Simon Willard.—*Improvement in Bedsteads.*—Patented July 25, 1854.

Claim.—My improved bedstead, constructed substantially in the manner herein described, viz: of sheet-metal side and end pieces *a b c*, which are bent at their ends so as to form sockets for the reception of the sustaining and uniting posts *e*, and provided with inward flanches *f* at their lower edges for the reception of the hinged bottom-plate *h*, which serves at the same time to support the bed and keep the bedstead firm and in proper shape, substantially as herein set forth.

No. 11,399.—Daniel Willis.—*Improvement in Hot-Air Furnace and Cooking Range.*—Patented July 25, 1854.

An elevated oven is entirely surrounded by ignited gases proceeding from a fire-box constructed of sectional parts, having a grate which can be raised or lowered, the whole arranged in such a manner as to heat

air for warming apartments at the same time that operations in cooking are in progress. The cold air for this latter purpose is made to traverse the entire outer surface of the fire-chamber by the return flue.

Claim.—The arrangement, construction, and united operation of the several devices forming the cooking and warming apparatus herein shown, substantially as, and for the purposes, set forth.

No. 11,400.—Leonard Woods.—*Improvement in Hedge Trimmers.*—Patented July 25, 1854.

This machine is so constructed that the travelling wheels not only carry it beside the hedge, but also drive suitable gearing to set in motion the nearly vertical cutter-wheel *k*, and also the horizontal cutters *q*.

The applicant does not claim knives revolving on a horizontal shaft, as used for topping cotton.

Claim.—1st. I claim the arrangement of the cutters affixed on the face of a wheel or an inclined shaft, revolving so as to cut upwards as the carriage advances parallel to the side of the hedge, in the manner and for the purposes as described.

2d. I claim the gauge *s* in combination with the horizontal revolving knives *g*, both being adjustable to the required height for topping the hedge as described.

3d. I claim lifting the lower branches of the hedge to bring them within the range of action of the revolving cutters, by means of the bent bar *m* or its equivalent, thereby obviating the necessity of having the cutter-wheel of large diameter, and allowing the cutters to be carried so high as to be free from all danger of striking the ground, substantially as set forth.

No. 11,401.—Daniel Zeigler.—*Improvement in Cider Mills.*—Patented July 25, 1854.

Claim.—I claim the arrangement, herein shown and described, of the spur-teeth on the rollers in rows around the periphery, of regular sizes in each row, but the teeth in the one row being larger than the teeth in the adjoining row, and the smaller teeth of the lower roller being arranged opposite the larger teeth of the upper rollers, and all three rollers running at different velocities as specified, and constructed and arranged as, and for the purposes, set forth.

No. 11,402.—Daniel Wilson, assignor to W. F. Pratt, G. W. Bosworth, and H. M. Bird.—*Improvements in Stovepipe Thimbles.*—Patented July 25, 1854.

Claim.—I claim the combination of the rings E F, the thimble B, the sliding-plates C D, and the cover G, with the ventilators H H^1, constructed and operating in the manner substantially as herein set forth.

No. 11,403.—Birdsill Holly, assignor to Silsby, Race, & Holly.—*Improved Mortising Machine.*—Patented July 25, 1854.

Claim.—I claim the mode of working the chisel as set forth in the specification, the same consisting in the re-entering belt H or its equivalent in combination with the spring S and hand or foot-strap S^2, and in combination therewith the tongue-strap *t*, with its spring S^1, for the purpose of keeping the belt loose upon the driving-shaft.

I claim, also, the mode of reversing the chisel, or of keeping it in and out of gear, which consists in the combination of the hinged-bar *h*, the spring *i*, the notched ring *r*, the treadle *u*, or its equivalent, and the rod *d*, connected with the gear-wheel *w* on the pulley-frame.

No. 11,404.—Thomas Brown.—*Improvement in Cable Stopper.*—Patented July 25, 1854; in England, April 20, 1847.

Claim.—I claim, 1st. The arrangement of the capstan, the removable rollers *e e*, and the sockets *f f f* for said rollers, in such a manner, and having such relation to the hawse-holes, chain-locker, deck-pipes, and under-lifting stoppers, that a chain-cable can be continuously hove in by means of said capstan and rollers, or be directly run out of the lockers without any previous overhauling.

2d. I claim the arrangement of the under-lifting bow-stoppers and after-stoppers E, by which more cable can be gradually and controllably given to a vessel while riding heavily at anchor.

No. 11,405.—Elkan Adler.—*Improvement in Machinery for Making Matches.*—Patented August 1, 1854.

Claim.—1st. I claim a perforated dipping-board H, moved by and combined with the sliding-frame I, to receive the matches as they are cut, and to dip a great amount of them at once in the igniting preparation.

2d. I claim the combination of the springs *k l*, levers *m n*, shafts *f g*, pawls *h i*, rods *o p*, and button *j*; whereby the board H, when fitted, can be set to receive a new load of matches, by the simple pressing on button *j*.

3d. I claim the combination of knives F and F^1, with the connecting-piece K, crank J, and lever *q*; whereby, at every revolution of the crank J, a range of matches is cut off, of perfectly equal length, and left fixed in board H.

4th. I claim the combination of grooved-rollers C C^1 with drum B, grooved tables D E G, and knives F F^1; whereby an unfailing supply of wax tapers, or equivalents, is secured for the action of the knives and for the reception in board H, the wax tapers being from the start wound twice around the drum B.

5th. I claim the combination of the driving-wheel *d*, roller-wheels *e* e^1, intermediate wheel *c*, and drum-wheel *b*, to set and to keep in action the various parts of the machinery.

No. 11,406.—William Little.—*Lubricating Material.*—Patented August 1, 1854.

Claim.—I claim the combination of the coal-oil, or heavier oily product of the second distillation of bituminous coal, or equivalent, with a saponified vegetable or animal or fish oil or fat, and whether the coal-oil be combined with the vegetable, animal, or fish oil, or fat, after or during the saponification of the latter.

No. 11,407.—Charles F. Bauersfeld.—*Wood-Carving Machine.*—Patented August 1, 1854.

The improvement in this case relates mainly to the form of the tools used in making raised figures upon a board. The frame is similar to that of ordinary drilling-machines. The drawing embraces sixteen figures; of which we present three. Figure 1 shows a bit for forming semi-spherical projections; figure 2, a bit for straight excavations; figure 3, a large under-cutting bit.

Claim.—I claim the formation, as described in the specification, of an excavating bit, having its longitudinal contour corresponding to the designed vertical section of the relievo; and grooved along its sides and across its lower end or face, in the manner described, at or near the plane of its axis, for the purposes explained.

No. 11,408.—Collins B. Baker.—*Improvement in Brick Machines.*—Patented August 1, 1854.

This improvement pertains to that class of brick machines in which the plunger has a segmental shape, and turns upon the centre of said segment, (as fully shown in the drawing,) and consists in a peculiar shape given to the pressing surface, by which it is enabled to give a vertical, and the same degree of, pressure to the clay in the hopper near the outer surface as that given to the clay near its centre of motion, thereby causing the clay to be forced with equal and uniform pressure throughout the whole mass, filling all parts and corners of the mould, and producing brick of uniform density.

Claim.—I do not claim constructing a sector-shaped follower with a rectilinear nor a single curved concave pressing surface; but I do claim constructing it with a pressing surface of two circular or curved concaves which are proportioned to the increase of the distance from the centre of motion K of the quadrant N, substantially as, and in the manner and for the purpose, set forth.

No. 11,409.—Richard C. Bristol.—*Improvement in Steam-Boiler Tubes.*—Patented August 1, 1854.

The improvement consists in having the water-surface of the tube indented or roughened—the fire-surface being smooth.

Claim.—The cutting, impressing, or otherwise increasing one of the surfaces of tubes, or sheets of metal, which said surface is to form the

radiating side of boilers, flues, or vessels, for the purpose of imparting heat to any liquid, vapor, gas, or to atmospheric air, when said cutting or impressing is of such a character as to admit of being made after the plates are bent up into form, substantially as described.

No. 11,410.—George W. Cherry.—*Improvement in Saws or Blades for Sawing Stone.*—Patented August 1, 1854.

The *first* part of this invention consists in grooving the sides of the saw, from the upper to the lower edge of the saw, obliquely, so as to form channels for the sand to pass down to and under the edge of the saw, and in which the broken sand may be borne up and outward as the motion of the saw is reversed. To prevent breaking the sand in its passage, the grooves *b b* are formed obliquely across the saw-plate.

Secondly, the invention consists in the use of fine grooves, depressions, or holes *d d*, made in the saw or blade between the sand-passages, for the purpose of giving uniform flexibility to the blade; and, *thirdly*, in constructing the saw or blade alternately of hard and soft metal, in the direction of its length, hard metal being best to retain the saw in its proper shape, and soft metal best adapted to hold the sand effectually to its work.

Claim.—I claim constructing saws or blades for sawing or cutting stone with inclined side-grooves extending entirely across the body of the saw or blade, for the purpose specified. Also, the use of fine grooves, depressions, or holes made in the saws or blades between the sand-passages, for the purposes specified; also, constructing saws or blades for sawing or cutting stone alternately of hard and soft metal in the direction of their length, substantially in the manner and for the purposes specified.

No. 11,411.—Ephraim and John R. Cushman.—*Improved Machine for Drying Thick Paper.*—Patented August 1, 1854.

The nature and operation of this invention will be understood by reference to the claim and accompanying drawings.

Claim.—I claim the process of drying thick paper, and at the same time preventing it from warping out of shape, by placing the sheets *g g* in a pulpy state upon heated tables A or platforms, and allowing them to remain there until they harden to such a degree as to begin to warp out of shape, and then causing open or lattice weights C D to be let down upon them, which rest upon their edges or points at different parts of the sheets, and preserve them in flat positions until dry, substantially as herein set forth.

No. 11,412.—William Cayce.—*Improvement in Door-Locks*—Patented August 1, 1854.

The improvement and claim consist in the arrangement of levers G and pawls E E with the bolt C, the lever being guarded by the tubular key-hole H projecting inward over them, and the pawls protected by the board-bolt beneath them.

No. 11,413.—Jeremiah Carhart.—*Punching Apparatus for Uniting Metallic Plates.*—Patented August 1, 1854.

Claim.—1st. I claim making the punch *a* and die *b* of such relative size, that the punch shall be incapable of entering the die.

2d. Making the punch-holder *c* with a concave recess *d* in its face, or otherwise furnishing the back of the punch with a shouldered face, which shall bear upon the metal only in a ring at a distance from the punch.

3d. The employment of an upset plate *k*, placed as described, after the punching operation, between the die and that portion of one plate of metal which is protruded through the other, so that by repeating the movement of the punch, the protruding portion may be upset or rivcted. This I claim irrespective of any mechanism that may be employed to carry the upset plate to and from the die.

No. 11,414.—John Carton and Joseph Briggs.—*Improved Cover for Hot-Air Furnaces.*—Patented August 1, 1854.

The hollow cone A, affixed to the inner surface of the top of the hot-air chamber, has its apex *c* suspended over the centre of the furnace. The ascending currents of heated air diverge or are radiated by its deflecting surfaces to any corner of the chamber, and to the opening provided for discharging it into the chamber to be heated.

Claim.—We claim the inverted cone or deflector, when placed at the top of the chamber of hot-air furnaces, constructed in the manner and for the purpose set forth.

No. 11,415.—Ari Davis.—*Improvement in Magneto-Electric Machines.* Patented August 1, 1854.

This invention consists in so arranging the machine as to make only one conducting spring (*k*) necessary; and instead of making the journal *m* of the shaft *l* metallically continuous with it, it is made of a separate piece of metal, and insulated from the shaft.

Claim.—I claim as my invention the insulation of the journal of the shaft, in combination with the single conducting-spring in electro-magnetic machines, as herein described.

No. 11,416.—Henry C. Deputy.—*Improvement in Draughting and Modelling Vessels.*—Patented August 1, 1854.

Claim.—I claim the application of diagonals to draughting and modelling all kinds of vessels; also, the principle by which the exact concavity of concave water-lines is determined, viz: by transferring the intersections of the water-lines (in the body plan) with each frame to a half-breadth plan, which is seen in the drawing.

No. 11,417.—JOHN J. EFFERENN.—*Improved Machine for Sawing Fire-Wood.*—Patented August 1, 1854.

Claim.—I claim the combination of a saw G and saw-horse A with fly-wheels C, as described in the specification, operating through the agency of a lever E, arm D, and crank B.

No. 11,418.—PHINEAS EMMONS.—*Improved Machine for Working and Moulding Dough for Crackers.*—Patented August 1, 1854.

This machine consists: *first*, in arranging a set of feed-rollers, having semi-circular channels transversely of their axes, and matching together so as to form or cut a cylindrical strip of dough as it passes between them, in combination with a third roller (made like the foregoing) a little lower down than the lower feed-roller, and in front of it, so as to form a continuation of the channel-way for the cylindrical strip of dough, and for cutting the same into short lengths suitable for crackers, by means of a series of cutters placed in its channel-way, and operating on the strip of dough as it is fed through the rollers; *second*, the use and arrangement of a pair of moulding-wheels, having in their inner faces a semicircular concave annular groove, the said wheels being so adjusted on their axes as to form an annular core at the junction of the two semicircular grooves at the front edge of the wheels, and opening obliquely backwards so as to allow the ball of dough, when moulded by the rotary action of the wheels, to fall from the machine—that is, the left-hand wheel having a rapid forward motion, and the opposite wheel a slow backward motion, so as to produce a rolling and twisting of the ball of dough analogous to the manipulations of a workman in moulding dough for butter crackers; *third*, the use of feed and guide boards for conveying and confining the dough in passing through the machine, with suitable devices for propelling it.

Claim.—I claim the use of the roller D, made substantially as set forth, with cutters in its channel, in combination with the feed-rollers C^1 and C^2, for forming and cutting dough into suitable shapes for making crackers, substantially as set forth. Also, I claim as new, for rolling dough into balls, the conical or nearly disk form of the wheels H and J, whereby they are made by their oblique position on their axes to combine a twisting and rolling motion, only having been heretofore employed in cylindrical grooved rollers.

No. 11,419.—JOSIAH ELLS.—*Improved Revolving-Breech Pistol.*—Patented August 1, 1854.

This improvement consists in the use of a vibrating stud *p*, in the trigger, in combination with a hammer *m*, with a chamfered or bevelled edge, and with a notch near the extremity of its toe, which is applicable to all kinds of repeating fire-arms, by means of which, by simply pulling the trigger, the hammer *m* is raised to full cock, or fired at pleasure—the stud yielding latterly to allow of the descent of the hammer, and recovering its position on the toe of the hammer, for repeated action. Also, in the use of a double spring *t u* to the trigger, for the purpose described, viz: to give a strong spring and considerable play to the trigger. Also, in the mode of locking the rotating breech at the moment of firing. See g^1, cam-shoulder of trigger, pressing up the head o^1 of locking-bolt.

Claim.—1st. I claim the use of a stud *p*, in the trigger, vibrating laterally, in combination with a bevel-edge hammer *m*, with a notch at its toe, by means of which, by simply pulling the trigger, the hammer is raised, and may be either allowed to stand at full cock or fired at pleasure; while the trigger, after firing, will regain its position for repeated action.

2d. I claim the use of a double spring *t u*, or spring and lever, for the purpose hereinbefore set forth.

3d. I claim the mode, hereinbefore described, of locking the rotating breech at the moment of firing by means of the locking-bolt $j\,o^1$, in combination with the cam shoulder g^1 on the trigger, and the hexagonal neck *b* of the rotating breech, which, nevertheless, permits the breech to be fully rotated by hand or otherwise, when the trigger is not drawn back.

No. 11,420.—JOHN E. EARLE.—*Improvement in Callipers, Compasses, or Dividers.*—Patented August 1, 1854.

Claim.—I claim the combination of the hinged arms C C, screw-rod E, and nut F, with the hinged legs of compasses, or dividers, and callipers, for the purpose of moving or holding said legs in both directions anywhere within the line of their sweep, substantially as described.

No. 11,421.—W. R. GLOVER.—*Improved Pen.*—Patented August 1, 1854.

The improvement and claim consist in attaching lips *c c* to the pen C, for the purpose of preventing the ink from ascending the pen and coming in contact with the fingers.

No. 11,422.—ISAAC GREGG.—*Improvement in Brick Machines.*—Patented August 1, 1854.

This improvement appertains to a description of brick machines which the present inventor has before patented, the general characteristics of which are, that the clay is pressed into mould D of a reciprocating mould-frame by a roller G placed within the hopper, and the bricks are expelled from the mould by the action of the lifter E upon the followers *o o*, the lifter itself being operated by the action of the mould-frame upon the projections *u u*; and it consists, first, in giving a quivering motion to the sand-box C, which performs the double function of pushing the bricks, when expelled from the mould, upon an adjoining table, and dusting the empty moulds by projecting a pin *p* therefrom, and causing it to run upon a serrated edge *r*. Secondly, combining with the roller G the cutting and pulverizing wheel H

Claim.—I claim giving a quivering or shaking motion to the combined brick-discharger and mould-duster C, by means of an elastic pin *p*, which projects therefrom, acting upon the serrated edge *r*, or by any other equivalent means, for the purpose set forth.

Also, I claim the cutters or pulverizers H H, when arranged and operating substantially as herein described, in combination with the pressure-roller G, for the purpose of breaking up and pulverizing the hard crusts of clay produced by said roller, and for properly working and supplying clay to the mould.

No. 11,423.—B. F. Gold.—*Improvement in Lathing Buildings.*—Patented August 1, 1854.

This invention consists in a frame so constructed and arranged with spacing-pins, slides, and gauges, that laths can be applied to a wall a break at a time, and at any width or space between them that may be required.

Claim.—1st. The mode of making spaces between lath by turning spacing-pins, which are attached to slides, as specified, the mode of turning being by arms.

2d. Stationary spacing-pins, to make equal spaces between breaks of lath, and as a permanent footing against which lath are spread to touch the gauges. The spacing-pins are on the rear of the frame.

3d. The gauges, which are placed in front of any required number of lath, and are requisite to control the width of breaks, the spaces between lath, and to keep them level.

No. 11,424.—A. J. Gibson.—*Mode of attaching Thills and Poles to Vehicles.*—Patented August 1, 1854.

This invention consists in attaching thills or poles to vehicles by means of a steel spring *c c*, thereby preventing the rattling and wearing of nuts and bolts, and avoiding the danger consequent upon the same, the draught being directly upon the axle and the cross-bar; and by means of the stay or brace *m* any required position can be given to the thills or poles.

Claim.—To the manner of attaching thills or poles to vehicles by means of a steel spring, or its equivalent, substantially as set forth.

No. 11,425.—A. J. Gibson.—*Mode of attaching Whiffle-Trees to Vehicles.*—Patented August 1, 1854:

This invention consists in attaching the whiffle-tree to vehicles by means of a steel spring *e*, one end being made fast to the whiffle-tree, and the other to the centre and front of the forward axle, thus allowing a lateral play to the whiffle-tree sufficient to correspond to the movement of the horse.

Claim.—To the manner of attaching the whiffle-tree to vehicles by means of a steel spring, in the manner and form substantially as set forth.

No. 11,426.—Joseph Hyde.—*Improvement in Wash-Boards.*—Patented August 1, 1854.

This invention consists in forming the surface of a wash-board B of a congeries of projections or knuckles, prominent and distinct, (although not necessarily disconnected,) and of a substance in itself elastic or semi-elastic; and also in combining with such wash-board a rubber C, which may be a scouring-brush with elastic knuckles on its reverse side, so arranged as to present either surface to either side of the wash-board, at the will of the operator.

Claim.—I claim as my invention—

1st. The employment of the elastic knuckles, each distinct, but the whole forming a compact series over the whole rubbing surface of a wash-board of any usual or convenient form, by method substantially as described.

2d. I claim, in combination therewith, the rubber connected to it, substantially as described, so as to reverse to either side of the board, and swivelling, if desired, in its own immediate bearings, for the purpose described.

No. 11,427.—John M. Hathaway.—*Improvement in Shot-Pouches.*—Patented August 1, 1854.

This invention and claim consist in the combination of the projections, slots, and thumb-catch *c*, so arranged that the charger can be attached to and removed from the pouch without the need of male and female screws.

Also, in gauging the charges by means of the inner and outer tubes or barrels *d* D, moving one within the other, and adjustable by means of the sliding-rod *f* working in the hollow thumb-lever E.

No. 11,428.—David A. Hopkins.—*Improvement in Railroad-Car Couplings.*—Patented August 1, 1854.

The nature of this improvement consists in providing a grooved or serrated spring-block within the draw-head of the car, for the purpose of pressing against the end of the coupling-link, and holding it in any desired position.

Claim.—I do not claim the application of the spiral spring H to the block F, for spring-blocks have been previously used. Neither do I claim the employment or use of an India rubber spring for buffers, for that has been used in various ways. Neither do I claim the buffer, nor any peculiar arrangement thereof, nor the draw-head, irrespective of the peculiar form of the mouth, as herein shown.

But what I do claim, is having the draw-head formed with a wide or flaring mouth and narrow neck, as herein shown, and using in connexion therewith a block F, the front surface of which is of circular concave form, with recesses *m* across it, whereby the links may be held in a horizontal or inclined position, as herein shown and described.

No. 11,429.—William F. Ketchum.—*Improvement in Propellers.*—Patented August 1, 1854.

The improvement and claim consist in the arrangement of the centrifugal wheel A relatively to the charge and discharge openings of the casing B, and the division of the interior of the said casing by the partitions *a* and *b*, so as to form the openings C D, so that the wheel shall take in water at its centre, and discharge it out of said openings on each or both sides of the stern-posts.

No. 11,430.—William H. Morrison and M. W. E. Doran.—*Improved Mortising Machine.*—Patented August 1, 1854.

The drawing presents a front view of this machine.

Claim.—The combination, in boring and mortising machines, of the alternately rising and falling chisels D with the auger A T, as above set forth, or by any equivalent mechanical means.

Also, the combination of a number of such sets of chisels and augers, when necessary, for cutting mortises of greater or less length.

No. 11,431.—Willis Mansfield.—*Improvement in Houses for Switch Tenders.*—Patented August 1, 1854.

The object of this improvement is so to connect the switch-rails with the door of a box or house for the switch-tender, that egress is permitted only when the switch is arranged safely and continuously, thereby preventing accidents from the carelessness of the switch-tender.

Claim.—I claim neither switches, switch-houses, switch gates, nor latches, nor do I claim any kind of door or shutter, or connecting-rods or their equivalents, as a means of actuating the same. But what I do claim is, the connexion between the switch-house door, or its equivalent, and the switch or the actuating mechanism thereof, when said mechanism is arranged in the manner and for the purposes set forth.

No. 11,432.—William Watson.—*Improvement in Saws for Sawing Stone.*—Patented August 1, 1854.

This saw is constructed with vertical channels *b b* across the sides of the plate, for the free passage of sand to the lower edge; and also with recesses in the saw-plate to receive and hold a supply of sand, and permit it readily to find its way under the straight part of the edge of the saw-plate.

Claim.—I claim making saw-plates for cutting stone with channels at the sides, substantially for the supply of sand to the lower edge, as set forth. Also, the excavations or notches on the lower edge, substantially as described, to contain and permit the sand more effectually to get under the edge of the saw-plate, as set forth.

No. 11,433.—Benjamin F. Bee.—*Improvement in Feed Apparatus for Steam-Boilers.*—Patented August 1, 1854.

Claim.—I claim: 1st. The double slide-valves C D, water-chest E, and steam and water passages (*n s o* and *c*), with the water-supply-vessel F, when the said supply-vessel is made to form a compressed air-escape-valve by the immersion of the supply-pipe P below the top surface of the water therein, or the compression of the air in the supply-vessel being otherwise equivalently produced, and so that a strong atmospheric pressure is brought to bear upon the surface of the water, to serve conjointly with the steam passing from the water-chest through pipe into the compressed air-receptacle, to establish that necessary equilibrium of pressure above and below the water in the supply-vessel to produce a flow, and whereby the effect by condensation of the steam entering the supply-vessel is neutralized and a more immediate and certain discharge of water into the chest insured, as herein set forth, the whole being constructed and operating substantially as specified.

2d. I claim the method of varying the height at which the water will be sustained, by raising and lowering the chest E and its attachments.

No 11,434.—G. W. Coats and J. Russel.—*Improvement in Machinery for Sticking Card-Teeth.*—Patented August 1, 1854.

The nature of the invention is best shown by the claims; reference being had to the accompanying drawings, of which figure 1 is a plan, and figure 2 an end-view of the machine, looking in the direction of the arrows. Figure 3, section through line A A on figure 1. Figures 5, 6, 7, 8, sections of detached parts.

The claims are: 1st. The mode of imparting the intermittent motion to the main carriage *b*, for spacing the teeth, and reversing the same by means of the screw-lever h^1, attached to the main carriage and passing through a nut i^1, mounted on suitable boxes and rotated by cog-gearing l^1 m^1 p^1, when this is combined with a clutch q^1, operated by a cam c^1, to clutch and unclutch the wheel p^1, which receives motion from the wheel or wheels on the main shaft, and imparts the required and measured intermittent motion to the nut.

2d. The employment of the cams u^1 u^1, on the main carriage, which at the end of each traverse motion act on a lever v^1, connected and combined with and operating the clutch c^2, to clutch and unclutch the wheel d^2, which receives motion from the main shaft, to operate the shifting wheel h^2, which operates the double clutch *t* on the main shaft.

3d. The mode of operating the second carriage *a*, which holds the sheet of leather *f*, to determine the space between the rows of teeth by means of the shifting-cam called the twill cam d^1, and the shifting sector cog-wheel j^2, which in turn imparts motion by the cog-wheels and shaft to the cog-wheel through which passes the feathered shaft mounted on the main carriage, and which, in turn, imparts the required motion to the drums *i i*, for lifting the second carriage at the end of each complete motion of the main carriage.

4th. Making the nut i^1 on the screw-leader in two parts, (figure 5,) divided by a plane at right-angles to the axis; when the two parts are attached together so that they can be turned on each other, so that the threads can be set to any wear of the threads.

5th. Making the arbors of the two rollers K^1 K^1 (figure 8) with cylindrical bosses S^1 S^1, to determine their distance apart, in combination with the mode of mounting them between boxes, and without interposed boxes; the said arbors being prevented from having end-play by means of V-shaped or curved fillets on the arbors, fitted to corresponding cavities in the boxes.

6th. Mounting the bending-fingers e^3 e^3 in the sliding top-plate x^2, independent of and below the slide or carrier u^2 of the former, around which the teeth are bent; the carrier being provided with an inclined plane or cam p^3, acted upon by a like inclined plane or cam o^3, on the top-plate of the fingers, substantially as described, so that, as the fingers are drawn back the former shall be lifted up preparatory to its back-motion, as fully set forth.

No. 11,435.—Halvor Halvorson, assignor to H. Halvorson and Horace Barnes.—*Improvement in Measuring Cloth on Looms.*—Patented August 1, 1854.

The nature and operation of this invention will be understood by reference to the claim and accompanying drawing.

Claim.—The lancet or cutter K for puncturing the cloth; also the mechanism applied to the lay and the cutter for moving said cutter towards and into the cloth, and afterwards instantly out of the cloth, such mechanism being the slide S, the ratchet T, the bar F with its tooth *g*, and the spring *i*; also mechanism for moving the slide-bar F into and out of the path of the stud of the lay, as specified, such mechanism being the bar M, the notched wheel L, the gear-wheel H, the single-toothed pinion G, the worm-gear E, the screw D, and the wheel C, as applied or connected together, and operating as described. Also, arranging the lance or cutter on the breast-beam, and close to the edge of it, where the cloth is bent downwards towards the cloth-roller, and when such lance or cutter has mechanism applied to it and operated by the cloth and the lay, so as to put the said lance or cutter into operation, as specified; such arrangement of the lance or cutter on the breast-beam, and in close proximity to its rear upper corner, enabling the lance or cutter to pass freely through the cloth, without danger of the latter being sprung away from it by the force of the blow and resistance of the cloth, as will occur when the lance is situated below the breast-beam and becomes worn or dulled.

No. 11,436.—Samuel T. Thomas and Eliza Ann Everett, administratrix of Edward Everett, deceased.—*Improvement in the Process of Warping and Dressing Yarns.*—Patented August 1, 1854.

The nature of this invention consists in warping and dressing directly from small spools to sectional loom-beams, which, when completed, are arranged side by side on a shaft and placed in the loom; and also

in the method of drying the yarns after they have passed through the sizing troughs. In the accompanying drawing, *a* is the frame, *b b* the small spools; the yarns pass from these spools through guides *c c*, between the sizing rolls *d d*, thence through guides *e e*, and over the roll *f* to the slotted fan-cylinder *g*, thence over the heated metallic cylinder *m*, and under the heated cylinder *n*, thence over the heated cylinder *o* and under the second slotted fan-cylinder *p*, and from thence over the roll *q* and through the guides *r* and *s* to the sectional loom-beam *t*.

Claim.—Warping and dressing yarns directly from small bobbins (instead of large section beams) to sectional loom-beams, for the purpose of securing a uniform tension in the yarns wound upon the loom-beams, and also affording greater facilities for readily producing a variety in the stripe of the fabric; also, the fan-cylinder for drying the yarns, which consists of a cylinder composed of slats, arranged with spaces between them, and around which slats the yarns are made to pass, revolving-fans being arranged within the said cylinder, and revolving independently of, and at a much more rapid rate than the cylinder, whereby a large portion of the yarns are kept in a gentle current of air and rapidly dried.

No. 11,437.—Charles Monnin and Wm. M. Booth.—*Improvement in Fastening Lanterns.*—Patented August 1, 1854.

A hollow ring C is applied to the outside and near the base of the lantern on its inner surface; at two opposite points there are hinged to it a metallic dog and clamp, capable of moving in and out of a slot or opening whenever the ring on the outside is actuated by hand or made in any way to change its position: and by this means the lantern and lamp may be connected and disconnected.

Claim.—We claim the application to lanterns of the before-mentioned cylindrical or hollow ring, enclosing one or more metallic clamps or dogs, which move horizontally through apertures into a groove, as herein described and set forth.

No. 11,438.—William S. McLean.—*Improvement in Car-Wheels, with independent Flange and Tread.*—Patented August 1, 1854.

The nature of this improvement consists in having the flange portion of a compound wheel (or wheel with flange and tread moving independently) "dished" outward from its hub, then bending back in a reversed direction toward its extremity or flange, and fitting into a corresponding circular recessed face of the tread-wheel, so that the two portions of the said wheel shall mutually enter into and support each other.

Claim.—I do not claim the separate and independent flange and tread; as that has been patented, as described, by James Jones, William Howard, and others.

But what I do claim is the above-described car-wheel, with the flange and tread capable of separate action, when they are made to interlock and mutually support each other, so as to prevent any strain tending to separate them from being thrown entirely upon the journal.

No. 11,439.—William H. Palmer.—*Improvement in Threshing Machines.*—Patented August 1, 1854.

Claim.—I claim the peculiar combination of the screens T, K, N, P, and O, with chutes M L, arranged as represented in the drawing; whereby the grain is screened very effectually and subdivided, according to its quality, in four parts, immediately after threshing, and the chaff and dust are blown away.

No. 11,440.—Bradford S. and Charles M. Pierce.—*Improvement in Moulds for Cement or Earthen Pipes.*—Patented August 1, 1854.

In the figure, A represents the mould, which is constructed of a sheet of some elastic metal, bent into the form of the exterior of the required pipe. The meeting-edges of the sheet overlap and have loops (*a*) formed on them, through which passes a rod *b* to hold the mould firmly closed. When the pipe is moulded, and ready to be discharged from the mould, the rod *b* is withdrawn, and the elasticity of the metal causes the mould to spring suddenly from the newly made pipe, thereby permitting it to be conveniently removed.

Claim.—I claim the combination of a core and spring-case, substantially as set forth.

No. 11,441.—Alexander H. Petsch.—*Improved Dumping-Car.*—Patented August 1, 1854.

Constructing a dumping-car with two inclined planes made of iron bars with curved ends and projecting beyond the outer edge of the frame, whereby the two boxes or bodies A A, having wheels H H and joints B B, can be unloaded by their specific gravity, and when unloaded be brought back to their original position, by means of the cylinder D and chains C.

Claim.—I claim the construction of railways laterally across the carriage, or otherwise; by which means I am enabled to dump the boxes by their own gravity when let go from the apex of the plain, without labor to the operator, substantially as set forth in the above specification.

Also, the projection of the railway beyond and outside of car-carriage; by which means I am enabled to dump the boxes at such an angle as to discharge their contents, whatever may be the character of the load.

No. 11,442.—Sanford Stone.—*Self-loading and Dumping Cart.*—Patented August 1, 1854.

This improvement consists in the arrangement of the cart-body with a scraper on its fore end, so as to tilt forward to the ground for the purpose of scraping up the earth and loading itself immediately from the ground by its own action.

Also, in the employment of an endless horizontal belt for, and in the place of, the bottom of the cart-body, so arranged and operated as that

it will be made to revolve in the proper direction during the time of loading and unloading the cart (but will not act while drawing the cart from place to place), for the purpose of loading and dumping. Also, in the detailed arrangement of mechanism for tilting the cart in the different directions.

No. 11,443.—Simeon Shearman.—*Improved Mode of Cleaning and Feeding Grain to Grinding-Stones.*—Patented August 1, 1854.

Claim.—I claim passing the grain to be fed to the stone through a cleaning apparatus placed between the hopper and the stone, and driven by the stone, in the manner as exemplified by the drawing, where arch A, supporting the cleaning apparatus, rests on the stone, and, revolving with the latter, causes the cylinder D to revolve around the immovable beater-shaft C. Thus the grain is cleaned while dropping down from the hopper, and the smut is carried away by the air-spouts G G. Cylinder D is lifted the convenient height by lever J, to admit the desired quantity of grain upon the stone.

No. 11,444.—John Stull.—*Improvement in Saw-Mills.*—Patented August 1, 1854.

Figure 2 is a plan; figure 1, a side elevation showing the construction of the swinging-frame.

Claim.—I claim the swinging-frame B^1, or its equivalent, carrying a circular saw O, so constructed and arranged that the saw may cut its full depth in crooked as well as straight logs. Also, the revolving self-acting wedge I, so arranged as to vibrate and accommodate itself to any inequalities in the stuff to be sawed. Also, I claim the floats or scrapers S^1, hinged to the carriage, or their equivalents, to push the saw-dust in such direction as may be desired. Also, the circular saw in combination with guides, so arranged as to steady and support the saw when it enters and cuts a score in the log, to prevent the saw from being swerved by knots, cross-grained or hard places in the wood sawed.

No. 11,445.—Louis Schwingrouber.—*Improvement in Slips for Pulling on Shoes.*—Patented August 1, 1854.

The nature of this invention consists in the use of a spring-clamp *b* in combination with the shoe-slip *a*, by means of which the back of the shoe is securely held while being pulled on to the foot, and the metallic slip guides the heel down into place, in the same manner of the ordinary shoe-horn or slip.

Claim.—I claim the spring-clamp *b*, with its concave holding-jaw 7, in combination with the shoe-slip *a*; the parts being constructed and operating substantially as set forth in the specification.

No. 11,446.—George Souther.—*Improved Tires for Carriage-Wheels.*—Patented August 1, 1854.

Claim.—I claim the iron tire *a*, with two projecting flanges *b b* all around, leaving a space between them for the purpose of allowing an entire ring of vulcanized rubber, or other elastic material, to be stretched over and sprung between said flanges; said tire projecting over the outer periphery of the flanges, serving to keep the iron tires unimpaired, and contributing greatly to the comfort and economy of carriages.

No. 11,447.—Eli Whitney.—*Improvement in Fire-Arms.*—Patented August 1, 1854.

Claim.—The method of constructing the sear and lock-bolt in one piece (*h i*), and so combining said piece with the trigger and spring (*k*) that the sear cannot release the hammer, except when the chambered breech will be firmly locked in its proper position.

Also, the combination of the trigger with the spring *k* and the lock-bolt *i*, when the lock-bolt is of the same piece as the sear, for locking the chambered breech, and discharging the pistol. Also, the combination of the three springs *w*, *m*, and *k*, all secured by one screw, with the catch-bar M, trigger F, and the lock-bolt (*i*), and sear *h*, when the whole are arranged as shown and described.

No. 11,148.—Horace Woodman.—*Improvement in Machinery for Cleaning the Top Cards of Carding Machines*—Patented August 1, 1854.

Claim.—The combining of litter-cams T T and a brush-bar V with one rotary-shaft R, so that by the movement of such shaft, as specified, the operations of raising and depressing a top card, and cleaning it, may be effected.

No. 11,449.—Simon Willard.—*Improvement in Bedsteads.*—Patented August 1, 1854.

This bedstead consists of four flanged iron posts, and two or more bed-sustainers, or boxes, in which the mats are laid for sleeping on; the peculiar construction of it rendering it convenient to be taken down in a very short time, and the whole deposited in a space not larger than the two bed supporters when laid together.

Claim.—I claim constructing the bedstead of sheet-metal posts (B) bent longitudinally at right-angles, to which are secured transverse flanges (*f*), and of a sheet-metal sustaining-box (*a*), which is supported at its corners by said flanges, and secured in place by rods (R) passing down through both the flanges and sustaining-box, arranged and combined substantially in the manner and for the purposes herein set forth.

No. 11,450.—Albin Warth.—*Method of Applying Power to a Fire-Engine.*—Patented August 1, 1854.

The piston of the pump is operated by cranks; instead of brakes, ordinary pinions and racks are used.

Claim.—I claim the arrangement and combination of a horizontal pump with a series of pinions and cranks, as described, by means of the long double-rack and spring attached cross-heads, and platforms, as set forth.

No. 11,451.—William B. Walker.—*Improvement in the Manufacture of Brooms and Brushes.*—Patented August 1, 1854.

The nature of this invention consists in compressing the broom-corn, or other material, which is done in a suitable press for such purpose, and then forcing it into a chamber while in a compressed state.

Claim.—I claim the process of manufacturing brooms or brushes by compressing the material, and forcing it into a chamber while in a compressed state, and securing it by means of the clip or other device, whereby the same end is obtained. That the material may be compressed by other devices than as described above, I am conscious from experiment; therefore it is the *principle*, practically carried out, which I claim, as well as the device by which it is done; the spring-catch and tongs mentioned in my caveat, I consider unnecessary.

No. 11,452.—William Anderson.—*Improvement in Harrows.*—Patented August 1, 1854.

This invention consists in placing the tooth F in each hinge G G, to sweep the space between the bars A A.

Claim.—I claim inserting a tooth in each hinge at G G, so that no part of the ground escapes being pulverized; whereas in other harrows, with hinges, a large space in the centre of the harrow escapes.

No. 11,453.—Thomas Daugherty.—*Improvement in Machine for Lasting Boots.*—Patented August 1, 1854.

This instrument is composed of two pair of pincers, so constructed and connected that they are both closed by one screw, and also drawn together at the same time. In the figure, J J represent the jaws, standing at one side of the instrument, to allow room for piercing the hole or driving the peg; B B are the short levers; S, the screw; T, the nut; G, the knob, which is a fixed shoulder on the screw S.

Claim.—I claim so constructing the machine, as described, that when drawn up, there is ample room for putting in the tacks or pegs, and having a heel which serves as a fulcrum; so that by pressing back the top of the machine, the entire jaw may be raised clear of the sole, and prevent the jaws from ruffling up the inner sole.

No. 11,454.—Charles K. Farr.—*Improvement in Cultivators.*—Patented August 1, 1854.

This invention claims to be an improvement upon the patent of William C. Finney, on account of the greater solidity of the parts, and the

better mode of fastening to beam. Standard *b b*, plate *a*, flange *c*, and brace *d*, are all cast in one piece, and connected to beam B, by means of bolts *i i*.

Claim.—I claim the hollow standard *b b*, with ground-plate for firmly uniting the beam to the implement by means of bolts passing through said standards, as hereinbefore set forth.

No. 11,455.—Robert Grant.—*Improved Hydraulic Press.*—Patented August 1, 1854.

The nature of this invention consists in adapting an India-rubber diaphragm, or flexible pressure bag, or water-tight medium, to the inside of a vessel of suitable strength, in such manner as to enable the substances required to be pressed, squeezed, or wrung, to be placed upon the outside of the diaphragm, while water or steam, air or gas, is introduced by any means available upon the other side of said diaphragm, with sufficient force to cause the diaphragm to press upon the material, and thrust the same upon the opposite perforated sides or top of the vessel, thereby pressing said material into any desired shape, or squeezing or wringing from the material such juice, fluid, or liquid, as it may contain.

Claim.—I claim the combination of a flexible water and air-tight bag or medium, of vulcanized India-rubber cloth, with an outside wire-vessel, or its equivalent, in such manner as that when water or steam shall be forced into the inside of the bag, the bag or medium shall be thereby pressed outward, and any material contained between the same and the exterior wire-cylinder shall thus be wrung or squeezed nearly dry, by being pressed against the interstitial holes, as before substantially described.

No. 11,456.—John S. Hall.—*Improvement in Ploughs.*—Patented August 1, 1854.

Claim.—1st. I claim dissimilar sized hinges *x x*, causing the wings of the mould-board *c* c^1 to raise in proportion to their expansion, in connexion with the curved hinged braces E E^1, sustaining said wings *c* c^1 when expanded, and admitting of extreme contraction without destroying the requisite form of the mould-board under all its changes, (a requisite hitherto not attained,) for the purpose of adapting the plough to a variety of work or uses.

2d. I claim the effectual securing of an iron beam to an iron standard by means of the inclined segmental slot S, and bolt and nut, or their equivalent, operating in the manner described.

No. 11,457.—Abraham Jackson.—*Improvement in Horse-power Hoisting-Machinery.*—Patented August 1, 1854.

This improvement in hoisting-machinery is for the purpose of enabling the operators to accomplish the hoisting, lowering, and hauling in at will, while the horse or other power is maintained in continuous and equable motion. The main driving-wheel *b* receiving motion from the inclined horse-plane *a*, or otherwise, communicates it to the wheels *d* and *e*, which play loosely on the shaft *c* of the hoisting-drum c^1, and either of which are engaged, or both of which are disengaged, by means of the clutch *f*. Two wheels, *j* and *k*, playing loosely upon the shaft *h* of the hauling-in drum *i*, and accompanied by their clutch h^1, receive motion, the first directly from pinion j^1, and the second from the pinion through the wheel R^1 and pinion *m*. The number of teeth in these wheels and pinions are proportioned to give the proper relative rates of the two drums, whether hoisting or lowering, and whether letting out or hauling in. The speed of drum *i* can be checked at will by the brake *o*, operating on the straps upon the friction wheels *n* and n^1.

Claim.—The arrangement of the shafts *c* and *h*, with their hoisting-drums c^1 and *i*, so combined by shifting-clutches and gearing that the various operations for the hoisting and lowering of goods into or from ships, warehouses, &c., may be effected by a horse or other power, acting continually in one direction, substantially in the manner and for the purpose described herein.

No. 11,458.—H. N. Black.—*Improvement in Machinery for Cleaning and Drying Grain.*—Patented August 1, 1854.

Claim.—I claim the employment of the inclined perforated cylinder P, for drying grain by the action of centrifugal force, in combination with the apparatus C, B, D, E, above it, for cleaning the grain by water.

The cleaning of grain by water, as an independent device, is disclaimed.

No. 11,459.—Martin H. Mansfield.—*Screen for Clover-seed Hullers.*—Patented August 1, 1854.

Claim.—I claim constructing the screen for cleaning clover-seed or grain in several sections, *b*, *c*, *d*, jointed together, and made independently adjustable at each joint, for the purpose of facilitating or retarding the passage of the straw, chaff, or other impurities, over it, according to the nature or condition of the latter, substantially as herein set forth.

No. 11,460.—Daniel W. Shares.—*Improvement in Cultivator.*—Patented August 1, 1854.

The peculiarity of this cultivator is not the expanding wings, but the teeth *c c*, inserted at the under side of the wings, so as to loosen up the bottom of the furrow made by main point and the part B of the wings. Expanding wings are disclaimed, as such.

Claim.—I claim providing the expanding and contracting hoeing wings B on either side, with cultivator-teeth C projecting downwards

on the inside of the hoeing wings or scrapers, as and for the purposes specified.

No. 11,461.—James W. Sikes.—*Improvement in Withes for Masts of Vessels.*—Patented August 1, 1854.

The improvement consists in having the main bar J of an L form, attached to the cap or withe by an eye screw-bolt *d*, provided at each end with shackles *k* k^1, so that this one cap supports the fore main lift block and the peak block.

Claim.—The construction of a withe with a main bar and shackles, substantially as described; so that one withe will serve the purpose of the two heretofore used, and so that all its wearing or chafing parts may be removed and replaced by others without disturbing it on the mast, as set forth.

No. 11,462.—John W. Whittal and William W. Pendleton.—*Improvement in the Manufacture of Hats.*—Patented August 1, 1854.

This invention consists in the combination of gutta-percha in sheets with felt-cloth, so as to enclose the gutta-percha between two thicknesses of said felt-cloth, and afterwards forming hats thereof by pressing into properly shaped moulds while the gutta-percha is in a plastic state.

Claim.—The above description substantially embraces the inventors' claim. No illustration.

No. 11,463.—D. F. Mellen, assignor to D. F. Mellen, J. F. Augustus, and S. A. Eaton.—*Improvement in Machines for Planing Metals.*—Patented August 1, 1854.

Claim.—The circular table E, the rotary motion of the table being dependent upon the longitudinal motion of the carriage.

No. 11,464.—William Bullock, assignor to Barton G. Morss.—*Seed-Planter.*—Patented August 1, 1854.

The important features of this invention are, a wheel consisting of two plates E E^1, one of which is perforated all around the hub to distribute seed in drills, whilst the other plate is perforated only at a point opposite tubes J for planting in hills. The seed passes from hopper F into the wheel at *a*, and is distributed at the circumference. I is a guard preceding the wheel, and L is a marker to gauge the hills into cross-rows.

The same wheels, with one side to the hopper, plant in drills; and by turning the other side to the hopper, plant in hills.

Claim.—1st. I claim the seeding-wheels, formed substantially as described, so that the seeds pass in at or near the centre of the wheels and out of the periphery. 2d. The arrangement of one and the same wheel for sowing in drills and planting in hills. 3d. The arrangement of tubes J, substantially as herein described and for the purpose set forth.

4th. The guards I, in combination with the seeding-wheels; and, 5th, the marker L, for the purpose of indicating the position of each hill, thereby enabling the operator to plant in hills, forming rows both ways across the field.

No. 11,465.—R. D. Bartlett.—*Improvement in Brick Presses.*—Patented August 8, 1854.

It has been common to make bricks of clay, either tempered or reduced to powder; this machine is designed to make bricks of the clay in its crude and lump state, and its general character is shown in the drawing. The lumps of clay, being thrown into the hopper G, are crushed through the metallic grating H into the mould N, where the brick is compressed by the plunger P against the hollow and steam-heated bulk-head F^1. The mould N has an opening *g* through which the clay is forced when the pressure passes a certain point, and thus the uniform density of the brick is secured. The bulk-head F^1 rising, the brick is expelled from the mould N upon the plunger C^1, which is also heated by steam, and which sinks with it, and the bulk-head F^1 following, forms at the same time a resisting surface for the pressure of a new brick by plunger P, and of the former brick by the rising of plunger C^1. The lever B^1 being hung loosely on its fulcrum K^1, when the shorter arm of said lever is depressed, as soon as the bulk-head F^1 is stopped in its descent, the centre of the lever's motion is transferred from the pivot K^1 to i^1, and the plunger C^1 is forced up, pressing the brick against the bulk-head until the motion of the lever B^1 is reversed, the centre of motion restored to the pivot K^1, and plunger C^1 and bulk-head F^1 both rise together.

Claim.—1st. Making bricks of crude, untempered, and unground clay, by the means herein described, or by any other means substantially equivalent thereto.

2d. The manner herein described of forcing the clay, in the state in which it is dug, through the grating H in small quantities at a time; by which means it is freed from the stones which it may contain, and prepared to be acted upon by the plunger P in the manner set forth.

3d. The method of accurately gauging the quantity of clay in each brick, and of submitting them all to a uniform pressure by means of the hole *g* in the side of the mould N, as described.

4th. The manner of arranging and operating the bulk-head F^1, by which it is enabled to assist simultaneously in the formation of the bricks, one in each mould.

5th. The combination of the bulk-head F^1 and the plunger C^1 with the lever B^1, constructed and arranged as described, the lever B^1 having sufficient play upon its fulcrum K^1 to enable it to operate in the manner and for the purpose set forth.

6th. Making the parts F^1 and C^1 of the mould hollow, and heating them with steam, in the manner described and for the purpose set forth.

No. 11,466.—William S. Babcock.—*Improvement in Dumping Wagons.* Patented August 8, 1854.

This invention consists in the combination of the cast-metal boxes or sockets P P P with boxes or sockets S S S, containing concave wheels, the convex track *d d* and ground track *z z z*, hooks W W and V V, so arranged with gearing, drum, crank, ratchet, and chains, that a wagon can be adapted to all ordinary uses and yet enable the person having it in charge to dump the load (in any place) easier and quicker than by any other method known.

No. 11,467.—Eden A. Baldwin.—*Improved Wooden Tubular Bridge.* Patented August 8, 1854.

This invention consists in constructing a tube of sufficient diameter for the passage of a railway train, using planks or other suitable timbers, placed longitudinally and dowelled together, and the whole firmly bound with strong iron bands, or hoops, that can be tightened by screws and swivel from the inside, with a trestle or frame-work supporting a railroad track, whether the track be placed within the bridge or upon its top.

Claim.—Constructing a bridge by the combination of the longitudinal strips of wood, the transverse iron bands, and the arrangement for tightening the same from the inside by a screw and swivel, with the trestle or frame-work for supporting a railroad track, and receiving the strain directly on the bands, whether the track be placed within the bridge or upon its top; the whole arranged and combined substantially as herein described, and forming a cylindrical or tubular bridge of great strength, durability, and simplicity of construction.

No. 11,468.—William Bonney.—*Improvement in Imitating Marble.*—Patented August 8, 1854.

Claim.—The use of a syringe, with which the veins, spots, or other particular designs of marble are laid down, either on the ground-layer of cement prepared for the piece of artificial marble or on the polished surface of the mould, and the ground laid upon them.

No illustration.

No. 11,469.—Nathaniel A. Boynton.—*Improvements in Stoves.*—Patented August 8, 1854.

The claim fully sets forth the nature of this invention, the object of which is to avoid the occurrence of cracks and joints in heavy castings used for this purpose, and through which sulphurous and other deleterious gases find an exit.

Claim.—Constructing the entire fire-chamber of one single casting, or piece, substantially in the manner and for the purposes set forth.

No. 11,470.—Isaac W. Brown.—*Improvement in Fire-Arms.*—Patented August 8, 1854.

This invention and claim consist in giving the cylinder a partial rotation by the cocking of the fire-arm, (not sufficient, however, to bring the cap and its nipple entirely under the hammer,) and completing the movement of the cylinder in the act of discharging the piece, so that the cap comes to its place just in time to meet the descent of the hammer which explodes it.

No. 11,471.—Wm. S. Chapman.—*Improved Carriage Clip to Prevent Rattling.*—Patented August 8, 1854.

Claim.—The application of blocks *a a*, of India rubber or other equivalent elastic material, between the ends of the carriage-shafts and clips upon the axles, for the purpose of preventing wear, rattling-noise, and accidents.

No. 11,472.—Nathan Chapman.—*Improvement in Cotton Presses.*—Patented August 8, 1854.

The nature of this invention consists in having the hub of the toothed wheels, on which the chains which raise the follower work, formed with recesses in them to receive the lower ends of the chains when wound up, and thereby cause the chains to exert a pressure inside of the bearings of the wheels, and retain the follower in its elevated position without any other device being employed for that purpose.

D D are toothed wheels, on the inner side of which are projections *h*, which extend from the hubs *i i* of the wheels to their peripheries in a spiral or coil form; and in the hubs of the wheels are recesses *j j*, which are cut in the hubs rather past their centres. The rods *k* carry the follower.

Claim.—Forming the hubs *i i* of the wheels D D with recesses *j j* in them, to receive the rods or links K K, when the chains are wound up on the projections *h* on the wheels, in the manner and for the purpose shown and described.

No. 11,473.—Daniel Close.—*Improvement in Sawing and Planing Machines.*—Patented August 8, 1854.

Claim.—The "arrangement of one or more saws *t*, to cut on the downward stroke, in combination with one or more planes *v*, to cut on the up stroke of the crank *f*."

No. 11,474.—Silas Constant.—*Improvement in Rosin-oil Lamps.*—Patented August 8, 1854.

Claim.—Constructing the tubular wick-guide *g* without any openings through it except at or near its lower end, and making said guide of

such a size as to allow a clear annular space between it and the wick for the oil to rise in around the wick, for the purpose of preventing the oil inside of the upper portion of said wick-guide from mixing with the body of oil outside of the same, by which the oil in contact with the upper portion of the wick will be raised to a considerably higher temperature than the oil in the body of the lamp, substantially as herein set forth. Also, regulating the flame of the lamp by raising or lowering, in any convenient manner, the inner conical tube *m*, which immediately surrounds the upper end of the wick, substantially as herein set forth.

No. 11,475.—Lewis Cutting.—*Improvement in the Stop Motion of Speeders, &c.*—Patented August 8, 1854.

This invention consists in preventing the throwing off of the belt by any other cause than that of the sliver breaking or running out, and in causing the belt to be thrown off when the sliver does break or run out.

In the drawing, A is a guide through which the sliver passes, thence through the trumpet B to the rolls C. The friction in the guide causes the trumpet to stand up, without which friction the sliver would sometimes be raised unequally from the cam and cause a slack therein, admitting of the falling of the trumpet, and tripping the shipper without the breaking or running out of the thread. A lever D is hinged at *i*, and plays between guides, said lever and guides 2 being attached to plate E. The trumpet-wire G is bent to pass through lugs 3, and terminate in an arm 4, which, when the trumpet drops, lifts up the lever D. H is a rock-shaft, having at one end the rod I projecting downward, and at the other end an arm J projecting upward. A lever K, connected by a wrist-pin to the rolls C, passes through a slot in the arm J, and is hollowed out at that point, as at 5. A chain 6 cements the lever K with the catch L, which holds the shipper M against the action of the spring 7 around it. When the lever D is down, the arm I passes over; but when raised up, this arm strikes it, throwing up the rod K, forcing its depression 5 out of the slot in the arm J, and by means of the chain 6 lifting the catch L. This catch L being released, the helical spring 7 throws the shipper M, which runs off the belt.

Claim.—The use of the hinged lever, moving in guides, for tripping the shipper and throwing off the belt, thus relieving the trumpet from any further duty in throwing off the belt than the mere raising of the lever.

Also, in combination with the hinged lever, the interposition between the can and trumpet of a guide, so arranged as to give sufficient friction to the roving when it rises irregularly from the can to prevent the dropping of the trumpet, and consequent throwing off of the belt, as described.

No. 11,476.—Joseph H. Davis.—*Improvement in the Manufacture of Pigments from Iron Ore.*—Patented August 8, 1854.

Claim.—Steaming the ores, in addition to the usual process of selecting, pulverizing, and heating the hematite and equivalent ores, for the purpose of obtaining the various hues of pigments, as desired. No illustration.

No. 11,477.—Joseph C. Day.—*Improvement in Fire-Arms.*—Patented August 8, 1854.

This invention consists in the peculiar manner in which the barrel is connected with the stock and the stationary breech; in the sliding-collar over the stationary breech and the rear end of the barrel, for the purpose of making a close joint between the barrel and the breech; in the arrangements of the parts whereby the caps are caused to be supplied from a magazine in the stock to the nipple, by the movements of the hammer in cocking and discharging the piece. The tube is replenished without removing it from the stock, and the cap already on the nipple may be exploded without bringing another from the magazine.

Claim.—I claim, 1st, connecting the barrel with the stock and stationary breech, by means of projections *a a* on its side, having one part of circular, and another part of wedge form, and fitting within recesses *b b*, in plates B B, or their equivalents, attached to the stock; which said recesses correspond in form with the circular part of the projections, but are wider than the wedge-shaped parts thereof, substantially as described, and thereby admit of a limited swinging movement of the barrel for the purpose of exposing its rear end, as set forth.

2d. The sliding-collar D^1 sliding over the stationary breech and the rear end of the barrel, substantially as described, for the purpose of making a close joint between the barrel and breech.

3d. Though I do not claim the tube *e*, the piston *i*, notched bar *k*, and spring *n*, separately or irrespective of the particular arrangement shown, I do claim their particular arrangement, as shown and described, whereby the following results are obtained, viz:

1st. A sure forward movement of the caps without the assistance of the spiral spring. 2d. Convenience for replenishing the tube without removing it from the stock. 3d. The explosion of a cap already on the nipple without bringing another from the magazine.

No. 11,478.—George C. Fisk.—*Improved Device for Grooving Boards.*—Patented August 8, 1854.

A perspective view of the device for tonguing and grooving, upon which this patent was issued, is annexed.

Claim.—I claim this device in combination with circular saws for tonguing and grooving boards, at the same time that their surfaces are planed.

No. 11,479.—Orange N. Frary.—*Improvement in Melodeons.*—Patented August 8, 1854.

Claim.—The arrangement of a melodeon with two sets of reeds, to be played with one set of keys in such a manner as to combine any two, three, or four of the parts, at pleasure, (each part containing a half set of reeds,) by the aid of an air-tight wind-chest and four valves B C D E, which are governed by levers *h*, and stops *k k k k*.

No. 11,480.—John G. Fulton.—*Improvement in Machinery for Packing Salt.*—Patented August 8, 1854.

In the figure, *g* represents the rack upon the shaft of the stamper *f*, which rack meshes into cogs surrounding a nave *i*. The tooth *j*, which comes first into play, is fixed with a spring, so that in case it comes in contact with a tooth or cog instead of a space, it may yield rather than break a tooth.

Claim.—The conical stampers, having radial grooves, for the purpose set forth in the specification.

Also, the yielding tooth, in this connexion, to enable the commencement of the lifting action without damage to the teeth.

No. 11,481.—John Gemmil.—*Improvement in Radiators.*—Patented August 8, 1854.

Within a radiator A, which may be affixed to any stove or furnace, is suspended a hollow case C, filling nearly the interior space, and admitting of being raised or lowered, so as to regulate the amount of heat to the extent desired.

Claim.—The suspension within a radiating case, substantially as described, of a deflector and regulator, constructed, arranged, and operating substantially as set forth, for the purpose specified.

No. 11,482.—Josee Johnson.—*Improvement in Brick Machines.*—Patented August 8, 1854.

This improvement consists, *first*, in the manner of operating the plungers which press the clay into the mould.

Secondly. In the method of operating the cut-off which separates the clay in the mould from that in the hopper. The main shaft D, which bears the common mixing arms, (not shown in the drawing,) has also above them an arm or sweep E, and below them two cross-arms *m* and *n* of unequal length. The roller *p* upon sweep E strikes against the upper arm of lever J, which, turning on its pivot *t*, draws the cut-off I over the mouth of the mould. The depression of the angle w^1 of the lever J, throws forward the lever *w* to receive the roller *p*, by which both levers, and consequently the cut-off I, are immediately restored to their former position. The plungers *h*, working in the secondary hopper F, receive their reciprocating motion through links *e*, from cams *a*, upon levers K, said cams being operated by the alternate action of the rollers

r, (or the longer cross-arm *m*,) upon their outer surface *i*, and that of the roller *s*, (or the shorter cross-arm *n*,) upon their inner surface *a*.

Claim.—The combination of the double cam or cams *a* at the end of the lever or levers K, and attached to and acting upon the plunger or plungers by a link *e*, with the cross-arms *m* and *n*, and their friction rollers *r* and *s*, arranged and operating substantially as, and for the purpose, above set forth and described.

I further claim, for the purpose of operating the cut-off, the combination of the two levers J and *w* with the friction-wheel *p*, or their equivalents, at the end of sweep E, as set forth and described.

No. 11,483.—Daniel Knight.—*Improvement in Fire-Arms.*—Patented August 8, 1854.

This invention and claim consist in the horizontal sliding-hammer H I, constructed as described, and combined with the operating mechanism *m n o p q*, which constitutes the trigger, in combination with the barrel A, which has the nipple in its breech, when said barrel is arranged forward from the hand of the shooter in front of the protection-shoulder formed by the tube C F at *b*, substantially as, and for the purposes, set forth.

No. 11,484.—William H. Meriwether.—*Improvement in Spring-bottoms of Bedsteads.*—Patented August 8, 1854.

This invention consists in crimping the wire as shown at *a a*, and in this state stretching the same back and forth between the head and foot blocks *b c* of the bedstead frame.

Claim.—The spring-bottom construction of zig-zag wire, arranged and constructed in the manner and for the purposes set forth.

No. 11,485.—J. Merrill and G. Patten.—*Improvement in Condensers.* Patented August 8, 1854.

Claim.—1st. The improved refrigerator or water-cooling apparatus, consisting of the concentric tubes, and the chambers *l l* above and below them, whereby the condensed steam or hot water is conducted into annular spaces *p p*, etc., separated into thin films, and brought in contact on both sides with cold surfaces, the cold water or cooling medium passing through one set of pipes *i i*, etc., and around the others *o o*.

2d. Providing a separate vessel or receptacle through which the injection-water drawn from the condenser by the air-pump is made to pass before entering the refrigerator, so as to permit the oil to be separated or drawn off.

No. 11,486.—James S. McClelland.—*Improvement in Buggies.*—Patented August 8, 1854.

This invention consists in arranging the body upon spring couplings in such a manner as that additional pairs or sets of springs shall come into action as the weight is increased on the body, and this in combi-

nation with the fastening of the body forward of its centre to one set of springs *a a*, and in the rear of its centre to another set of springs *b b*, so that the body may have a rocking motion transversely, and the tendency of the body to yield at one point be counteracted by its lifting the spring in another point, substantially as described.

No. 11,487.—JOHN MCMURTRY.—*Improvement in Brick Machines.*—Patented August 8, 1854.

This machine consists of two mould-cylinders B B^1 with moulds *a* and discharging-pistons *b*, placed radially. Between them is a reciprocating plunger-rod E, upon the heads C C^1 of which are plungers *e* e^1. The cylinders are revolved at the proper time by the action of the plunger-heads C C^1 upon the arms *i i* of the bar I, which operates the pawls *h* h^1, as shown in the drawings. The cylinders are locked to receive the pressure by the entrance of catches *g* g^1 (actuated by spring *l*), with the notches *k* upon the periphery of the cylinders, said catches being drawn out of the notches on the retreat of the plunger by the hooks *m* m^1.

Claims.—The combination with one or more such mould-cylinders B B^1, having moulds arranged, as described, of as many plunger-heads C C^1 and plungers *e* e^1 as may be desired; said plunger-heads being arranged to work radially to the cylinders, and operated by any suitable means, whereby they are caused to compress the clay in the moulds, substantially as herein set forth.

2d. Arranging two mould-cylinders B B^1, such as are described, parallel with each other, and placing between them two plunger-heads C C^1 attached to the same rod E, or otherwise arranged so as to work in a line or plane passing through the axles of both cylinders, and thereby to cause one to advance towards its cylinder to compress the clay in one or more of the moulds, as the other recedes from its cylinder after a similar operation, substantially as herein set forth.

3d. The method, herein described, of giving motion to the mould-cylinders during the receding movements of their respective plungers, by means of the toothed-wheels J J^1 upon the cylinders, the levers H H^1, or the cylinder-shafts and their pawls *h* h^1, and the coupling-rod I, which has arms *i i* with which the plunger-heads C C^1 come in contact at a proper time during their movements; the whole being combined and operated as set forth.

4th. The method of locking the cylinders during the advance of their respective plunger-heads, and of setting them free to turn during the receding thereof by means of the catches *g* g^1 attached to the frame, the hooks *m* m^1 connected with the plunger-heads, and a spring *l* applied to the catches; all combined and operating substantially as herein described.

No. 11,488.—STANISLAS MILLET.—*Improvement in Sofa Bedsteads.*—Patented August 8, 1854.

The nature of this invention consists in combining with a spring bottom a sagging-bottom G, laced to a hinged head and foot piece F, so

that when used as a bedstead the sagging-bottom shall be strained over the spring-bottom by the dropping of the head and foot pieces, and when used as a sofa or lounge said sagging-bottom shall form the ends of the sofa within the frame, and serve as a lining, and support the mattress.

Claim.—In combination with a spring-bottom, such as represented, the attaching of the sagging-bottom to the hinged head and foot board so that said sagging-bottom shall be strained over the spring-bottom when the head and foot pieces are dropped, to form a bed and serve the purpose of a lining between the mattress and the springs when used as a sofa or lounge, substantially as described.

No. 11,489.—N. MILLINGTON and D. I. GEORGE.—*Improvement in Method of Graduating Carpenters' Squares, Rulers, &c.*—Patented August 8, 1854.

The nature of this invention consists in providing (if for the common carpenters' square, two feet long) twenty-four gravers (the drawing represents only six of them) about four inches long, firmly set in metallic handles about twenty inches long, and attached to a rod about one-fourth the distance from the front end of the handles, the rear end being adjusted by screws and springs. These handles are placed side by side one inch apart from centre to centre, and are attached to a carriage about one foot wide and two feet long, which slides laterally (sufficient to make the longest cross-mark) on way O, and is pressed forward to cut the marks by a wheel in the rear, having on its periphery a succession of eight cams, (to divide the inch into eight,) the highest points of each rising to the same plane, but differing in depth, to give the desired length of mark to each of the several divisions of the inch.

Claim.—1st. The arrangement in a single frame, substantially as set forth, of as many gravers as there are units to be divided, so as by the action of the cam-wheel W, or its equivalent, simultaneously to trace, of the proper length, each set of division and fractional lines.

2d. The balance frame V, with its appendages, to equalize the pressure of the spiral springs on the graver-handles *g* so as to give the same depth of mark on the thin as on the thick end of the taper square.

3d. The inclined plane *i*, with its appendages, for moving the square longitudinally and dividing the inch into any desirable number of equal parts.

4th. The carriage *c*, arranged to press the square up against the points of the gravers by a cam or otherwise, all the several parts or their equivalents to be arranged and combined as above specified, or in any other manner substantially the same which shall produce the intended effect.

No. 11,490.—ALEXANDER MOFFITT.—*Improved Spring-Body Carriage.* Patented August 8, 1854.

This invention and claim consist in constructing the body of wheeled carriages of a pair of metal springs, so formed and arranged that the

curved portions (*b b b*) thereof, supporting the seat, shall admit of greater flexion, while their connexion with the horizontal portion (*a a*) of said springs is kept up, thus uniting the hind axle and front bolster as set forth, for the purpose of reducing the weight and expense of construction.

No. 11,491.—Samuel Nicolson.—*Improvement in Wooden Pavements.* Patented August 8, 1854.

This invention and claim consist in so combining and arranging the blocks or wooden portion of the pavement, that there may be cells or channels between them for the reception of tar and gravel, or materials of like character, each cell having a wooden bottom for the cement to rest on, whereby, when the mass of tar and gravel in each cell is pressed down by the wheels of vehicles, it shall be prevented from being forced through the cavity, and be caused to spread in lateral directions, so as to maintain a firm and close joint between the adjacent blocks, and prevent water from passing down between their joints.

The blocks are sawed four and eight inches long, and set up on end and alternating so as to form the cells.

No. 11,492.—Charles T. Porter.—*Improvement in Machinery for Dressing Stone.*—Patented August 8, 1854.

The nature of the first part of this invention consists in attaching the ways rigidly to the rest so as to form a frame, and furnishing the frame, composed of rest and ways, with journals, which fit to suitable boxes *a a* in the main framing of the machine, and serve as pivots upon which the rest and ways swing together, so as to allow of their adjustment to direct the motion of the hammer J in a line at any desired angle to the face to be cut. The object of the second part of this invention is to cause the edge of the tool to be driven by the blow of the hammer, not in the direction of the blow, but in a line or plane parallel, or nearly so, with the surface intended to be produced, and thereby to give a high degree of smoothness to the surface of the stone, and to cause the tool to sharpen itself by its own operation.

Claim.—The employment of a rest H, having its face parallel with the contiguous face of the tool-stock, when the said rest is rigidly attached to the ways G G, in which the hammer and tool-stock work, or forms part of the same frame therewith, and when the frame thus formed is provided with and swings from journals *a a*, which fit in journal boxes, suspended or supported in a suitable manner in the main framing of the machine, so that the ways may be adjusted to different angles of the surface desired to be cut on the stone, without changing the relation of the hammer, the tool, and the rest.

Also, constructing the tool-stock and arranging it relatively to the rest and the hammer, so that it is capable of vibrating substantially as described, to allow the tool resting upon the surface of the stone to be carried back by the feed-motion, and to cause it to be driven by the blow of the hammer, not in the line of the direction of the blow, but

forward in, or nearly in, the line or plane of the surface desired to be produced, as set forth.

No. 11,493.—Christian Reif.—*Improvement in Clover-Separators.*—Patented August 8, 1854.

The improvement and claim consist in the arrangement of sieves H and *q*, and endless carriers L and J, in the manner represented by drawing, whereby the clover-seed, after being hulled, is subjected to the action of the fan-blast, in small quantities at a time, sufficiently often to remove all hulls and other light impurities, as well as the impurities of nearly the same specific gravity with it.

No. 11,494.—Cheeney Reed and Brooks K. Mould.—*Improvement in Railroad-Car Ventilators.*—Patented August 8, 1854.

The claim sets forth the character of the invention.

Claim.—The method, substantially as herein described, of ventilating railroad cars, by combining with a vessel or apparatus which receives a current of air through a spout or spouts by the motion of the train or any equivalent therefor, and discharges it into the car, substantially as specified, a hollow rotating cylinder, composed of one or more series of slats or other open work, or the equivalent therefor, and partially immersed and rotating in water, substantially as specified; so that, as the air passes through the said cylinder or its equivalent, on its way to the inside of the car, the dust shall be separated therefrom by impinging on the moistened surfaces, whilst the rotation of the said cylinder in water has the effect to wash off the accumulated dust, and to keep the surfaces presented to the passage of the air constantly in a moistened state, substantially as specified.

No. 11,495.—Luther Ross and Potter G. Ross.—*Improvement in Machines for Cutting Soles of Boots and Shoes.*—Patented August 8, 1854.

The leading features of this invention consist of an axis A, to which are attached knives B B^1, of the curve necessary to represent the two sides of the sole of the boot or shoe. The leather is fed by means of grooved rollers E and F upon the cylinder D, upon which the knives perform their work.

Claim.—Placing the curved knives upon an axis so that their cutting edges shall correspond to portions of the surface of a cylinder, so that a small portion only of the knives is cutting at any one time, for the purpose of cutting soles for boots and shoes, substantially as set forth and described. Also, driving the feed-rolls E and F by the adjustable wheel G, in combination with the arrangement of the table and guide-rail O, as described, or any other substantially the same.

No. 11,496.—Horace Smith and Daniel B. Wesson.—*Improvement in Cartridges.*—Patented August 8, 1854.

This invention consists in the arrangement of the tallow, the powder, and the percussion-priming, in the cartridge, as shown in the figure; *c* is the tallow, *e* the powder, and *g* the percussion-priming.

Claim.—1st. Arranging the tallow within the cartridge and between the ball and charge of powder, or in a chamber *c* suitably made in the rear of the ball of the cartridge, whereby the necessary amount of tallow for a discharge is preserved with the charge in a convenient and compact form.

2d. The employment in the cartridge of the metallic or indurated disk or seat, so that it shall rest directly on the powder, in combination with arranging the priming or percussion-powder in rear of said disk, or on the side of it opposite to that which rests against the powder, thereby affording the opportunity for applying the force of the blow by which the priming is enflamed, such force being applied in the line of the axis of the cartridge.

No. 11,497.—Ira Smith and John Stonesifer.—*Improvement in Lard Lamps.*—Patented August 8, 1854.

The compensation of the wearing away of the piston in this class of lamps is here provided for by the insertion of a conical piece of leather, having its base next the axis of the piston, and made to press tightly against the side of the reservoir, in which the follower is moved up and down by means of the screw C and handle D.

Claim.—The improved piston, composed of two adjustable compressing plates *f f*, that embrace between them a disk of leather or other equivalent material, dissected in the manner herein represented and described, to wit: the said disk having an outwardly tapering independent piece *m*, inserted into a correspondingly shaped recess, so that, when the periphery of said piston wears away by use, it may be enlarged by simply loosening its compressing plates, drawing out the said piece *m* a short distance, and then tightening said plates and trimming off to the proper curvature the extremities of the piece *m*, substantially as herein set forth.

No. 11,498.—Thomas B. Stout.—*Improvement in Car-Coupling.*—Patented August 8, 1854.

This coupling is self-detaching, (whenever either car is thrown off the the track, and thereby draws the link out of the direct line,) and is at the same time capable of being disengaged by hand when desired.

Claim.—The arrangement of the stop D, springs *b b*, coupling-bolt E, in connection with the ordinary link F, as described, for the purpose of self-detachment of the cars by the end of the bolt E being thrown as set forth. I also claim said stop D, springs *b b*, bolt E, and link F, in combination with the forked lever, operated by the windlass H in the

manner as described, for the purpose of detaching, in safety, a car or cars, at the will of an attendant, while the train is in motion

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No. 11,499.—Albert G. Safford.—*Improvement in Window-Sash Springs.*—Patented August 8, 1854.

This invention and claim consist in the arrangement of the slides *c c* and springs *l m* with respect to the window sash and the rectangular groove of the style or jamb of the frame, whereby the two sides of each slide are pressed at once by the springs against the two right-angular sides of the groove, and the sash forced in two directions, and particularly against the weather-side of the groove, said slides and springs acting in lieu of counterbalance weights, and sustaining the sash at any desired elevation.

No. 11,500.—Jno. Thompson and A. S. Moore.—*Improvement in Machines for cutting out Boot and Shoe Soles.*—Patented August 8, 1854. Antedated February 8, 1854.

The general character of this machine is readily understood from the drawings. The vertical motion of the cutter-head M is given by the slide K, acted upon by the pitman I, which is attached to an eccentric pin A upon the main shaft D. The revolution of the cutter-head is produced by the action of the segment R upon the pinion *t*, said segment being operated by the main shaft D, through the pitman I, treadle H, pitman T, and arm *w*, so that, by the proper adjustment of the crank G and eccentric pin *d*, said revolution is made to take place at the proper time in respect to the vertical motion. In order to obtain from the reciprocating revolution of the pinion *t* an intermittent rotation, the pinion *t* is not attached to the shaft *e* of the cutter-head M, but to a cylinder *f*, containing a spring *v*, one end of which is riveted thereto, and which, embracing the shaft *e*, causes it to revolve when tightly coiled around it, but releases it as soon as the pinion *t* reverses its motion. The knives *a* are confined between two curved clamps d^1 and e^1, and attached by screws i^1 to boxes g^1, sliding in mortises f^1 of the cutter-head, so that, by means of the screws h^1, they can be easily adjusted in the plane of the cutter-head.

Claim.—1st. The combination of the sector R and pinion *t* with the cylinder *f* and clamp-spring *v*, operating substantially in the manner described, and for the purpose set forth.

2d. We do not claim the mere adjustment of the crank G and eccentric on the shaft D; but what we do claim is, communicating both a vertical and intermittent rotary motion to the knives from the continuous motion of the fly-wheel E, by the means above set forth, to wit: the eccentrics *d*, operating the vertical slides K which support the cutter-shaft *e*, and the geared cylinder or its equivalent, engaging and disengaging with said shaft, and operated by a sector or its equivalent, the motion of which is derived from the crank G, as shown and described, or by other means substantially equivalent thereto, whereby we are enabled to secure the partial ascent of the knives *a*, before the

commencement of their revolution, by the proper adjustment of the eccentrics *d* to the crank G.

3d. Passing the screws i^1, which confine the knives to the cutter-head, through the sliding-boxes g^1, in the manner described; for the purpose of adjusting the knives to different widths of toe and heel, without loosening the screws which confine them to the cutter-head.

No. 11,501.—Edward Turner.—*Improvement in Fastenings for Hames.*—Patented August 8, 1854.

In the figure, A represents a curved piece of metal provided with a hook B at one end, which hook is intended to be inserted in the ring upon the end of the hame, and the end B^1 of the hook bent down into the recess C, and fastened by riveting or otherwise. The piece A has the groove D in it, to which the curved rack or sliding-piece E is fitted so as to traverse freely; and this curved rack is provided with a hook F, bent down upon the projection G, and fastened by riveting. The sliding-piece E has a groove H in it for the end of the spring M, which spring is riveted to the rear end of the pawl J, and this pawl serves to hold the piece E in the piece A very firmly, by means of the notches I I.

Claim.—The curved rack, fitted to traverse in a groove provided with a vibrating catch operated by a spring, substantially as described.

No. 11,502.—Philos B. Tyler and Benjamin Lathrop.—*Improvement in the Rollers of Furniture Casters.*—Patented August 8, 1854.

Claim.—We do not claim the metallic caster-roller as exhibited in figure, but we do claim the improved caster-rollers made both externally and internally as denoted in transverse section—that is to say, with a bended rim united to an annulus or disk, made flat for some distance from the rim towards the hub, the bended rim and flat disk producing a saving of the usual amount of metal which would have to be employed in the angles between them in order to insure the requisite strength and stiffness to the roller.

No. 11,503.—William Wickersham.—*Improvement in Self-heating Smoothing-Irons.*—Patented August 8, 1854.

Claim.—The making of the handle D, in part or in whole, the reservoir for containing the combustible fluid, as specified. Also, I claim combining with the bottom of the flame chamber one or more connections or columns I I, extending therefrom, and for the purpose of intercepting heat and conducting it downwards into the bottom of the flame chamber, substantially as specified.

I do not claim the mere application of a non-conducting material to a surface in order to prevent the escape of heat therefrom; but I claim the non-conducting material arranged on the top of the iron in combination with conductors leading from the top of the flame chamber down to the bottom of said flame chamber, by which combination, as specified, the surplus heat in the top of the flat is saved and conducted into the bottom of the iron as described.

No. 11,504.—Henry E. Woodbury.—*Improved Document File or Holder.*—Patented August 8, 1854.

The object of the inventor is to have a convenient and compact receptacle for folded documents, where they will be preserved from injury and be easily referred to when desired. It consists of a box or drawer A, within which is a loose holder or platen B, attached to one end of a spring C; the other end of the spring is attached to the back of the box A; and the whole, including the papers, are covered by a lid D, as represented.

No. 11,505.—Peter Miggett.—*Improvements in Shuttle-guards.*—Patented August 8, 1854.

Claim.—The shuttle-box guard, constructed, as specified, of rollers C C on either side of the centre longitudinal line of the shuttle, and projecting from a spring-bar or holder B down into the box, whereby the shuttle is more effectually restrained from rising at the end next the warp on leaving the box, thus preventing the shuttle from flying out of the loom, or more truly inclining it to run in its own course, friction is diminished, the shuttle less exposed to injury or wear, and kept from turning or entering the opposite box edgewise.

No. 11,506.—Leroy S. White, assignor to P. D. Tyler and B. Lathrop.—*Improvement in Furniture Casters.*—Patented August 8, 1854.

Claim.—I do not claim making the shank of the caster detachable from its socket, nor do I claim the employment of a spring to hold it in the socket, nor the arrangement of said spring in the socket made without a groove; nor do I herein claim the arrangement of the sustaining groove of the spring in the socket, instead of in the shank, so that when the shank is being drawn out of the socket, or when it is within or out of the same, the spring will remain in the socket.

But what I do claim is the hereinbefore described mode of arranging or applying the spring *g* and the sustaining groove *c*, or recess thereof, to the socket tube A and the shank B; the sustaining groove of the spring being formed in the outer surface of the socket-tube, and the spring being made to embrace the socket-tube, and project through it and into the groove of the shank, all substantially as hereinbefore specified.

No. 11,507.—Alfred Swingle, assignor to Elmer Townsend.—*Improvement in Sewing Machines.*—Patented August 8, 1854.

Claim.—The combination of the rotary fork thread-carrier P and the hook G, as made to operate in connection with the needle A, and perform sewing substantially as described.

No. 11,508.—JOHN NORTON.—*Improvement in Blasting Rock, Timber, &c.*—Patented August 8, 1854.

This invention consists in a slight modification of the well known means of blasting rock, timber, &c., by the application and use of a frictional cord, divided into two parts and slightly spliced together, in combination with an inflammable compound, with which the splice is covered, for the purpose of igniting the charge when the cord is pulled asunder. Also in the "safety bridle," which is attached to the frictional cord, or to the frictional cork, for the purpose of preventing accidental discharge.

Claim.—1st. The frictional cord, divided into two parts and slightly spliced together, in combination with an inflammable compound with which the splice is covered, substantially as described, and for the purpose specified.

No. 11,509.—AMOS J. SAXTON.—*Improved Mode of Constructing Iron Buildings.*—Patented August 8, 1854.

This improvement consists in the peculiar method of securing all the sectional parts of iron-frame fire-proof houses by means of a system of compound joints, which are modified to suit the particular connection desired, thereby dispensing with the use of screws, rivets, bolts, or nails, in the erection of iron-frame fire-proof or other buildings.

Claim.—1st. The mode of connecting and combining all the different points by all or any of the improved compound joints, as shown and described.

2d. The mode of erecting iron fire-proof and other fire-proof buildings, and of uniting each substantial part to another at all the sectional points by means of the improved compound joints, as described.

3d. The method of arranging, combining, and uniting all the different parts of the columns, girders, beams, ashlers, and interior plates, or any of the sectional parts of the building thus united by the compound sectional joints, by which the whole is formed into a substantial iron-frame fire-proof building, as described and shown.

No. 11,510.—WEATHERILL TAYLOR.—*Improvement in Ship-Blocks.*—Patented August 8, 1854.

The improvement consists in fitting the flange *b* of the bush into a recess in one side of the sheave, and a bevelled-edge ring *c* into a recess on the opposite side of the sheave, and then swaging the end of the bush into the bevelled-edge ring.

Claim.—Securing the bush to the sheave by fitting the flange into the recess on one side of the sheave, and the bevel edged ring into the recess on the opposite side of the sheave, and swaging the bush on to the bevelled edge of the ring, as herein set forth.

No. 11,511.—S. W. RUGGLES, assignor to S. W. RUGGLES and A. R. SMITH.—*Improvement in Fan-Blowers.*—Patented August 8, 1854.

This is an improvement on those fan-blowers which receive currents of air from two directions diametrically opposite, and has for its object the prevention of the humming due to the meeting of the-air currents within the partial vacancy.

Claim.—The application of a deflecting rib to the middle of, and so as to extend beyond, the propelling surface of each of the curved wings of the blast wheel, and formed so as to deflect the currents of air entering the wheel laterally in the opposite directions, and prevent them from that contact or impulsion against one another, which produces the humming or buzzing noise, as above set forth.

No. 11,512.—JAMES A. BAZIN, assignor to ALFRED B. ELY.—*Improvements in Braiding Machines.*—Patented August 8, 1854.

This invention consists in the use of a movable guide-plate, by which the motions of the bobbins are governed, the guide-plate being operated by the bobbins, by means of which much friction is avoided; and also improvements in the details of the machinery.

Claim.—The movable guides D D', constructed and operated in the manner substantially as described.

Also, the method of constructing the bobbin-holder, the parts which carry and guide the threads being connected with the stem N by means of spring *f*, which enables the bobbins to yield without permitting the strand to render too freely.

Also, in combination with the method of constructing the bobbin-holders, the method of drawing off the finished braid over the spring-plate Z.

Also, the disk S, operating substantially as described.

Figure 4 is a section, on an enlarged scale, of the part of the bobbin-holder which is immediately below the spools.

No. 11,513.—ROBERT ARTHUR.—*Improvement in Bottles, Jars, and other similar Articles.*—Patented August 15, 1854.

In the figure, *a* represents the bottle, *b* the neck, which is surrounded by a fillet *c* to form a groove round the neck of the bottle. This groove is narrow at the bottom *n*, wide at the top, and the upper edge of the fillet is curved inwards, to form an inverted channel *o*, into which any fluid within the groove retreats when the bottle is inverted, and returns again to the bottom when the bottle is placed in an upright position, bottom downwards. The stopper or cap enters the narrowest part of the groove, displacing the liquid or other yielding material therein, and thus preventing the passage of air to or from the interior of the bottle.

Claim.—The vessel so contrived as to be made tight by means of a groove or receptacle containing a yielding medium, which is to be penetrated by the cap or cover, with the receptacle so contrived that the

bottle may be inverted to pour out its contents, without spilling the liquid or yielding medium from the groove or receptacle, as set forth.

No. 11,514.—JOHN A. BRADSHAW.—*Improvement in Pegging Machines for Boots and Shoes.*—Patented August 15, 1854.

The various devices involved in this machine are principally actuated by cams upon a horizontal revolving shaft. The shoe being pegged is caused to move round beneath the awl and peg, driven by the awl before it is withdrawn from the sole. In the figure, B represents the main driving-shaft; D is the hopper into which the pegs are put ready for use; E is a grooved wheel which receives the pegs from the hopper and carries them over to the channel F; K is a swipe, which by the operation of the lever H arranges the pegs in a direction parallel with the groove in the wheel E; L is a small burr-wheel, revolving in a direction opposite to that of the grooved wheel E, and situated immediately over said groove to prevent more than one peg from passing at the same time. After passing through the channel F, the peg drops down between the belt N and pulley O, and by these it is carried round, and by the operation of lever P is thrown into the hole in the tube Q, which conducts it to the cells in the rim of the wheel R; and as the cells in this rim are filled up (each cell receiving one peg) the wheels turn round and drop each peg in turn into the tube S; from the lower end of the tube S it is received by a clamp W, which presents it in a horizontal position to the action of one of the two reciprocating rods *z z*, which strikes it, and pushes it point first through one of the detectors *b b* into one of the channels *c*, the detectors being so constructed that if the peg is directed head-foremost the detector cannot receive it, but the spiral spring which actuates the punches or rods *z z* gives way, and the peg remains in the clamp until the other punch or rod returns, carrying the peg into the opposite channel *c*. The channels *c c* are united at the bottom, and the peg falls point first into the cells perforated into the wheel *d*, which, as it revolves, brings the cells successively over a hole in the circular plate *g* beneath the wheel *d*, and the punch *h* pushes it between the forceps *k*, and then withdraws to allow the wheel to pass on again. The peg is now in a position ready for use. The awl and the hammer are both mounted on the same carriage with the forceps *k*, and they all swing together over the article to be pegged. Parallel motion is given to the surface of the sole of the boot or shoe which is being pegged, by a combination of levers, rods, and hinge-joints.

Claim.—The combination with the grooved wheel E, of the arm K, for the purpose of presenting the pegs to the wheel longitudinally, arranged and operated substantially as set forth and described. Also, the application of the grooved wheel E in combination with the burr-wheel L and tube F, substantially as, and for the purpose, set forth and described. Also, the lever T^1, pawl U^1, and ratchet V^1, on grooved wheel E, or their equivalent, arranged and combined substantially as, and for the purposes, set forth and described. Also, the clamps or forceps W, to receive the peg from the wheel R, in combination with the

detectors *b b*, the punches *z z*, and the double channel *c*, for the purpose of insuring the proper presentation of the peg with the point downward. Also, the combination of the forceps *k*, the wedge-shaped drivers S, and the adjustable stop-screw Y^1, substantially as, and for the purpose, set forth and described. Also, the apparatus for holding the boot or shoe during the operation of pegging, consisting of the plate C^1, revolving upon the ring B^1 of the plate A^1, and having the clamps D^1 D^1 D^1 D^1, or their equivalents, the whole being arranged substantially as, and for the purpose, set forth and decribed. Also, the combination of the hinge-joints I^1 I^1, the shaft K^1, and the levers J^1 J^1, or their equivalents, substantially as, and for the purpose, set forth and described.

No. 11,515.—WILLIAM BROOKE.—*Improvement in Moulds for Glass Insulators.*—Patented August 15, 1854.

This improvement consists in the attachment of an adjustable shoulder g^1 to the cap *g* of the mould, against which the molten glass is forced up by the descent of the plunger *h*, so that the exterior form of the insulator may always be secured, provided a sufficient quantity of metal be put in the mould.

Claim.—The shoulder g^1, when used in combination with the cap-plate *g* and plunger *h*, in the manner and for the purposes set forth.

No. 11,516.—JOHN H. CAHILL.—*Improvement in Hot-Air Ranges and Elevated Side Ovens.*—Patented August 15, 1854.

Claim.—1st. The use of the fresh hot-air pipe when constructed and combined with the hot-air chamber and elevated side oven and vent-hole, especially for the purpose of preventing the fumes and vapors (arising from the substances being cooked in the oven when in operation) from being drawn or forced out of the oven into the hot-air chamber as described.

2d. Making the elevated side-oven flues of square section, and united together by the partitions as described, so as to have equal and flat surfaces in the oven and hot-air chamber, and arranged so as to radiate heat therefrom on all sides of the oven excepting the door-side, and also so as to radiate heat into the hot-air chamber from the flues on four sides of the oven, substantially as described.

No. 11,517.—MATTHIAS P. COONS.—*Improvement in Railroad-Car Brakes.*—Patented August 15, 1854.

Claim.—I do not claim any particular device, or the construction of any plan of leverage for the purpose of operating the brake, as that may be accomplished by various modes. But what I claim is a lever-form of brake, which, when in action, shall bear and brake simultaneously, both upon the wheels and rails, the friction upon the latter supplying the breaking force upon the former, and the whole being adjusta-

ble and self-acting through the combined agency of an eccentric or cam-bearing or resisting point between the brake and car, substantially as described.

No. 11,518—Aaron D. Crane.—*Improvement in Machines for Turning Irregular Forms.*—Patented August 15, 1854.

The patent is for the cutter-wheel C, so arranged that the pattern or guides R and I govern the motion of the cutters, throwing them outwards or inwards from the article A to be cut, while the carriage F is drawn longitudinally by a feeding-screw.

No. 11,519.—D. M. Cummings.—*Improvement in Rake.*—Patented August 15, 1854.

This invention consists of a metallic socket *c* and clasp *d* in one piece; the former to receive the handle, and the latter to embrace the head, in connexion with screw D, which transfixes the head.

Claim.—The mode of fastening the head of the rake to the handle by the use of the head-fastener C, containing the socket *e* and the clasp *d*, in combination with the handle A, head B, and screw D, as above described, and for the purposes above set forth, or any other mode substantially the same and which will produce the intended effect.

No. 11,520.—B. Franklin Day.—*Improved Hand Press.*—Patented August 15, 1854.

This is constructed for a seal-press, and the claim is for the arrangement of levers E E, toggles G G, and follower F, as represented; so that, by grasping the handles of the levers, the operator can depress the platen on the bed C, with great convenience and power.

No. 11,521.—Cook Darling.—*Securing Carriage Wheels to Axles.*—Patented August 15, 1854.

This invention consists in the peculiar combination and arrangement of old devices, by means of which the wheel is put on or taken off with great facility and promptness; *d e* are the guard-plates, which fit into a recess cast in the face of the circular plate *a b c*, and so constructed as to move easily therein, and to be kept closed on the axle when in place, by the arched plate spring *m*; *f* is the conical end of the axle, which forces the guard-plates apart when it passes through the elliptical orifice between them, when the wheel is put on the axle, and which retains the wheel in place when the guard-plates have closed into the groove turned on the axle behind the conical end *(f)*; *p* is the pintle on which the key (fig. 2) turns when it unlocks the connexion between hub and axles; and A is the cap which covers and secures all these parts. The key is used to take off the wheel without removing the cap (A), and the wheel is put on by merely using a little force to press

it home to its place, the conical end of the axle separating the guard-plates until it has passed into them, when they close upon it and secure it.

Claim.—The combination and arrangement of the several parts, viz: The axle with the conical end, the guard-plates, and the means of operating the same by the use of the key in front.

No. 11,522.—Aaron L. Dennison.—*Improvement in Punches for Making Watch-hands.*—Patented August 18, 1854.

The claim allowed is to the construction and arrangement of the punch H H and die, in the manner shown, the punch being of elementary parts, formed to the same figure, or nearly so, in their cross-sections, throughout their whole depth, and braced between blocks or clamps made to the figure of the article to be formed; by which construction the most delicate and complex punch can be formed in a cheap and expeditious manner, and readily renewed or changed; and being throughout of the same magnitude, are readily and perfectly hardened without injury, which has heretofore been found an insuperable difficulty in punching small, delicate work.

No. 11,523.—Joshua Gibbs.—*Improvement in Ploughs.*—Patented August 15, 1854.

This invention is described by the claim, as follows:

Claim.—Making the working surface of the mould-board in the form of a section of the interior surface of a hollow cylinder; the centre or axis of said cylinder being parallel, or nearly parallel, horizontally to the base of the mould-board, or bottom of the plough, substantially as described.

No. 11,524.—Joseph Harris, Jr.—*Improvement in Lamps.*—Patented August 15, 1854.

The supply of air for keeping up the combustion at the inner surface of the wick is brought, by the apertures F F, through the tubes A B, the former tube being closed below, thus avoiding danger which might arise from heating the fluid. The slide-tube B, for increasing and decreasing the light after being adjusted, is kept in a fixed position by a slot and pin.

Claim.—The arrangement and construction of the lamp, as herein described.

No. 11,525.—Albert H. Judd.—*Improved Safety-Gauge for Steam Boilers.*—Patented August 15, 1854.

The nature of the invention is shown by the following claims allowed:

Claims.—1st. Passing the stem of the valve through an enlargement *c*, in its supporting-tube B; by which I am enabled to give short bear-

ings to the stem, for the purpose of preventing it becoming fastened in its bearings by oxidation, or the action of heat upon the earthy matter driven through it when the valve is open.

2d. Removing portions of the sides from that part of the valve-stem which passes through its inner bearing aperture, so as to leave narrow bearing-surfaces to guide and steady the valve.

3d. Combining the valve-stem with the float, in such manner that when the float shall sink and open the valve, the valve-stem may be detached therefrom for the purpose of again closing the same, by giving a partial turn to the valve-stem by means of its handle *d*.

4th. Giving an alarm by placing a plug *m*, of fusible alloy, in an aperture in one end of the float, which is connected with my improved arrangement of gauge-cock.

No. 11,526.—J. L. Lord.—*Improved Grindstone Frame.*—Patented August 15, 1854.

This patent is for constructing the frame with two pieces, A A^1, of cast-metal, so that when they are put together, and held by the bolt *b*, they shall furnish the bearings for the shaft *d* and friction-rollers *c*, both of which shall be protected from injury, and dust or water, &c.

No. 11,527.—Thomas G. McLaughlin.—*Improvement in Railroad-Car Brakes.*—Patented August 15, 1854.

Claim.—I am aware that many of the devices herein described are well known and in common use, particularly that portion which relates to the operation of the brakes by hand—I therefore do not claim them. But what I do claim as my invention is a sliding-rod, of the peculiar form herein described—that is to say, I claim forking the sliding-rod in such manner as not to interfere with the ring-joints and bumpers, but to have a longitudinal motion separate from, and independent of, both.

Also, I claim the slotted connecting-rods attached to the sliding-rod, for causing the automatical action of the brakes without interfering with the ordinary hand-brake, or the hand-brake in its action interfering with or producing any movement of the sliding-rod, substantially as specified.

No. 11,528.—Jacob Myers.—*Cultivator.*—Patented August 15, 1854.

This invention consists in putting a triangular ring *f* upon the tooth C, and in setting the land-side of said wing obliquely to the line of the draught, so that the heel of said land-side shall be nearer than the point to the land, in order, by the tendency of the plough from the land, to prevent cutting (by the point or other part of the land-side) the plants standing on the land.

No. 11,529.—Robert Neisch.—*Improvement in Lime-Kilns.*—Patented August 15, 1854.

The main features of this invention consist in the introduction of air from above the hearth and fire-chamber to supply or aid combustion, and in the combination of an arched fire-chamber with an inclined and curved hearth, for reflecting and concentrating the heat. The heat arising from the burned lime-stone lying in the bottom a^1, and the air which may find its way through the doors *a*, are carried up through the flues *b* b^1, underneath the grates or hearth, and these furnish heated air to promote combustion. The first series of flues *b* b^1 terminate in the ash-box *c*, and then branch off, as seen in the figure, and lead to the fire. When the lime is drawn from *a*, the flues *b* b^1 may be closed up so as to prevent the admission of cold air to the fires, the object being to cause the air to come in contact with the heated gases before reaching the fires.

Claim.—In combination with the fire-chamber *f*, the air-conducting passage *g*, for the purpose of bringing the air from above, as described. Also, in combination with the arched fire-chamber *f*, the inclined and curved hearth *e*, for concentrating the fuel, and throwing the flame or heat towards the stack, substantially as described.

No. 11,530.—Andrew Patrick.—*Improved Mode of Unloading Coal and Other Cars.*—Patented August 15, 1854.

This invention consists in a combination of a lever *b*, and pin *a*, and tilting-frame, so arranged that when the car is run upon said frame, it is held by a hook formed by an iron bar, which bar also raises the lever *b*, and liberates the pin *a*, thereby facilitating the unloading the mine cars.

No. 11,531.—Sylvester H. Roper.—*Improvement in Sewing Machines* Patented August 15, 1854.

Claim.—The groove or thread-passage V V^1, in combination with a needle made to operate a thread, as described; said passage being for the purpose of supporting the thread and preventing it from kinking, or injuriously springing back or towards the cloth immediately after the release of the thread from the needle. Also, the mode of applying the closing-slide *f* to the needle—that is, making the shank of the needle tubular, and inserting the closing-slide within the same, whereby the closing-slide is better protected from accident, or being broken by clutching in the cloth or thread.

Also, in combination together and used with a hook needle, the two thread-benders *n o*, as made to operate on the thread, and lay it in the opening of the needle.

Also, in combination with the thread-benders, the lip or nipper a^2, and the spring-nipper b^2, the same being for the purpose of seizing the thread, and enabling the needle to draw it closely into the cloth.

Also, the mode of connecting the two connecting-rods O P to

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ings to the stem, for the purpose of preventing it becoming fastened in its bearings by oxidation, or the action of heat upon the earthy matter driven through it when the valve is open.

2d. Removing portions of the sides from that part of the valve-stem which passes through its inner bearing aperture, so as to leave narrow bearing-surfaces to guide and steady the valve.

3d. Combining the valve-stem with the float, in such manner that when the float shall sink and open the valve, the valve-stem may be detached therefrom for the purpose of again closing the same, by giving a partial turn to the valve-stem by means of its handle *d*.

4th. Giving an alarm by placing a plug *m*, of fusible alloy, in an aperture in one end of the float, which is connected with my improved arrangement of gauge-cock.

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Also, I claim the slotted connecting-rods attached to the sliding-rod, for causing the automatical action of the brakes without interfering with the ordinary hand-brake, or the hand-brake in its action interfering with or producing any movement of the sliding-rod, substantially as specified.

No. 11,528.—Jacob Myers.—*Cultivator.*—Patented August 15, 1854.

This invention consists in putting a triangular ring *f* upon the tooth C, and in setting the land-side of said wing obliquely to the line of the draught, so that the heel of said land-side shall be nearer than the point to the land, in order, by the tendency of the plough from the land, to prevent cutting (by the point or other part of the land-side) the plants standing on the land.

No. 11,529.—Robert Neisch.—*Improvement in Lime-Kilns.*—Patented August 15, 1854.

The main features of this invention consist in the introduction of air from above the hearth and fire-chamber to supply or aid combustion, and in the combination of an arched fire-chamber with an inclined and curved hearth, for reflecting and concentrating the heat. The heat arising from the burned lime-stone lying in the bottom a^1, and the air which may find its way through the doors *a*, are carried up through the flues *b* b^1, underneath the grates or hearth, and these furnish heated air to promote combustion. The first series of flues *b* b^1 terminate in the ash-box *c*, and then branch off, as seen in the figure, and lead to the fire. When the lime is drawn from *a*, the flues *b* b^1 may be closed up so as to prevent the admission of cold air to the fires, the object being to cause the air to come in contact with the heated gases before reaching the fires.

Claim.—In combination with the fire-chamber *f*, the air-conducting passage *g*, for the purpose of bringing the air from above, as described. Also, in combination with the arched fire-chamber *f*, the inclined and curved hearth *e*, for concentrating the fuel, and throwing the flame or heat towards the stack, substantially as described.

No. 11,530.—Andrew Patrick.—*Improved Mode of Unloading Coal and Other Cars.*—Patented August 15, 1854.

This invention consists in a combination of a lever *b*, and pin *a*, and tilting-frame, so arranged that when the car is run upon said frame, it is held by a hook formed by an iron bar, which bar also raises the lever *b*, and liberates the pin *a*, thereby facilitating the unloading the mine cars.

No. 11,531.—Sylvester H. Roper.—*Improvement in Sewing Machines* Patented August 15, 1854.

Claim.—The groove or thread-passage V V^1, in combination with a needle made to operate a thread, as described; said passage being for the purpose of supporting the thread and preventing it from kinking, or injuriously springing back or towards the cloth immediately after the release of the thread from the needle. Also, the mode of applying the closing-slide *f* to the needle—that is, making the shank of the needle tubular, and inserting the closing-slide within the same, whereby the closing-slide is better protected from accident, or being broken by clutching in the cloth or thread.

Also, in combination together and used with a hook needle, the two thread-benders *n o*, as made to operate on the thread, and lay it in the opening of the needle.

Also, in combination with the thread-benders, the lip or nipper a^2, and the spring-nipper b^2, the same being for the purpose of seizing the thread, and enabling the needle to draw it closely into the cloth.

Also, the mode of connecting the two connecting-rods O P to one

crank-pin A, viz: by the projections *a a* from the rod and the covering

crank-pin A, viz: by the projections *a a* from the rod and the covering tube or ferule *b*.

No. 11,532.—Jacob C. Robie.—*Improvement in Turn-Tables.*—Patented August 15, 1854.

Claim.—What I claim as new is:

1st. Balancing the platform of the turn-table upon a transverse central shaft E, or other suitable axis, resting upon the roller-carriage in a line intersecting the line of the axis upon which the turn-table rotates, in such a manner that the table, when in a horizontal position, is elevated, or has its rails above those of the track, to admit of the free swing of the table over its under-supports or bearings N, and so that the table may be rocked with facility from its centre or tilted, to bring the ends of its rails on either side of its balancing-shaft into line or level with the rails of the track.

2d. I also claim the manner, herein described, of holding the table steady at a horizontal set while rotating, and tilting or depressing it on either side of the balancing axle E, when required, by means of the cams M M', arranged to bear upon the roller-carriage, and operating in connexion with the roller-carriage and table, as herein set forth.

No. 11,533.—O. L. Reynolds.—*Improvement in Machines for Cutting Irregular Forms.*—Patented August 15, 1854.

This arrangement is intended to make shoe-lasts, spokes, etc., and consists of a horizontal cutter-wheel E, supported on a series of rotating and longitudinal reciprocating patterns *d;* the blocks *c* having a corresponding longitudinal motion with the patterns.

Claim.—Combining a series of patterns *d d*, and the chucks for the blocks *e e*, with each other, and with the collar, the vertical slides, the pawls, the ratchet-wheels, and the recess in the arms, or their equivalents, in such a manner that said series of patterns and blocks shall have corresponding compound rotary and longitudinally reciprocating movements imparted to them, substantially in the manner and for the purpose herein set forth.

Also, supporting the weight of the cutter-wheel E upon a series of rotating and longitudinally reciprocating patterns *d d*, when said patterns are combined with chucks for a series of blocks *e e*, in such a manner that corresponding movements shall be imparted to said patterns and blocks, and said blocks be so situated as to be operated upon by the cutters *l l*, substantially in the manner and for the purpose herein set forth.

No. 11,534.—Charles G. Sargent.—*Improvement in Machines for Combing and Stapling Wool.*—Patented August 15, 1854.

Claim.—Drawing out and stapling the material as set forth, previous to commencing the combing operation.

Also, the continuous motion of the nippers *c' d'*, *M*, or other parts which operate upon the wool, whereby I am enabled to keep a number of them in operation at the same time, the different steps in the process proceeding simultaneously upon the different portions of the material, without the necessity of interrupting any one of them for the performance of another, and without retrograde motion of any of the parts of the machine.

Also, the method described of opening and closing the nippers by means of the cam O, in combination with the cam Q, or its equivalent; whereby the nippers are closed suddenly upon the wool, whatever may be the rate of motion of the nipper-cylinder C.

No. 11,535.—George Spencer.—*Improvement in Railroad-Car Windows.*—Patented August 15, 1854.

The nature of this improvement consists in arranging a circular window (capable of rotation) with a small segment open at the forward part, the object being to allow of ventilation without admitting dust, etc.

Claim.—I do not claim as original the establishment of an outward current from within the car, nor that this result is peculiar to my construction of a car window; neither do I claim the use of deflectors in any form whatever, as none are attached by me to any part of the car. I am also aware that circular windows to be revolved, and having their bearing at the centre, have long been known and used to ventilate churches and other public buildings. But whenever these windows are opened to the smallest extent, the opening reaches from the circumference to the centre, and could not therefore be used to accomplish the objects for which my window is intended; I therefore disclaim the original invention and application of a circular revolving window, and also the bearing upon which it is revolved. What I claim as my invention is the combination with the side of a car of a revolving window, consisting of two separate semi-circular sashes connected by hinges, so that one sash may be opened to its full extent, and having a small part of the circle cut off, so that by revolving it upon its centre, a small opening may be made at the forward part of the window, whichever way the car may be moving, the residue of the window remaining at the same time covered.

No. 11,536.—William A. Sweet.—*Improvement in Fire-Arms.*—Patented August 15, 1854.

This improvement consists in the devices for opening, closing, and locking the breech-pin B; in the arrangement by which the gun may be cocked, either by the action of the lever C or by the hand, independent of said lever; and in the peculiar mode of taking the exploding cap from the nipple, and of replacing the fresh cap upon said nipple.

Claim.—1st. Producing the compound longitudinal and vibrating movement of the breech, and afterwards immovably securing it in contact with the barrel by a single forward and return motion of the actu-

ating lever C, viz: by means of the cam-piece H, provided with a shoulder *c*, a cam-surface *d*, and a wedge-surface *f*, against which said lever acting successively, substantially as described, produces respectively the backward longitudinal and vibrating motions of the breech, then the forward longitudinal motion thereof, and finally presses it against the barrel with increased force.

2d. The link *i*, one end of which is hinged to the lever C, and the other end provided with a slot *k*, that receives a pin *j* on the hammer-dog *h*, when arranged and operated as specified and shown, for the purpose of cocking the gun by the action of the lever C in operating the breech, while at the same time the hammer remains free to be raised by the hand without moving said lever.

3d. The arrangement of a broad cavity in the face of the hammer, with a sharp edge *o* on its rear side, in combination with the compound movement of the breech, and the properly regulated motion of the hammer, substantially as shown, for the purpose of removing the exploded cap from the nipple.

4th. The combination of the mouth-piece S, attached to the extremity of the feeding-tube I, and provided with a notched tongue *v* projecting forward from one side, and of the short tube T, which is held in front of said mouth-piece by a spring *u*, and has a wedge-shaped projection *z*, extending forward from the side opposite to the tongue; the whole being situated and arranged in such a manner as to relieve the nipple, and supply it with a cap whenever the breech is fully opened, substantially as specified.

No. 11,537.—I. T. and L. J. Wait.—*Seed-Planters—Cotton.*—Patented August 15, 1854.

The peculiarity of this planter consists in the use of two wheels, I and J, of different size, and on separate axles, R K and H, instead of complicated gearing. Axle K has a series of pins, L, to stir the seed in the hopper, and axle H carries a burr E, to prevent the seed from clogging in passing out of the hopper.

Claim.—Making one wheel larger than the other, and putting them on separate axles, so as to make one operate the burr or apparatus which stirs the seed, and the other the burr or apparatus which delivers the seed, without the aid of gearing or other equivalent devices, substantially as described.

No. 11,538.—Moses D. Wells.—*Horse Rake.*—Patented August 15, 1854.

The novel feature in this rake is the employment of three friction-rollers *m n* and *n*^{1}, the first working under lever D, and the other two upon teeth *x x*, to facilitate the release of the teeth in discharging hay from the rake.

Claim.—The herein described method of regulating the action of the rake-teeth by the reverse anti-friction rollers *m n n*^{1}, arranged and operating substantially as herein fully set forth.

No. 11,539.—Timothy U. Webb.—*Improved Mode of Insulating Lightning Rods and securing the Insulators.*—Patented August 15, 1854.

The improvement in the construction of insulators which I claim, consists in making the inner surface convex, as represented at A C. This, with the outer conformation represented by the drawing, presents a circular surface both inside and out, making the thickness of the insulator uniform in all parts; a conformation which combines the greatest strength with the greatest economy of material, and, by having the least possible amount of surface in contact with the rod, and opposing the least possible resistance to the passage or expansion of air produced by the lightning, renders less liable to be broken by the lightning or any other cause.

Claim.—I do not claim making the outside of the insulator with a horizontal groove in the middle and a flange on each side of the groove. But what I do claim is, making the inner surface convex, in the manner and for the purpose specified.

No. 11,540.—William A. White.—*Process for Printing Long-napped Fabrics.*—Patented August 15, 1854.

By means of teasels or brushes the long nap of white cotton or other cloth is combed in a contrary direction to that in which it was laid originally; then by means of blocks the surface is printed in the various colors and patterns desired; when dry, the nap is returned to its original position, and the pattern and colors are found to be agreeably softened and blended together. No illustration.

No. 11,541.—Atkins S. Wright.—*Improvements in Machines for Amalgamating Gold-Bearing Ores with Quicksilver.*—Patented August 15, 1854.

Claim.—The method described for amalgamating gold in hollow revolving cylinders upon horizontal axes, said axes, journals, or trunnions, being hollow to admit the pulverized quartz in ore from one cylinder into another, the inlets through the turnings being smaller than the end of the outlet; the said cylinders connected by flanges or S pipes with grooves turned into the axes or trunnions, and rings fitted into the grooves and covered by the flanges; the whole being so connected as to make them water or steam tight, and so arranged as to give a fall of about six inches to each cylinder, said cylinder containing rollers, knives, burnishers, and other analogous arrangements to produce friction, scour the ore, and produce the amalgam with quicksilver, the whole arranged and combined substantially as set forth.

No. 11,542.—William Kidder.—*Improved Machine for Pegging Boots and Shoes.*—Patented August 15, 1854.

This machine is intended to be used in the left hand of a workman, who while grasping it by its handle and holding its feeding-wheel S

in contact with the edge of a sole to be pegged, while the bottom of the handle is made to rest on the top surface of the sole, strikes with a hammer held in his right hand upon the top of the awl driven on the carrier, so as to impel it downward. During the act of forcing the awl-carrier downward a peg is separated from a strip of peg-wood and is carried downward and driven into a hole previously made by the awl; at the same time the awl is driven into the sole, and makes a hole for the next succeeding peg. During the elevation of the awl the machine is fed or moved along the distance necessary to bring over the awl-hole the next peg to be driven. A exhibits the handle, which is made of metal and has a chamber B in it, in which is arranged the awl-driver C, armed with an awl D. The awl-driver also carries the peg-driver E, which is partially surrounded by the peg-carrier F, which is a small spout sliding on the peg-driver and against the spring G coiled around the awl-driver. The strip of peg-wood is carried forward over the knife-edge M by means of one or more springs N O.

Claim.—The combining with the handle of the machine, and the machinery for driving the pegs, a feeding mechanism, by which, under the movement of the awl-stock, the feeding or regulating of the feeding of the machine along on the sole is effected.

Also, the combination of mechanism by which the feeding of the machine is regulated, while the machine is held in the hand and pressed against and along on the edge of the sole, as stated; the said combination being the serrated wheel S, the spring-catch U, the slide V, and the cam W, on the awl-driver or stock.

Also, the combination of the movable or sliding peg-receiver with the peg-wood carrier and the awl-driver or stock, the same being applied and made to operate as stated in specification.

No. 11,543.—Henry H. Beach.—*Improvement in Winnowers.*—Patented August 15, 1854.

The invention clearly represented in the sectional drawing consists of two principal features. The first is, that it embraces no proper shoe, or shaking apparatus, or sieve. The second is the arrangement of the width and pitch of the discharging-board F in combination with the inclined planes or slats L L L, so that the grain shall first fall against the first L, and in the front edge and strongest part of the blast, it being diminished in progressing from across 1 towards arrows 8.

Claim.—The claim is restricted to the direct division of grain, effected by the arrangement described.

No. 11,544.—William D. Andrews.—*Improved Centrifugal Pump.*—Patented August 22, 1854.

The drawing is a vertical section, its plane being through the centre of the pump.

Claim.—The construction of a pump having a hub E in the shape of the base of a cone inverted, with arms *a* attached to its periphery, of a gradually decreasing width as they approach its base, placed within a

shell corresponding in shape to the outer circumference of the arms, and having induction passages of a spiral form gradually decreasing in pitch to their point of delivery, and eduction passages of a spiral form of a gradually increasing pitch until they attain a straight line.

No. 11,545.—Nathaniel A. Boynton.—*Improvement in Hot-Air Furnaces.*—Patented August 22, 1854.

The fire-chamber C is somewhat dome-shaped, and communicates by lateral upright pipes with the ring *e*, which surrounds the top of the said dome. From three equidistant points on the ring the same number of pipes converge to a central hub *g*, from which the smoke-flue passes off, the amount of draught through the whole system being subject to the control, at the point, of a puppet-valve *i*.

Claim.—1st. The arrangement and construction of the dome, and heating-ring surrounding the same, combined by a series of pipes opening into the base of the dome and carrying the smoke up over the same, as herein specified.

Also, the construction and arrangement of the smoke-pipes so as to prevent the lodgment of dirt therein, and precipitate the same into the fire-chamber, thereby preventing the clogging of said pipes.

Also, the puppet-valve cover, arranged and combined with the dome of the furnace, by which I insure a stopper at that point not liable to the derangement of ordinary valves used for similar purposes.

No. 11,546.—Richard C. Bristol.—*Improvement in Rotary Engines.*—Patented August 22, 1854.

Claim.—1st. Resting of the outer cylinder C, by lugs F F, upon a convex bearing, with a plate interposed and made adjustable by set screws or wedges.

2d. Driving out the slides by steam N N^1 N^2 N^3 acting under pistons at each end of them, two being drawn out in equilibrio, while the other two are being acted against to propel the engine.

3d. Using a cock or valve L in the exhaust-pipe, to be closed before starting the engine.

4th. The metal rings G G upon the outer head, and fitted over elastic packing, and forced up to the ends of the cylinder by springs, to provide for the expansion and contraction of the metal.

5th. The use of set-screws *s s* for restraining the action of these springs and preventing the atmosphere from causing undue pressure on the rings.

6th. The peculiar method of making the joint in the abutment so as to be adjustable and perfect on the face of the inner cylinder at the end of the abutment, and on the periphery of the inner head.

Figure 4 is a perspective view, on a smaller scale than the rest of the figures.

No. 11,547.—Benjamin Bridendolph.—*Improvement in Hominy Mills.* Patented August 22, 1854.

The shaft C has its surface worked into spiral grooves, and the salient edges of these are covered with undulations presenting a surface which is suitable for hulling the grain, and at the same time for breaking it to the requisite size; a wire-screen and fan-blast are added.

Claim.—The compound spiral hulling-shaft, constructed as herein described, and operating in connection with a roughened concave for hulling and breaking corn, substantially as specified.

No. 11,548.—Absalom B. Earle.—*Straw Cutter.*—Patented August 22, 1854.

The feed-trough B of this machine is supported on a suitable frame, above which are hinged vibrating arms G, carrying knife F, which is moved by hand by means of the handles M in a chopping stroke, whilst the straw is fed also by hand. Near the top of posts A A are placed springs K, crowned by buffers L, which meet the arms as their stroke is finished, and repel them upwards, as well as break the concussion upon the posts. One person or two may work this cutter, and vary the stroke according to the quantity of straw presented to the knife.

Claim.—The arrangement of spring and vibrating arms.

No. 11,549.—Wm. M. Ellis.—*Improvement in Steam-Engines.*—Patented August 22, 1854.

Claim.—The annular cylinder A B, and piston K, between the crank and cross-head, and uniting the two latter by a connecting-rod passing through the space within the two former.

No. 11,550.—Wm. Z. Hatcher.—*Improvement in Stop and Waste Cock.* Patented August 22, 1854.

This improvement consists in constructing a waste-way *c e* in the band of the cock, so that the waste may flow through it into the waste-pipe *d*, which way soever the plug may be turned to shut off the flow from the inducting pipe D. This is effected by an aperture through the plug and parallel to its handle C. It is plain that when the flow is shut off, this handle will stand at right angles to the band, and its through-way will be in communication with the water-way *c e* and with the waste-pipe *d*, thus allowing the waste fluid in the discharge-pipe D' to flow through the waste-way *c e*, and out at waste aperture *d*.

Claim.—The peculiar waste-way *c e*, in combination with the through-way of the plug and with the waste outlet *d*.

No. 11,551.—Levi Heywood, Joseph L. Ross, and James K. Otis.—*Improvement in Portable Bureaus.*—Patented August 22, 1854.

This improvement consists in forming an independent frame or case which receives all the side-pieces which form the drawers, the whole bureau being supported and rigidly held together when set up, by a peculiarly constructed back; which also serves, when the bureau is dismembered, for a bottom to the frame or case which receives the different pieces of the drawers. The different pieces which compose the bureau can be readily fastened together (no glue being used) or taken apart; and when set up, the back is so constructed as to maintain the strength and rigidity of the whole, and also serves as a back to the independent frame when the bureau is in pieces.

Claim.—Forming, in a bureau or case of drawers which is susceptible of dismemberment, an independent frame or case, which, when the parts are disjointed, and the back of the bureau attached to it, serves as a box or case to receive the front, back, and end pieces of each drawer, the pieces which compose each drawer being packed in the same compartment of this independent frame, in which the said drawer slides when put together.

No. 11,552.—J. Burrows Hyde.—*Improvement in Machinery for Coating Telegraph Wires.*—Patented August 22, 1854.

I am aware that it has been attempted to coat wires with gutta percha by means of a cylinder, to which is fitted a piston, and having holes through one side of the size of the wires, on the other side the holes being of the size of the wires when coated; and the coating being applied by the pressure of the piston while the gutta percha is in a melted state by heat applied externally to the cylinder; and, therefore, I do not claim broadly the coating wires by drawing them through a vessel having holes on opposite sides.

Claim.—But I do claim the employment of the moulding kettle, with or without the melting kettle, provided and combined with an aperture covered with a disk of India rubber or its equivalent, having a hole or puncture in the centre which admits the wire and prevents the escape of the contained composition, and with the nozzle or die for determining the thickness of coating of compound to be put on the wire, substantially as and for the purpose specified.

Also, I claim the use of the cone (which determines the thickness of the coating) in such manner as that the outer end or nozzle thereof shall, when in use, terminate in and be covered by water, so that the covered wire shall emerge from the cone directly into or while the latter is in the water, through which the wire will then pass, as hereinbefore described, for the purpose of coating the composition. And, finally, I do not claim the use of the apparatus solely for the purpose of covering telegraph wires, but it may be applicable and useful for other equivalent uses, all of which I claim.

No. 11,553.—Bernard Hughes.—*Bisulphuret of Carbon Engines.*—Patented August 22, 1854.

The improvement consists in the application of the bisulphuret of carbon to any convenient form of steam-engine as a motive power, when the vapor of said substance, after it has been passed through the cylinder, is condensed and preserved for the future supply of the boiler.

No. 11,554.—George Jackson.—*Improvement in Warp-Knitting Looms.* Patented August 22, 1854.

Claim.—The arrangement and combination of the pressers *b b* and sinkers *o o* in the frame *z*, as described, whereby the pressers and sinkers move together, and can be adjusted at such distance apart as may be requisite to graduate the size of the stitches as required.

Also, the arrangement of the cams which are attached to the cam-wheels H H and O, on one common shaft G, to produce the relative movements of the pressers *b b*, the sinkers *o o*, the needles *e e*, and the thread-carrier bar, with the carriers *t t*, in combination and co-operation with the movement of the face-cam *y*, which cam being revolved by the movement of the shaft G, through the spur-gear-wheels M and N, produces the relative movements of the thread-carriers to the right and left, and under and above the needles, and gives the peculiar character and figure of the fabric knit, so that by changing the surface of the face-cam and altering the relative proportions of the spur-wheels to each other, the figure of the fabric may be altered indefinitely

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No. 11,555.—Abel F. Lewis.—*Improvement in Floating Anchors.*—Patented August 22, 1854.

Claim.—The arrangement of the canting-hawser *f*, cable *g*, and floating anchor.

No. 11,556.—Robert Marquis.—*Apparatus for Balancing and Hoisting Sashes.*—Patented August 25, 1854.

This invention consists in the peculiar arrangement and combination of a single cord with one end fixed at R, with the pulleys A B C D, the friction-roller F, windlass G, ratchet-wheel M, pawl N, and crank L, by means of which the sashes are raised or lowered simultaneously or separately, without the binding which usually occurs when the cords are attached to the sides of the sashes, and each sash has a cord down each side.

Claim.—The single cord, which, passing around pulleys at the mid-width of the sashes, is operated by a winch in the jamb, enabling the simultaneous or separate movement of each sash, without liability of binding by the unequal expansion of different portions of the cord, or impairing the strength of the sash by the removal of its substance.

No. 11,557.—Elbridge Marshall.—*Manure and Lime Spreader.*—Patented August 22, 1854.

In this machine H H are both carrying and driving wheels. From hopper C the lime is distributed or sown by the revolving grooved cylinder D, which is swept by the brush J, vibrated by means of lever L and cams K.

Claim.—The employment of the vibrating brush, substantially as, and for the purposes, set forth.

No. 11,558.—Henry Mellish.—*Improvement in Grain Mills.*—Patented August 22, 1854.

Claim.—I claim the arrangement of the ring-saws *n*, as set apart by the washers *o*, on the bolts P, with the cracker-rest *r*, enclosed by them, in combination with the adjustable case D, or its equivalent, for the purpose of cracking ears of corn, and also shelled grain, that it may be the more readily received between the burr *k* and the grinding-surface of the adjustable case D, and for the further purpose, by the oblique direction of the teeth on the outer edges of the ring-saws, and that of the teeth on the inner surface of the adjustable case D, of forcing the cracked grain into the space between the periphery of the burr *k* and the grinding-surface of the adjustable case D.

Also, the arrangement of the burr *k*, constructed as above described, in combination with the finishing-plate *m* and the adjustable case D, or its equivalent, operating, as the burr does, conjointly with the ring-saws, or inside the adjustable case D and the toothed side of the finishing-plate *m*, against the front surface of the adjustable case D, for the purpose of further grinding and giving the required degree of fineness to the meal as it passes between them; the whole being arranged, combined, and operating conjointly, substantially in the manner and for the purpose above described.

No. 11,559.—J. A. Pease.—*Pumps.*—Patented August 22, 1854.

The inventor produces a continuous flow in the diaphragm-pump, as follows, viz: around the aperture of the egress-pipe at *l*, an air-tight box B is secured; this box has a flexible covering s^1, which, during the upward or exhausting stroke of the piston *e*, is pressed by the atmosphere against the water in said box, and of course continues the flow through pipe *s*, until, on the downward motion of the piston, the valve *m* be opened; the flow is then continued by the power applied to the piston-rod.

No. 11,560.—William D. Porter.—*Wood-Gas Generator.*—Patented August 22, 1854

Claim.—The construction of the reservoir B for wood, and the double cones E and D, shown in the drawing; the design of the invention being to use green resinous woods as the material, and to first heat them

at a comparatively low temperature, less than a full red heat, and then allow the vapors generated to be forced through the apertures in the cone E, heated to a full red heat, the gas passing out afterwards at F.

No. 11,561.—Henry Richardson, Sheldon Morris, Jr., and Bennet C. Perry.—*Improvements in Umbrellas.*—Patented August 22, 1854.

The description of umbrellas to which this invention relates is, that the ribs of which fold, and the stick of which is jointed in pieces, for the purpose of enabling the umbrella to be carried in the pocket or conveniently packed for travelling.

Claim.—1st. The combination of the spring *e*, and its hook or catch *g*, with the hinge F, the said spring being secured to one part of the hinge or rib, and the hooker-catch taking into a notch *f* in the outer part of the hinge or rib, when the two parts of the rib are in line, for the purpose of making the joint rigid, substantially as set forth. We claim that the said improved combination is much more easily made, and more efficient in its operation; also, that it is much cheaper of construction, both in material and labor; and further, that is much neater in its finish.

2d. Attaching the several joints or parts A B C of the stick together, by means of a link *c*, which is connected to the end of the male-screw *b*, and has a ring *d*, or equivalent, fitting in a hollow part behind or within the nut *a*, which prevents its passing through the nut, but which, at the same time, allows the screw to turn freely within the nut, substantially as described.

No. 11,562.—Artemas Rogers.—*Improved Instrument for Manufacturing Door-Knobs.*—Patented August 22, 1854.

In the figure, A A represent the arms, B the joint, C C the jaws, and D D the threads or projections on the outside of the jaws.

Claim.—The instrument described, or its equivalent, by the use of which the workman is enabled (by one and the same instrument in continuous use) to form the screw-threads, or their impressions, within the socket of a door-knob, remove the knob from the mould to the polishing furnace, manipulate it during the fire polishing, and finally deposite it within the annealing kiln, substantially in the manner and for the purpose set forth.

No. 11,563.—C. M. Alburger.—*Hose Hydrant.*—Patented August 22, 1854.

The figure illustrates this convenient arrangement of parts well known in separate hydrants.

Claim.—The combination of these devices with the column, for convenience and ornament. Also, the peculiar construction of the two-way cock.

No. 11,564.—Thomas Crossley.—*Improvement in Manufacture of Carpets.*—Patented August 22, 1854.

Claim.—A two-ply ingrain carpet, having the lower ply composed entirely of linen or cotton, and the upper ply of wool, when united substantially in the manner described, for the purpose of producing a durable and economical carpet, to be subsequently printed on one side as described. No illustration.

No. 11,565.—Joseph Hill.—*Improved Daguerreotype Holder.*—Patented August 22, 1854.

This improvement is made of two blocks of wood, or any suitable material, connected by dowel-pins *c c* and held together by India rubber springs D D. The daguerreotype plates are held to the blocks by metallic jaws F.

No. 11,566.—Joseph C. Jinkins.—*Improvement in Tuning-Forks.*—Patented August 22, 1854.

The invention consists in producing sounds of any required pitch by means of a movable cross-bar *a b* inserted at regulated positions between the prongs of a tuning-fork, as represented.

No. 11,567.—Abner W. Jones.—*Improvement in Preventing Boiler Explosions.*—Patented August 22, 1854.

Claim.—The combination of the rock-shaft *j* with the slide-valve *k*, piston *n*, spring-valve *g*, and steam-chest *c*.

No. 11,568.—Dustin F. Mellen.—*Improved Machine for Sawing Clapboards.*—Patented August 22, 1854.

Figure 1 is a plan of this machine. Figure 2 is a longitudinal section upon the centre of figure 1; and figures 3 and 4, views of parts of the feeding apparatus.

Claim.—The arrangement of the devices by which the distance between the saws is varied to meet the varying thickness of the logs to be sawed, and by which the saws, when so adjusted, are elevated and depressed together as desired.

Also, the method of feeding the log between each successive cut of the saws; which is, by means of the operation of several parts marked x^1 v^1 w^1 x^1 y^1 a^2 z b^2 c^2 d^2 e^2 f^2 g^2 and h^2, acting upon and in connexion with the spur-centre t^1.

Also, the method of raising and lowering the saws when it is desired not to use them at the same time, but alternately during the forward and backward motion of the log, the same being effected by the combination of the unlocking, shifting, and locking apparatus, m^1, h^1, k^1, k^1, in combination with the lever b^1 and the chains q, all as specified and set forth.

No. 11,569.—Wm. O. Rust. *Improved Saw-Set.*—Patented August 22, 1854.

Claim.—1st. The rotary bender K and its adjusting screw I, in their combination with the movable lever E.

2d. The arrangement of the regulating back-stop G in the stationary arm, so that it may be used in connexion with the movable lever.

No. 11,570.—Hugh Langster.—*Improvement in Securing the Glass Sides of Lanterns.*—Patented August 22, 1854.

A peculiar arcuate spring 6 intervenes between the frame of the lantern and the glass, by which the latter is confined to its place and readily restored when broken.

Claim.—The combination of the spring 6 and the frame 10, arranged and operating substantially as herein set forth, not intending to claim the springs uncombined with the frame; or some device equivalent thereto.

No. 11,571.—Edmund Shaw.—*Improvement in Sewing Machines.*—Patented August 22, 1854.

Claim.—The combination of the rack-bar C with the bar *b*, both curved in the same shape, and forming a clamp capable of receiving a vibrating motion from the diamond-shaped teeth of the pinion *q*, and constituting a clamp for sewing the seams of boot-legs, as described.

Also, feeding the clamp along and guiding it, so as to keep the leather to be sewed always in proper position with regard to the needle, and at the same distance from the same, by means of the rack *d d*, gear *q*, with its diamond-shaped teeth, and proper guides *r* and *s s*, as described.

No. 11,572.—Halcyon Skinner and William Greenhalgh.—*Improved Carpenters' Gauge.*—Patented August 22, 1854.

A summary description of this instrument cannot perhaps be better given than in the language of the inventors themselves, who say that their invention "consists in the combination into one convenient instrument of several sliding adjustable gauges, so arranged that various operations in carpentry hitherto requiring the employment of several distinct instruments may all be accomplished by the use of one" of these improved gauges. The drawings give a complete idea of the mode of construction and appearance of this ingenious and useful tool. Figure 1 is a longitudinal sectional view of the gauge, and figure 2 a view in perspective.

Claim.—The combination of the frame *a* with the adjustable sliding-bars *f k*, adjustable fences *d g i*, and set-screws *e h*, in the manner herein described.

No. 11,573.—Robert Spencer.—*Improvement in Harness-Saddle Trees.* Patented August 22, 1854.

This improvement consists in the construction of a saddle-tree by riveting upon each side of a skeleton plate of iron A, a piece of strong, thick leather C D, of suitable size and shape to cover the plate.

Claim.—As a new article of manufacture the improved harness-saddle tree, constructed substantially as described, of combined iron and leather, (or the equivalent of leather,) the iron serving the purpose of a skeleton and giving it the proper rigidity, while by trimming the leather portions of the tree, the exact conformation is attained.

No. 11,574.—Alfred A. Starr.—*Catamenial Ameliorator.*—Patented August 22, 1854.

This invention consists of a hoop-spring to encircle the body, and having flaps *c c*, *a a*, springing against the person; the hoop is adjustable to the size of the waist, by means of sliding-joint, figure 2, fastened by screw and nut *f*. The napkin is supported by the hoop.

Claim.—The combination of the elastic springs *a b c*, in the manner and for the purposes set forth.

No. 11,575.—David and Samuel Swartz.—*Plough.*—Patented August 22, 1854.

The invention is confined to the construction of the fastening of the mould-board and land-side to the point and coulter in one piece. This is effected by means of two or one horizontal tenons or tenon, and one oblique tenon E, received each into a corresponding slot shown at D and C. It is the construction of this piece precisely as described that constitutes the claim.

No. 11,576.—Robert Spencer.—*Improvement in Harness Saddles.*—Patented August 22, 1854.

Claim.—The new article of manufacture, consisting of a properly shaped harness-saddle seat A, cast in one piece, with the unfinished jockey-shaped side-bars *b b*; the said seat requiring to be only smoothed and japanned to adapt it to use, and the side-bars requiring to be covered with patent leather or other jockeys or skirts, of sufficient thickness to make a smooth and harmonious finish with the japanned surface of the seat, substantially as represented and described.

No. 11,577.—Paul Stillman.—*Improvement in Registers for Numbers applicable to Steam-Engines.*—Patented August 22, 1854.

The construction is as follows: *a* is a permanent axis upon which the count-wheels *b* turn; these wheels are formed of thin plate, from which a rim projects on one side, forming a broad periphery sufficient to mark the figures upon, around the face of which are made ten Arabic

or other characters. The wheels b^1 b^2 b^3 b^4 have projections from the edge of the rim at *c*; two arms *d* project from the axis *a*, upon which they freely turn, one on each side, extending beyond the periphery of the wheels, with a cross-piece *d* uniting the two; one of these arms is connected in any convenient way with the movement it is intended to register, so as to cause them to vibrate a proper distance. On the cross-piece d^1 there is a pawl *e*, that catches upon the projection *c* upon the first wheel of the series. The pawl is borne down to its place by a spiral spring l^1, surrounding the piece d^1; a roller e^2 is attached to the side of the pawl, to ease it over the projections. On the first wheel b^1 there is a spring-catch or clutch *f* that lies back against the wheel during its revolution, till it comes to the point where the second count-wheel is to move; at which time an inclined projection *f* from it strikes a stationary style *g*, and throws the clutch out, so as to catch a projection upon the second wheel and move it one number, in doing which the clutch is released by passing the style, and the first wheel is thus freed so as to move round alone, till it is again brought to the position to carry forward the second wheel another number. On the revolution of the second wheel the third is moved one figure by the same device, and so on through the series. Each of the wheels has a folding-clutch or pawl *h*, held up to its place by a spiral spring, which is for the purpose of holding the wheels firmly in place.

Claim.—The employment and arrangement of the clutches having a spring sideways, so as to catch into the fall-notches and the styles outside the count-wheels, by which they are operated to move a series of count-wheels, in the manner and for the purpose set forth.

No. 11,578.—Francis C. Treadwell.—*Improvement in Self-Feeding-and-Discharging Ovens.*—Patented August 22, 1854.

This improvement consists of an oven with a peculiar arrangement of flues, and operated with an endless band for the introduction of, and withdrawal of, the articles to be baked.

Claim.—The use of the combination of the furnace, flues, and dampers, substantially as herein before set forth, in combination with an endless band, running through the oven and over drums placed outside of it, for the purpose of making a perpetual baking-oven, substantially as described.

No. 11,579.—Abner Whiteley.—*Track-Clearers for Grain and Grass Harvesters.*—Patented August 22, 1854.

The invention is confined to the construction of a conical track-clearer, attached at its apex by a swivelled hinge-joint to the outer end of the cutter-bar, so as to admit of rotation of the cone. The cone is set with four or more oblique ribs *i i*, arranged symmetrically, so that each rib when it arrives at the upper surface points obliquely forward and inward, and when it arrives at the lower part or surface it points obliquely forward and outward. This arrangement of the ribs, when

the cone is drawn forward, causes it to rotate, and thus to deposite all the cut grain or grass falling on it towards the middle part of the track.

Claim.—The rolling cone G, moving on the axis I, and furnished with a joint-clearer J, for the purpose of clearing the track for the cut grass.

No. 11,580.—Philander Wilbor.—*Improvements in Cheese and other Presses.*—Patented August 22, 1854.

The point of this press is an arrangement by which a continuous pressure of the cross-bar or platen E is obtained from a succession of strokes of the arm G^1. The cam G, acting on the roller H during the downward stroke of arm G^1, depresses the platen E, and the slide I^1, engaging in the rack D^1, retains it, while the arm G^1 is raised and the rack D allowed to fall. The slide I, engaging immediately into rack D, affords resistance for a succeeding stroke.

Claim.—The combination of the two rack-slides D D^1 with the respective attachments of the cam G and friction-roller H; by which means, in connexion with the slides J J^1 and accompanying racks, the press is operated in the manner and for the purpose set forth.

No. 11,581.—Melvin Shaw, assignor to Melvin Shaw and Daniel Gage Wheeler.—*Improvement in Clamps for Sewing Machines.*—Patented August 22, 1854; antedated February 22, 1854.

Claim.—The combination of the sliding bar E with the curved clamps P Q and the rest S, constructed and operating together as set forth; by which means, as the work is fed through the machine, it is kept constantly up to the needle, and the stitches are placed at a uniform and unvarying distance from the edges of the material, without dependence upon the care or skill of the workman.

No. 11,582.—Solomon S. Gray, assignor to S. S. Gray and S. A. Woods.—*Improved Machine for Planing Lumber out of Wind.*—Patented August 22, 1854.

These improvements relate to the class of machines for "Planing Lumber out of Wind," and are:

1st. Construction of the cutter-head A. An instep C, of peculiar form, is the novelty alleged by which the shaving, of whatever thickness, is broken up instantly, the instep acting as the cap or counter-iron of the bench-plane.

2d. The device for holding the piece to the bed, however irregular its ends may be.

The dog or stop H is so adjustable that it will firmly remain at any desired height from the bed I, by merely raising it thereto, which is effected by peculiar tongues on the bed, catching corresponding grooved ends of the dog. The clamp E consists of three pieces, *h*, *h*, and E; the pieces *h h* being pivoted at *k* to the piece E, and the piece E being pivoted to the adjusting-screw F, allows the pieces *h h* to adapt themselves to the end of the plank.

Claim.—The form of cutter-head and the two devices just described,

No. 11,588.—Sidney S. Turner, assignor to Elijah Tottem, Jr.

Claim.—The form of cutter-head and the two devices just described, for clamping irregular ends by merely turning the screw-head G.

No. 11,583.—DANIEL TREADWELL, assignor to HERBERT H. and FREDERICK H. STIMPSON.—*Improvement in Dampers for Furnaces and Stoves.* Patented August 22, 1854.

The expansion of the arched dome of the fire-chamber raises the bar *m*, actuates the weighted bell-crank *i*, and, by means of it and the bar *g*, opens and closes the damper *d*.

Claim.—Using the expansion of the stove or furnace for closing the damper, through the medium of the devices herein above described, or any other combination of devices substantially similar.

No. 11,584.—THOMAS W. HARVEY'S administrators, assignors to the "HARVEY STEEL AND IRON COMPANY."—*Method of making Wrought-Iron direct from the Ore.*—Patented August 22, 1854.

The improvement consists in causing the deoxidating and desulphurating flames and gases to act directly in contact with properly prepared ores of iron, &c., placed upon suitably arranged tables, while, at the same time, a high degree of heat is imparted to the under side of said tables.

No. 11,585.—JAMES A. BAZIN.—*Improvement in Cog-Gearing.*—Patented August 22, 1854.

The nature of this improvement consists in forming toothed-wheels by simple radial cuts stamped into the edge of circular plates, the teeth thus formed being bent alternately to the right and left, and no spaces being cut out, as is usual, between the teeth.

Claim.—The within described manner of manufacturing cog-wheels, every alternate tooth being bent in opposite directions from the plane of the plate, in the manner described.

No. 11,586.—M. H. MERRIAM and W. W. NICHOLS, assignors to W. W. NICHOLS & Co.—*Improved Tool-Rest for Turning-Lathes.*—Patented August 22, 1854.

By a combination of parts the tool-posts E may be raised or lowered by the screw C working in the nut F fastened to the slide B, simply by turning the nut F, the parts being kept in position by the gibs or slides D working in grooves.

No. 11,587.—B. F. GRAVES, assignor to W. C. KNOWLTON.—*Tool for Boring Legs of Pianos.*—Patented August 22, 1854.

Claim.—"The combination and arrangement of the twist-auger H, the two cutters or chisels F and G, and their throats, on the block, so as to operate together and simultaneously, making a chamber or recess in a piece of wood of the form specified," viz: conical as at A, terminating in a cylindrical recess as at B.

No. 11,588.—SIDNEY S. TURNER, assignor to ELMER TOWNSEND.—*Improvement in Sewing Machines.*—Patented August 22, 1854.

Claim.—The arrangement of a hook or hook-needle A underneath, so as to work up through the feeding-bar L, in combination with the arrangement of the presser M above the feeding-bar, so as to press downwards towards it, substantially as described, such enabling me to obtain an advantage in operating by the single chain-stitch sewing machine. Also, in combination with the mechanism for giving the vertical movements of the needle, the slot *a b c*, and the screw or pin F, (or mechanical equivalents therefor,) for producing reciprocating semi-rotative movements of the needle during the vertical movement of it, substantially as described.

No. 11,589.—JACOB SENNEFF.—*Machine for forming Heddle-eyes.*—Patented August 22, 1854.

Claim.—1st. The method of casting the eyes on the strands of yarn or other material by inserting the yarns successively within a mould, secured on a vibrating frame L, operated at the proper intervals by means of the eccentric cams I I, the mould being opened at times to disengage the eye therefrom, and provided with a cone 24 for forming the eye in the mail, and capable of being withdrawn therefrom before the mould opens.

2d. The manner of operating the core so as to enable it to be so withdrawn from the eye of the mail after the same is formed, and while it is firmly embraced within the mould, by means of the spring S N¹, and screws 25 and 33.

3d. The core carrier 27, resting in a notch formed in the top of the spring S¹, and having pins 26 on its face, which pass through slots in the mould-plates, and spring W for moving the core horizontally from the stationary half of the mould, and keeping it midway between the mould-plates when they are opened by the lever T, and preventing its being thrown violently either way.

4th. The manner of operating the heddle frame-holder D, by means of the eccentric cams I I on the shaft B, capable of being moved longitudinally over the grooves in said shaft; right-angled levers D, to which the heddle-frame is secured; and spiral spring 2 *i*, for keeping the ends of the levers always in contact with the eccentric cams.

5th. The screw-shaft C, and clamps J, and the adjustable gearing K at the ends of the screw and main driving-shafts. Figure 7 represents a detached part of the machine on a larger scale.

No. 11,590.—WILLIAM VAN ANDEN.—*Machinery for rolling Shoulders on Axles.*—Patented August 22, 1854.

Claim.—The arrangement of the cam-rollers, having the reduced surfaces J J, with the guide and feeding tube or box P, through the hollow space R of which the blank bar can be inserted and the finished axle withdrawn without displacing the roller or cams.

No. 11,591.—Robert Ross.—*Steam-Cock.*—Patented August 22, 1854.

When great pressure obtains in such cocks, the valve disk *a*, when rigidly attached to the stem or rod C, is liable to twist off in operating by the handle *w*. Mr. Ross claims to avoid the possibility of such accidents, by allowing the disk-valve *a* to remain fixed in its seat, (during any accidental turning of the handle *w*,) and this is effected by allowing its stem *b* to move freely with the valve-rod C; the screws *e e* prevent the stem *b* from dropping out of its chamber c^1. The claim covers this one feature.

No. 11,592.—Robert M. Abbe.—*Improvement in Hog-pens.*—Patented August 29, 1854.

This hog-pen has a front A swinging on pivots B, and carrying an iron guard F, in order to keep the hog from the trough E whilst the latter is cleared, or the food poured into it, and to compel him to approach the trough direct in front of the guard F. Trough E is a short oval cast-iron basin, so that each hog feeds separately and with improved manners.

Claim.—The swinging-guard of the pen, in the manner and for the purpose substantially as herein set forth and described.

No. 11,593.—William T. Bazemore.—*Cultivator for Cotton.*—Patented August 29, 1854.

This implement has U-shaped hoes C D, the latter of which rises to form handles like those of a plough, and is fixed upon bar A. Hoe C is adjustable in relation to D, by means of a screw-thread rod F, and keys E hold the hoes C in working position.

Claim.—The form of the hoes C and D, and the arrangement of the rods A and F; by which arrangement the hoes are made adjustable, and yet may be held stationary.

No. 11,594.—William Biddle.—*Improvement in Washing-Machines.*—Patented August 29, 1854.

This improvement consists in the mode of grasping and holding the clothes while rubbing out the dirt, which is an imitation to some extent of the hand process, causing the water to flow into and out of the dirty clothes, carrying the impurities along with it.

Claim.—The combination of the vibrating bar *g* and vibrating wash-board *i* with the lever *e*, in the manner and for the purpose described; the vibrating wash-board having its jointed attachment nearer to the centre of the motion of lever *e* than the bar *g*, so that in the motion of the lever back and forth, the clothes shall be griped and released between *i* and *g*, in the manner and for the purpose set forth.

No. 11,595.—Gardner A. Bruce.—*Maize Harvester.*—Patented August 29, 1854.

The invention consists in the combination and arrangement upon a cart of the obliquely set rotary cutters G G, shown in the drawing, with rotary shafts L and M, and arms *o o o* and N N, cutting and depositing the maize between shafts S S or arms *d d*, and the rotating shafts S S. These elements, all acting together, cut, bend over, and deposite upon the arms *d d* the maize stalks; and the arms *d d*, at the proper intervals, deposite the charge upon the ground at the will of the cartman, controlling said intervals by means of spring-catch U.

Claim.—So arranging the cutters G that they will, as they are caused to revolve, cut the stalks at an angle in an upward direction, and at the same time give them, in falling, a direction toward the centre of the machine; and the combination with said cutters of shafts and arms N and N, in the manner and for the purposes stated.

No. 11,596.—Lebbeus Brooks.—*Improvement in Carpenters' and Masons' Bar-Level.*—Patented August 29, 1854.

This instrument may be used for ascertaining the number of degrees of inclination of any slope. For this purpose the index point of the index-bar is brought up to the zero-point of the scale provided on the end of the beam. The instrument is then placed on the slope with its edge upwards, and with that end on which the scale is made and applied highest on the slope. Next, by turning the button of a spring-catch, the catch is thrown out of action on its notch or tooth-plate; the circular limb or divided plate is then revolved until the bubble of the spirit-level rises to the middle of the tube. This done, the button of a cam is turned so as to let the spring-catch into action on its notch-plate, whereby we connect the circular plate and index-bar, and throw the former into a correct position for the latter to be moved until the bubble of the level is brought into the middle of the tube. When this has been done, the clamp-screw may be turned up against the index-bar, so as to confine it in position. While that division of the circular plate which is close against the index serves to point out the number of divisions of the plate comprehended in the arc of elevation, the angle of excess may be read off on the scale at the end of the beam. The particular object of this invention is to provide the bar-level with a means of more accurately determining the angle of excess than can be done by the divisions of the small circular limb. For this reason the inventor divides the circular limb into equal parts, say of five degrees each, and applies the long arm and scale to the beam, whereby, the increased length of arc measuring five degrees on such scale, he can readily divide such arc into five parts, and subdivide them, as occasion may require.

Claim.—I do not claim the combination of a circular divided limb on plate C and a spirit-level with a bar or beam A; but what I do claim as my invention is the combination therewith of an index-bar N, its divided sectoral arc or limb C, and its locking-plate F, and spring-catch G, or the mechanical equivalents for such locking-plate and catch, the whole being made to operate together substantially as specified.

No. 11,597.—E. W. BULLARD —*Improvement in Window-Blind Fastenings.*—Patented August 29, 1854.

The improvement consists in a swivel-box *j*, with its projections or hasps K, turning freely upon, and, when the blind is opened or closed, rigidly held by, the angular rod *h h*, the rod having a bearing upon which it swings, in the projecting plate *i*.

No. 11,598.—JULIUS C. DICKEY. *Improvement in the Manner of Fastening Saddle-Skirts to the Tree.*—Patented August 29, 1854.

This invention consists in providing an elastic clamp-plate, with edges turned up and formed into teeth, similar to those represented in the figure, for the purpose mentioned in the following claim. A is the saddle-tree, B the terrets, C the skirts, D the clamp-plate.

Claim.—The combination of teeth upon the elastic clamp-plate, by which means it is immovable in its position upon the leather, with a screw or screws, or the equivalent thereof, to draw the spring clamp-plate and jockey-plate together for fastening the skirts to the saddle-tree, whether the jockey-plate be adjustable or otherwise.

No. 11,599.—I. B. DUDREY.—*Stave-Machine.*—Patented August 29, 1854.

Two circular-saws *e f*, placed below the log, and, by suitable mechanism, carried to and from the log, as it passes, and cutting as the log passes in one direction, and the other as it returns.

Claim.—The combination of mechanism for causing the saws to approach to, and recede from, the log as it passes—the one cutting in one direction, the other in the opposite direction.

No. 11,600.—I. B. DUDREY.—*Stave-Machine.*—Patented August 29, 1854.

Claim.—The employment of two knives *b c*, of the form described, within the curved jaws of a vibrating cutter-head A, for cutting the staves as it vibrates both ways, in combination with curved guides *k l*, for holding the staves after passing the feed-rollers *i i*, (on the opposite side of the machine,) as set forth.

The piece is fed to the knives by ordinary feed-rollers, and the double-edged cutters vibrate as it passes, cutting in both ways.

No. 11,601.—O. G. EWINGS.—*Improvement in Ploughs.*—Patented August 29, 1854.

This invention consists in a joint by which the beam may bend horizontally to the right or left. Straps of iron *d c* are placed on the upper and also on the under side of the beam, and connected by bolt *h*,

as a pivot. Adjusting screws *g* are arranged to make the beam stiff, if desirable.

Claim.—The jointed-beam *a b*, in combination with the adjusting-screws *g g*, as described.

No. 11,602.—JOSEPH W. FAWKES.—*Improvement in Manure and Lime-Spreaders.*—Patented August 29, 1854.

The important features of this machine are the hopper A, divided by the swinging diaphragm L, hinged at *n*, the plain rollers *a* and *b*, and the rods *f f*, having a lateral vibration to pulverize the manure and clean the rollers. The machine is especially designed to work wet manure.

Claim.—1st. Constructing the hopper with a swing-diaphragm or dividing-board L, by which the material intended for spreading is prevented from arching.

2d. The arrangement and combination of the moving breakers or pulverizers *f f*, (actuated by the devices substantially as described,) with the rollers *a* and *b*, for the more effectual distribution of the contents of the hopper.

No. 11,603.—RICHARD FANNING.—*Method of Grinding Cross-Cut Saws.* Patented August 29, 1854.

A curvilinear slot M, in the beam carrying the saw, receives friction-rollers L attached to frame, thus causing the saw to cut in a certain path, as it descends by its weight.

No. 12,604.—JOSEPH F. FLANDERS and J. A. MARDEN.—*Improvement in Machines for Splitting Leather.*—Patented August 29, 1854.

The operation of this machine is as follows: Rotary motion being communicated to the drawing-shaft B, the endless knife D D is set rapidly in motion, and the hide X, to be operated upon, is laid upon the feed-apron E, and is carried in between the rollers F and I, the distance of the latter from the edge of the knife being adjusted by its set-screw *d*, to accommodate it to the thickness of the required "grain," which then passes out of the machine at *r*, the "split" passing beneath the knife at *s*, and the spring-plate *h* keeping every portion of the hide firmly pressed up against the roller I, by which, as before explained, a great uniformity of grain is obtained.

Claim.—The use of the continuously revolving or endless belt-knife, as applied to machines for splitting leather, and operating in the manner as set forth.

No. 11,605.—J. T. FORBES.—*Improvement in Bedstead for Invalids.*—Patented August 29, 1854.

This bedstead is so constructed that the head of the mattress can be raised alone, or with it also that portion which supports the knees.

These movements are produced by suitable gearing in connection with driving-shaft *c*, which is operated by crank *r*. There is also a frame *j*, upon which (by an extra "sacking-bottom") the patient can be raised by means of other gearing arranged near the top of the bed-posts, and also moved by a crank. A new device is presented in the rock-shaft *z*, which the patient can move by means of string B, and, through arm *y* (at the other end of said rock-shaft) and cord *x*, thus set in motion crank *r*, to adjust the mattress without assistance.

No. 11,606.—Nelson Gates.—*Improvement in Washer-Hinges.*—Patented August 29, 1854.

Claim.—The employment within any number of joints in the knuckle of a hinge of separate metal-washers, which are of concavo-convex or other form, which renders them capable of serving as a pivot, or centre of the hinge.

No. 11,607.—John Gleason.—*Improvement in Slide-Valves.*—Patented August 29, 1854.

This invention consists in a certain mode of constructing the valve steam-ports and covering-plates, by which the valve is balanced, and the steam-ports opened to the full width very early in the stroke. Another object is obtained by the introduction of valves in the covering plates, viz: that, in case of the breaking of the valve-gear, the cylinder is preserved from an over-pressure, by allowing the steam to return, through the steam-way and valve, into the steam-chest.

Claim.—1st. The valve B, constructed as described, in combination with the cavities *g g*^{1} in the covering-plate, and the enlargement of the steam-ports *a a*^{1}, substantially as set forth.

2d. The covering-plate C, in combination with the cavities *g g*^{1}, the passages *d d*^{1} in the valve, and the safety-valves E E, placed on the top plate, as described, for the purpose of allowing the steam to escape from the cylinder into the steam-chest, when the pressure in the former exceeds that in the latter.

No. 11,608.—Daniel Hayward.—*Improvement in Manufacture of India Rubber.*—Patented August 29, 1854.

The improvement consists in the use of the steam-jacket both for the mould and the die employed in the manufacture of India rubber goods, and in the sudden introduction of cold water after the hot steam into the jackets. By the first device the vulcanizing of new articles is alleged to be more perfect, and the remelting and remoulding of old worn-out India rubber to be rendered attainable. By the second device the degree of hardness of the product, or its adhesiveness on the surface, can be moderated at pleasure.

The drawings exemplify the improvement as applied to manufacturing buckets.

Claim.—The claim is confined to remoulding worn-out India rubber goods, by the means stated.

No. 11,609.—Samuel M. Hockman.—*Seed-Planter.*—Patented August 29, 1854.

In this machine D represents the feed-hopper, from which the seed falls on vibrating-screen W, under which is a directing-board H with cleats. This board conducts the seed to holes, to be received and scattered by radiated grooves *a a*, which are cut upon convex spaces in board M. The screen separates stones, &c., (which might clog the machine,) and throws them upon the ground, whilst it permits seed to pass through it.

Claim.—I disclaim the radiated grooves, as such; but do claim them as applied to a somewhat convex surface, as set forth. Also, I claim the screen.

No. 11,610.—Abraham R. Hurst.—*Manure Excavator.*—Patented August 29, 1854.

In this machine strong iron straps B, having hinges *c*, are attached to an ordinary sled. C is a strong cross-bar, armed with teeth D. By means of lever E and stop-bar F the teeth are brought into a working position, or so raised as to ride clear of the ground. The sled is drawn forward in the usual way, to loosen up manure for shovelling.

No. 11,611.—John H. King, Jr.—*Seed-Planter and Manure-Spreader.*—Patented August 29, 1854.

This machine is shown as worked by hand. B is the hopper; C a screen; *b*, seed-holes in hopper-bottom; G is a gauge having various sized holes to regulate the rapidity of sowing (by adjustment of large or small holes for working.) D is an agitator obliquely grooved above and below, (see figure 2,) and pierced with holes *i*. By means of levers E and *l*, the screen C and the agitator D are vibrated. The screen not only arrests the stones, coarse foreign seeds, &c., but also supports part of the feed, (when hopper is nearly full,) and at the same time agitates and thus prevents clogging. Below seed-hole *b* is a V-shaped scatterer S, which may be adjusted to throw the seed off at any angle.

Claim.—The adjustable scatterer S, but disclaims screen C.

No. 11,612.—C. R. Landman.—*Improvement in Safety Fillers for Lamps.*—Patented August 20, 1854.

The rod D in the feeding-tube, being pressed in an inverted position against any surface, opens the spring-valve E F and permits the fluid to pass out. Also, when the rod D is forced in for this purpose it impinges upon the disk H, opening thereby the spring-valve H I to admit air.

Claim.—The use of the safety filling apparatus, made and operating substantially as hereinbefore set forth, in combination with a filler-case for the purposes set forth.

No. 11,613.—Ezra L'Hommedieu.—*Improvement in Auger Dies.*—Patented August 29, 1854.

Claim.—The peculiar arrangement of the shank entrance of the matrix, that face of it against which the hollow surface of the auger-head rests and is formed, and the male die which forms the hollow or recess of the head.

No. 11,614.—John G. McCauley.—*Improvement in Harrows.*—Patented August 29, 1854.

This invention consists of tooth A, having two points standing at right angles to each other, and fastened to the harrow-beam C by band B and key D; when one point is worn or broken, the tooth is reversed to bring the reserve point into use.

No. 11,615.—John B. Nichols.—*Improvement in Binding Folders.*—Patented August 29, 1854.

A B, in the drawing, are two bars connected together, as shown at one end, and having the other ends bent inward in a hook-form; one of the guides A works above, and the other, B, below the material C to which the binding D is applied. The binding is folded together and embraced by the guide-bars A and B. The blade of the guide A is elastic, to accommodate it to any variation in the thickness of the material. E is a movable slide, against which the edge of the material rests, and this slide is made adjustable to accommodate bindings of different widths. It is attached to the shank *d*, which is held by the clamping-screw *e*. F is the feed-wheel. H H are screw-holes by which the binding-guide is attached to the machine.

Claim.—The binding-folder, (made to guide and fold as described,) whether used in connexion with a sewing machine or with any other mode of fastening the binding after it is folded and applied.

No. 11,616.—Whitman Price.—*Cultivator for Potato Planting.*—Patented August 29, 1854.

This machine is somewhat like a double mould-board plough, having a strong standard *e* armed with a shovel *c*. The lower end of the mould-board is much inclined upward as it extends outward, and near the tip of the wing it is abruptly curved until it assumes a horizontal direction. A nearly V-shaped skimmer *a* strides the standard *e* and arms the lower margin of both mould-boards, presenting a sharpened edge below to scrape and form high furrows previously turned up for potato planting.

Claim.—The inventor does not claim a double mould-board, or a mould-board which somewhat dresses the top of the furrow; but does claim the particular form of skimmer-plate *a*, in combination with mould-boards *b*, tree *e*, and shovel *c*, substantially as set forth and shown complete in figure 1.

No. 11,617.—William Redick.—*Improvement in Seed-Planters.*—Patented August 29, 1854.

In this machine D is the hopper, from which the seed is once dropped by means of holes on the periphery of the axle B, which revolves with the driving and carrying wheel. The falling seed is arrested by the spring-plate *f*, which by its elasticity prevents the seed from being broken by the valve *d* when the latter closes. Through rod *b* the cams *a a* open valve *d*, which is closed again by spring *e*. All these devices are old, and the invention consists only in their arrangement to more fully accomplish check-row planting, irrespective of the irregular motion of the horse.

No. 11,618.—Titus H. Russel.—*Improved Saw-Mill Dog.*—Patented August 29, 1854.

This improvement consists in the adoption of such devices as keep the hinges of the dog securely in their places, thus maintaining the straightness of the kerf, and uniformity in the thickness of the lumber.

Claim.—The devices used for this purpose, which are the wedge W and the set-screw V, when used in combination in the manner and for the purpose set forth.

Also, the slide F (which carries the dog E of the head-block C), with a broad platform to support the dog firmly against lateral pressure, and a long narrow arm to extend back of the saw-race to the opposite end of the block *c*.

No. 11,619.—R. L. Sibbet.—*Improved Method of Tenoning Spokes.*—Patented August 29, 1854.

Claim.—Securing a series of spokes F upon a board or plate A provided with edges or projections B B, adjustable gauge-block *b*, guide-strip C, cross-piece E, cross-bar G, and block D, the parts being arranged in the manner and for the purpose set forth in the specification.

No. 11,620.—A. J. Smith.—*Corn-Sheller.*—Patented August 29, 1854.

In the drawing *a* represents the hopper, from which the ears of corn are fed between cylinder *b* and concave *c*, and shelled. The cobs and corn fall upon endless apron *e*, which travels upon rollers *h g*. Toward the rear of this apron is a swinging guard-board which constantly meets the apron in its vibrations, or when the roller *g* is raised or lowered. By this board the cobs are prevented from flying backward,

and are carried forward to fall off at *h*, whilst the corn passes through the apron to meet the blast from fans *d*, and roll down directing-boards *l l* to escape from the machine.

The novelty lies in the guard-board *k* in combination.

No. 11,621.—J. C. STRODE.—*Hydraulic Ram.*—Patented August 29, 1854.

This is an improvement on Mr. Strode's patent of May 23, 1854, and consists in a modification of the puppet-valve and its chamber, with a view to the shock and adhesion of the valve. The shape of the valve and its chamber to effect this may be seen at *f f* and *b b*.

Claim.—The combination of the valve and its chamber, shaped as shown.

No. 11,622.—JOSHUA STEVENS.—*Chair for Exercising Young Children.*—Patented August 29, 1854.

This invention consists of a four-posted frame A, in which a frame B rides up and down. Spiral springs *b* suspend the chair, to which motion is given by the child's feet, which rest on a foot-piece attached to frame A. The seat of the chair is seen at *e*, and the back at B¹.

Claim.—The inventor does not claim a chair upon springs, as such, but his particular form and arrangement.

No. 11,623.—ELISHA WATERS.—*Improvement in Breast-Cups.*—Patented August 29, 1854.

Claim.—Connecting the chamber of the diaphragm pump with the breast-cup E, by means of the exhaust-tube *d*, by which the said breast-cup can be nearly filled with milk from the breast without allowing any portion of its contents to flow into the chamber of the pump, which prevents the necessity of frequently removing the cup from the breast. Also, the arrangement of the said breast-cup and curved exhaust-tube with the diaphragm pump, by which the patient can use the instrument without the aid of an assistant.

No. 11,624.—NOAH WARLICK.—*Improved Horse-Shoeing Apparatus.*—Patented August 29, 1854.

Claim.—The head-piece C, with an adjustable slide *b*. These are supported on a standard A, which enables the operator to shoe a horse without supporting the animal's foot between his knees in the usual manner.

No. 11,625.—C. P. S. WARDWELL.—*Improved Machine for Cutting Tenons.*—Patented August 29, 1854.

The novelty and utility of this machine consist in the peculiar arrangement and combination of its several main parts—which are, the vertical saw D, for squaring off the end of the rail; vertical saws G G, for forming the tenon-shoulders; and the horizontal saws N N, or saws and cutters R R combined, for cutting the tenons; thus dispensing with the use of a separate machine for cutting the shoulders. The entire process of squaring the end of the rail, forming the shoulders, and cutting the tenons, (and there may be more than one on each end of the rail,) is plainly shown in figure 1 of the annexed drawings, the rail being shown on the feed-carriage B by broken lines *x x*. The motion of the feed-carriage is continuous until the tenons are completed; and when the tenons are cut on one end of a rail, it is reversed, the feed-carriage returned to its former position, and the tenoning of the other end is commenced.

Claim.—The manner herein described of combining and arranging the squaring-off saw D, vertical shoulder-saws G G, and horizontal tenon-saws N N, or horizontal saws and cutters combined, so as to constitute a machine which is capable of completing the tenon or tenons before the rail is discharged, substantially as and for the purpose herein described. The manner herein described of combining and arranging the saw-arbor H or O, swinging-frame J or P, slotted segment L or Q, lever K or *h*, and set-screw M or *f*, for the purpose of facilitating the operation of adjusting the shoulder-saws G G, or tenoning-saws N N, substantially as herein described. The employment of one or more cutters between the horizontal tenon-saws N N, in combination with the shoulder-saws G G, for the purpose of cutting two or more tenons on each end of the rail at one operation, substantially as herein described.

No. 11,626.—JOSEPH D. WEST.—*Improved Hydraulic Ram.*—Patented August 29, 1854.

This invention dispenses with springs or weighted valves. The water flows through one conduit until near the ram, when it branches in two opposite directions. The valves H and H¹ are rigidly attached to the rod G, and are operated alternately by virtue of the additional momentum alternately imparted to the respective columns of water D D¹, due to the velocity of each column, momentarily in motion, while the other column is, for the same length of time, at rest. The figure illustrates this. The water escaping at *b* generates velocity in the column D, the column D¹ being at rest. Of course the velocity of D will quickly generate a momentum which will overcome the weight merely of the equal column at rest on D¹, thereby closing the valve H¹ and opening H.

Claim.—Valves so constructed as to be operated on those principles of hydrodynamics involved.

No. 11,627.—Jesse Whitehead.—*Improvement in Counter Twist-Speeders.*—Patented August 29, 1854.

The nature of this invention consists in constructing the speeder with an additional shaft for driving the bobbin elevated above the ordinary bobbin-shaft, and in combining with this upper bobbin-shaft curved bobbin-bars overlapping the lower tiers of bobbins, and by their curved form permitting the removal of the lower bobbins when filled.

Claim.—The combination of the upper bobbin-shaft *b* with the curved overlapping bobbin-bars *p*, arranged and operating as described, and for the purposes specified.

No. 11,628.—John Wootton.—*Improvement in Nail Machines.*—Patented August 29, 1854.

Claim.—The two pairs of segmental rolls I I¹ and N N¹, combined, arranged, and operating so that the first pair bring the spike nearly to the desired form, and the second complete it.

No. 11,629.—Daniel Halladay.—*Improved Governor for Wind-Mills.* Patented August 29, 1854.

Figure 1 is a side elevation; figure 2, a front view of the wings or sails.

Claim.—Attaching the spindles *b* of the wings or sails F to a sliding-head G, by means of the lever *f h*, or their equivalents, and operating said head G by moving the lever H, or its equivalent, and a governor of any proper construction, for the purpose of giving the desired obliquity to the wings or sails, and thereby insuring an equal motion and power during the variable velocity of the wind.

No. 11,630.—T. C. Vice.—*Method of Operating Wind-Mill Sails.*—Patented August 29, 1854.

Claim.—"Clothing and unclothing wind-mills while the sails are in motion or at rest, by means of an iron rod passing through the main hollow vane-shaft, in combination with bevel-gear and pinions, a pinion being attached to each of the *reefing rollers* on the arms," thus operating cords and securing the sails to said rollers by means of the iron rod passing through the hollow shaft.

No. 11,631.—Sidney S. Turner, assignor to Elmer Townsend.—*Improvement in Sewing Machines.*—Patented August 29, 1854.

Claim.—Constructing the feeding wheel in the form of a toothed annulus or ring-gear F¹, or the equivalent thereof, and connecting it with the feeding-shaft D by a universal joint or ring, and two sets of journals *a a*¹ and *b b*¹, applied together and made to operate as specified, whereby the cloth can be readily turned in any direction, without the necessity of lifting the presser or presser-wheel.

No. 11,632.—Philemon A. Morley.—*Improvement in Glass Lanterns.* Patented August 29, 1854.

This invention renders unnecessary the separate construction of the lamp or oil-pot and the lantern or case, being moulded in one piece. A hinged top gives access to the interior, and is arranged for ventilating the lamp in a suitable manner. A spring-catch is used to detain the cap to the body of the lantern; and the base being imperforate, avoids the waste and dirt consequent on an overflow of oil.

Claim.—A lamp or lantern of any desired configuration, when made of glass and in one piece, substantially as described.

No. 11,633.—Dexter H. Chamberlain, assignor to Wm. R. Meshurul.—*Improvement in Lard Lamps.*—Patented August 29, 1854.

The wick-tube F is placed on one side, and when heated melts the concrete matter contained in the vessel A. It is pivoted, so that the last remaining portion can be consumed by lowering the burner, a lamp-screw being used to retain it at any desired angle.

Claim.—The above described improved lamp, (for burning lard or concrete fatty matter,) made with an arrangement of the wick-tube, the lard reservoir, and the supporting bifurcated stand as described, and with the reservoir applied to the stand, so as to turn on centres and be fastened in position, under any inclination or elevation of the wick-tube, as specified.

No. 11,634.—J. E. Crowell, assignor to J. E. Crowell, E. Smith, and C. T. Stickney.—*Machinery for Dressing Ship Timber.*—Patented August 29, 1854.

Two or more rotary cutters B E dress the timber as it passes between them.

The manner of adjusting the carriages H I, as they carry the timber beneath the cutters, constitutes Mr. C.'s invention. Each rail of the carriage (four in all) is elevated or depressed by a screw-rod M at each end, moved by spring-gearing P P, R R. The carriage (one rail is seen at H¹) is moved by an endless screw and gear suitably connected with the driving machinery; and either end of either rail may be adjusted by throwing its pinion, etc., in or out of gear independently of any other end. This enables the operator to give any desired shape to the piece as it approaches the cutters. This is the substance of Mr. C.'s claim.

No. 11,635.—Thomas Worrall, assignor to Mifflin Paul.—*Improved Multiform Moulding-Plane.*—Patented August 29, 1854.

The figure 1 is a perspective view of one of these planes with the brass plate attached, to which is screwed the multiform slides that are designed for tonguing, grooving, mouldings, fillets, &c. A represents the wooden part of the stock, and B the brass plate with its set-screws

i. C is the guide, which fits into the plane-stock at *g*. At *b* is shown the form of the aperture into which each slide *e* (containing the bit designed to be used) is inserted.

Claim.—The slide attached to a plane by means of plates and screws, which will make the plane capable of working all kinds of grooves, fillets, mouldings, &c.

No. 11,636.—Wilson Ager.—*Improvements in Mill-Stone Dress for Cleaning Grain.*—Patented September 5, 1854.

Claim.—The herein described dress, consisting entirely of cracks, having inclinations as shown in the drawings for causing reverse draughts, so as to turn the grain and revolve it both on its longest and shortest axis, for the purpose of cleaning and scouring said grain.

No. 11,637.—Wm. H. Akins.—*Improvements in Bolting Machines.*—Patented September 5, 1854.

The arrangement of parts set forth in the claim is designed to produce more rapid rotations, and a greater amount of vibration at the same time, than is common to this class of machines.

Claim.—The connecting-rod M, in combination with the vibrating bracket H, and pulley B^1, over which belt L passes, said bracket being secured to axle B, for serving the double purpose of giving the bolt a short, quick, horizontal vibrating motion, and at the same time giving it a rotary motion; the whole apparatus being arranged as described, and operating in the manner set forth.

No. 11,638.—Benjamin Bray.—*Improvement in Spring-Rollers for Window Curtains, &c.*—Patented September 6, 1854.

This is a hollow curtain-roller, made to enclose a spiral spring, which winds up as the curtain is run down, and thus balances the weight of the latter in every position. The roller is formed to admit within it a sufficient length of spring to bring its variations of tension within the limits of the weights of curtain run off, and thus to produce a balance between the weight of the curtain and the force of the spring in every position of the apparatus, or so nearly so as to enable the latter of itself to maintain every position when the friction of the movement is increased by the addition of a weighted bar at the lower end of the curtain.

Claim.—Having thus fully described the nature of my invention, what I claim is, providing the tubular or hollow curtain-roller with a long spiral spring within it, when said spring is used for the purpose not merely of drawing up the curtain by its recoil, as that is not new, but of balancing it in any position in which it may be placed, substantially as herein described.

No. 11,639.—Charles Clareni.—*Improvement in Attaching Pulleys to Shafts.*—Patented September 5, 1854.

This improvement consists in introducing a cylindrical key into a tapering recess in the eye or hub of the wheel in contact with the shaft, so as, by torsion in one direction, to wedge the two together.

Claim.—The method of fastening pulleys to shafts, by having a cam cavity or recess in the pulley, and introducing therein a roller, substantially as set forth.

No 11,640.—John Clark.—*Improvements in Chimney-Caps.*—Patented September 5, 1854.

Disclaiming the invention of chimney-caps with pendant valves, I claim constructing chimney-caps having balance compensating valves E E E, with lever *e*, and weight D, or its equivalent, together with the valve opening at the top, whereby is prevented the undue accumulation of smoke within the space *d*, thus affording the speedy escape of the smoke, in its ascent upward through the chimney, substantially as set forth.

No. 11,641.—Charles H. Dana.—*Improvement in Seed-Planters.*—Patented September 5, 1854.

The machine consists of two parts, A and B, which perform the operation of planting by a sliding movement upon each other, there being attached to the B part a reservoir of seed C, and a brush *f* to prevent the seed from falling directly into the ground, except what is required to fill the notch *e*. The operation is as follows: The operator, grasping the handle A, sets the bottom of B part upon the ground. The pressure upon A sinks its sharp point *c* into the ground, while by the same movement the notch *e*, already filled, is carried down below brush *f*, and the seed falls into the ground as the handle A is raised, and the receptacle again fills with seed, preparatory to the next operation.

Claim.—I claim: 1st. The planter, employed and operating as described.

2d. The triangular measuring cavity *c*, combined, arranged, and operating as described.

No. 11,642.—Louis Daser.—*Improvement in Seed-Planters.*—Patented September 5, 1854.

The machine is a hand-planter, composed of handle B, fixed to seed-box A, and planting rod or staff *b*, sliding in tube *a a*. The instrument being forced into the ground to about the mark *j j*, the charger *f* of staff *b* rises upwards opposite the opening *c*, and receives a charge of seed; while at the moment when the operator raises the instrument, the spring *g*, pressing against staff *b*, carries the latter down below tube *a a* before

the latter is out of the ground, thus discharging the seed into the hole prepared by the impression of the instrument. The figure shows the instrument in the act of being raised out of the ground.

Claim.—The seeder *b*, cut *f*, and slot *e*, in combination with the drill *a a*, the flared hole *c*, spring *g*, and cylinder A, substantially in the manner and for the purposes set forth.

No. 11,643.—Augustus M. Eastman.—*Improvement in the Manufacture of Ribbons of Velvet.*—Patented September 5, 1854.

The nature of this invention consists in forming upon the edge of narrow strips of velvet an artificial selvage, by means of a brush filled with any semi-fluid adhesive material, which is made to act upon the edges of the strips of velvet.

Claim.—Forming upon the edges of strips of velvet a firm artificial selvage, by means of a brush or cushion, charged with a suitable adhesive compound.

No. 11,644.—Wm. H. Foster.—*Method of Reefing Topsails from Deck.* Patented September 5, 1854.

Claim.—The jackstay A and batten B on the yard, with the main and minor reefing-lines, furling or spilling lines N, for manœuvring the dogs'-ears, with the necessary sheeves and blocks.

No. 11,645.—Jonathan C. Ginn.—*Machine for Worming Rigging.*—Patented September 5, 1854.

Claim.—The combination and arrangement of the helical traveller Y at the end of the bore or passage D, the box A, and the bobbins or reels B; the whole being constructed as described, and composing a hand-machine for the purpose specified.

No. 11,646.—Geo. W. Griswold.—*Portable Door-Fastener.*—Patented September 5, 1854.

Claim.—A fastener made in one piece, and having two or more arms at right angles to each other, with one serrated and one smooth edge, so that when either is introduced into the crack between the door and its frame, and turned one quarter round, its teeth will be forced into the frame and the door secured.

No. 11,647.—John Hinde.—*Hemp and Flax Brake.*—Patented September 5, 1854.

This invention consists in passing the flax or hemp between a ribbed sheet, or endless apron, and a series of fluted rollers, which have a rolling and vibrating motion over its surface.

Claim.—The employment of a moving ribbed sheet, or endless apron F, with a series of rollers N N, working upon it, substantially as and for the purposes described. Also, giving to the said rollers a reciprocating motion backwards and forwards upon the sheet or apron, substantially as set forth.

No. 11,648.—M. G. Hubbard.—*Hanging Plane-Stocks.*—Patented September 5, 1854.

Mr. H. hangs his stocks *e* upon an axle at F, below the plane of the cutting-edge.

No. 11,649.—A. Kendall.—*Machine for Riving Lumber for Shingles.* Patented September 5, 1854.

By means of a series of knives and devices, this machine is designed to rive four pieces at each stroke of the main driver. The knife J is on the carriage G, and cuts, on forward movement, a piece U for four shingles. This piece falls, as in figure, upon a spring-bed S, and is driven against the fixed knife P by drivers O, and its halves are deflected as seen at V V by springs d d^1 d^2 d^2, and carried forward by drivers K^1 K^1 against the knives W W, each of which halves its piece, making four in all.

Claim.—1st. The sliding-knife J, the brace-springs S, driving-arms o o^1, the upper arm being separated from the lower, and the planes *e e*, for raising the upper arm from the knife P while the lower arm passes under. The several parts named I claim, in combination, for the purpose of cutting a block from a bolt, and conveying it to the knife P, to be divided into two blocks, ready to be carried forward by the drivers K^1 K^1, to be again divided by the knives W W.

2d. The combination of the upper springs d^2 and e^1, the lower springs d d^1, knives W W, and the reciprocating drivers K^1 K^1, for the purpose of conveying the blocks divided by the knife P from it to the knives W W, by which they are again divided.

3d. The two side-pieces *g g*, provided with grooves or channels m m^1 and j^1, with the tumbler l; the middle channels m and j^1 being of such inclination that the drivers K^1 ascend in passing from the knife P to W W, and return by means of the tumbler in the channel j^1. The driver K^1 descends in passing from the knife P to W, and returns in the channel m^1, and is thrown up in place by the springs n. Also, I claim the combination of the grate-plates with the tumblers l and springs n, or other equivalent devices, for the purpose of giving the proper direction to the reciprocating drivers, in the manner and for the purpose set forth.

No. 11,650.—Josephine Morss.—*Improved Driving Wheels of Locomotives for ascending Inclined Planes.*—Patented September 5, 1854.

The nature of this improvement consists in having the opposite driving-wheels mutually inclined, or set at an angle upon the axle, (the said wheels being sufficiently elliptical in shape, to be circular or cylin-

drical with respect to the axle,) and in making the tracks waved or serpentine, to correspond with the running variations from a straight line, the object of the arrangement being to obtain a lateral traction upon the rails in ascending grades.

Claim.—The use or employment of inclined driving-wheels upon locomotive engines, or their equivalents, in combination with the curved rail *c*, constructed and arranged substantially as described.

No. 11,651.—Thos. M. Powell.—*Improvement in Ice-Cream Freezers.*—Patented September 5, 1854.

A is the metallic vessel containing the cream, and is surrounded by an ice-vessel K, and is further divided within by an annular ice-vessel C, giving three freezing surfaces. G is a perforated conical-shaped ring for stirring the cream in the annular part of the cream-vessel, and scraping off the ice as it forms upon the freezing surfaces; H is a similar scraper and agitator, formed for the central compartment of the cream vessel.

Claim.—The manner herein described, and shown in the drawing, of constructing ice-cream freezers with three or more cylinders A B C, arranged as described, for the purpose of more speedily and effectually freezing cream, as herein set forth.

No. 11,652.—Charles Rowland.—*Improvement in Tables.*—Patented September 5, 1854.

This table is provided with ways *e e*, in which the end *i* of the legs c^1 slides, attached to a seat *f* and back *m*, supported by the standard *d*, on the lower end of which is placed a caster *n*. When the table is in use the seats are withdrawn from beneath it, the legs c^1 constituting a support for the table; when not in use the seats are shoved beneath it, the back *m* forming an ornamental leaf, as well as a support to the table.

Claim.—I do not confine myself to the precise construction herein set forth; but what I do claim is constructing the supports of the table so as to form seats, capable of being closed and withdrawn, substantially as and for the purposes herein fully set forth.

No. 11,653.—Bradford A. Rugg and Ezra H. Benjamin.—*Machine for Feeding Paper to Printing Presses.*—Patented September 5, 1854.

It is well known, that if we place a number of sheets of paper in a pile, one above another, and roll them at one edge, the act of rolling alters the positions of the sheets, causing one to overlap another. Upon this principle, a frame constructed as shown in the sectional drawing, having two endless aprons *g* and *h*, rotated as shown, will feed the paper through the rollers *a b* at graduated intervals, as the sheets of paper overlap each other. A dropping-bar *o* is made to fall at intervals on the hinder part of the apron *g*, so as to hold all but the uppermost sheet

of paper, until it has passed through between the rollers *a* and *b*; thus, but one sheet of paper is passed at one time to the printing press.

Figure 3 represents the machine open to receive the paper.

Figure 1 represents the paper in the first of its passage forward.

Figure 2 represents the paper held by the intermitting bar, while one sheet is being carried forward to the printing press.

No. 11,654.—Daniel Warner, Jr.—*Improvements in Dressing Flax.*—Patented September 5, 1854.

The object of this invention is to perform at one operation the process of breaking, scutching, and heckling the flax.

Claim.—The construction and arrangement of the heckling and scutching drums—that is, drums having a series of heckling bars *b*, armed with teeth, set at an angle with the radius, in combination with the blunt-edged or scutching bars *d*, one above the other, with the centres of their shafts diagonally placed so as to cause the flax, in passing between, to be acted upon by both sets of drums.

No. 11,655.—George L. Wild.—*Improvement in Stringed Musical Instruments.*—Patented September 5, 1854.

The invention consists in providing a sliding support *f* to the turning-screw D *a* at one end, while the other end works through a fixed stud *d*; and as this arrangement is intended to tighten two or more strings at one time, it becomes requisite to tune by a separate screw *e*, in the bridge F, which regulates the bridle L which presses on the string B.

No. 11,656.—Henry L. Clark.—*Improvement in Doors for Baggage-Cars.*—Patented September 5, 1854.

This improvement consists in arranging the door of a baggage-car between the ways C C, hinged at *c*, and adjusted by means of springs J, levers G and S, rod H, and hand-lever I, so as to be held tightly in the recessed door-way, or, when thrown out by the action of said lever, to be easily slid to one side upon the stationary ways D D.

Claim.—Having the door placed between ways C C, which are secured to the side of the car by hinges *c c*, and forcing the door outward by the device herein shown, or its equivalent, so as to cause the outer ends of the hinged ways C C to be in contact with stationary ways D D, between which said door is shoved when opened, as herein described.

No. 11,657.—Leroy S. White, assignor to himself, Lewis White, Lyman White, and A. G. Stevens.—*Improvements in Argand Solar Lamps.*—Patented September 5, 1854.

Claim.—I do not claim the employment of a tube or passage descending through the burner, so as to admit air to the interior of the wick-tube and flame; but what I claim is the arrangement of the filling orifice and the air-tube leading out of the closed secondary oil and

carbon receiver or chamber B, under the wick-tube C; such arrangement consisting in placing the filling orifice G on the upper part and at or near one end of the lamp, as described, and carrying the oil-tube D in an inclined direction through the main oil-chamber A, and out of the top thereof, whereby the contents of the secondary oil-receiver may be emptied from the said receiver, and through the tube D, without danger of spilling the contents of the main oil-receiver out of the filling orifice thereof.

No. 11,658.—Alex. H. Brown.—*Improvement in Brick-Presses.*—Patented September 5, 1854.

The chief features of this machine are an arrangement of a chain of moulds B B, in connection with the plungers E and F, actuated respectively by cams on the shafts of the wheels L and L^1, so that when one of these moulds is filled with clay from the hopper D, it receives first from plunger E a partial pressure, and then passing under plunger F, it receives therefrom its final pressure; and a peculiar construction of the mould-chain B B, by which the bricks are presented to the attendant (while said mould-chain is passing over wheel C^2) in a manner to facilitate their removal.

Claim.—I do not claim the broad device of constructing moulds which close before receiving the clay, and open when discharging the brick; but do claim the peculiar construction of my moulds, as described and shown for this purpose, each separate frame or link in the chain of moulds forming a part of two moulds, the projecting-plate *c*, as the moulds pass over the first octagon C^1, closing so as to form the bottom of the preceding frame, and the side *a* closing against the ends *b b* of the preceding frame, so as to form a perfect mould, when the chain is horizontal, as the frames pass over the second octagon C^2, the side *a* and the ends *b b* releasing themselves from the plate *c* of the preceding frame, leaving the brick free upon the plate *c*, so that it may be easily discharged; the lugs *d* gearing with the octagons for propelling the moulds.

2d. I claim, for the purpose of compressing dry clay into bricks, the combination of the two plungers E and F with the cams; the cams revolving and the plungers moving in unison, the first cam on axis L having the longest radius, and causing the first plunger E to descend the greatest distance upon the easily compressible clay. The second cam on axis L^1, which actuates the plunger F, having a smaller radius than the first cam, so that the greatest force of compression is applied to the clay, already partially compressed, where the greatest power is required.

No. 11,659.—Leander W. Boynton.—*Improvement in Machines for Cleaning Wool.*—Patented September 12, 1854.

A hollow cylinder E, of wire-cloth, is placed in a horizontal position on a hollow mandrel or shaft G, in a vat C, containing two horizontal apartments, in one of which is placed the cleansing liquor, and in the other the rinsing water, for dyeing or rinsing, as may be desired; the cylinder E, containing the wool, is placed in the appropriate vat and

there revolved, the cylinder being provided with buckets *i* on its periphery, which, as it revolves, elevates and distributes the liquor or water over the wool in that part of the cylinder which, during a revolution, is not submerged at the moment in the liquor or water in the vat. When it is desired to dry the wool, the liquid is drawn off, and the cylinder revolved in a contrary direction from that given it during the process of dyeing. Hot air is passed through the wool by means of the hollow shaft, when it is desired to make the wool perfectly dry, an opening being left in the mandrel or hollow shaft for such purpose, inside of the cylinder E, in which the wool is placed.

Claim.—The combination of the cylinder E with the hollow mandrel G, when these are combined with the horizontal vat divided into two or more apartments, and the whole is constructed, arranged, combined, and made to operate substantially as herein described.

No. 11,660.—H. C. Bridgham and James M. Stewart.—*Apparatus or Turning the Leaves of Books.*—Patented September 12, 1854.

This apparatus is principally intended for the convenience of performers on musical instruments; by it they are enabled to turn the leaves of music-books by a touch of the finger, knee, or foot. The lever F may be connected to a pedal X by a cord V; the pawl G operates the ratchet-wheel H, and turns the pin-roller *m*, so that the fingers *i*, which have previously been adjusted between the leaves of the book, are made to change their position, and carry a leaf at each movement; the finger *i* is moved by the spiral-spring J, as shown in fig. 3. The numbers 1 to 8, on fig. 1, show an arrangement by which a touch of the performer's finger will turn the leaves in any desired order. Figures 2, 3, and 4 are double the size of fig. 1.

No. 11,661.—Daniel Carpenter.—*Improvements in Surface Condensers.* Patented September 12, 1854.

The improvement consists—

1st. In putting the tubes close together, by making the two ends of the tubes which pass through holes in the tube-sheet of a smaller diameter than the body of the tubes, and securing them in place by means of nuts tapped on to the ends thus reduced.

2d. In a guard-plate or plates with apertures, as shown, and between the exhaust-port and the sides of the set of tubes; and,

3d. In the employment of the outside clamp-bars, and interposed bars, grooved, to embrace the tubes, so that they shall be firmly held to resist all vibration, while the clamp and bars will act as diaphragms to direct the steam across the set of tubes.

No. 11,662.—Nathaniel Colver.—*Improvement in the method of Manufacturing Boots and Shoes.*—Patented September 12, 1854.

This improvement consists in constructing of one piece of wood the entire bottom A of a boot or shoe, and uniting it with an ordinary

leather upper by means of tacks, nails, or pegs. A groove or rebate B is formed around the upper edge of the wooden sole for the edge of the upper or leather to be nailed upon, except at the shank, where the leather is made to extend round and partly across the bottom.

Claim.—The construction of boots and shoes (with uppers as now constructed in the United States) with a wooden instead of a leather sole or bottom attached to the leather uppers, as above described, or in any equivalent manner for the purpose set forth.

No. 11,663.—JOHN B. CORNELL.—*Metallic Slat Shutter.*—Patented September 12, 1854.

This improvement consists in the manner of uniting the sheet-metal slats A A, by swaging the edges of the slats into forms of corresponding segments of circles *a a a*, and connecting them by means of hinged bars B B B, combined with said slats, and arranged in such a manner that the pivots *b b* of said hinges will be concentric with the segmental curves of the edges of the slats, and when the shutter is open the flat portions of said slats shall be directly in line with each other, substantially in the manner and for the purposes set forth.

No. 11,664.—WILLIAM CRAIG.—*Improvment in Oscillating Steam-Engines.*—Patented September 12, 1854.

The improvement consists in the steam-pipe or valve P, operated by means of the eccentric rod R for obtaining a double action, in combination with the follower F and trunnion, for the purpose of admitting steam into the face of the trunnion without regard to size of parts.

Also, in the mode of arranging the eduction T T, and induction-ports S S.

No. 11,665.—PERRY DICKSON.—*Improvement in Dressing Mill-Stones.* Patented September 12, 1854.

Claim.—Dividing the face of the runner and bed-stone into three circular courses of furrows, A B, B C, and C D; all the furrows in A B having the same draught, and having twice the number of furrows in B C that there is in A B, and giving these furrows the same draught in respect to themselves, but a different draught from the furrows in A B, in combination with the furrows in the third course C D, to operate as conveyors in the manner described, or any other construction substantially the same.

No. 11,666.—JOSEPH GATLEY.—*Valve or Piston for Rotary Pump.*—Patented September 12, 1854.

The figure illustrates this invention, which consists in placing the piston *b* within a sliding frame *a a*, fitted with friction-rollers, so that

when the shaft H' revolves, the two parts *a a* and *b*, constituting the piston, adapt themselves to the eccentric interior of the pump.

Claim.—The arrangement of friction-rollers in a sliding-frame *e a a*, in combination with the sliding-vane or valve *f f*, whenever used for similar purposes.

No. 11,667.—WARREN GALE.—*Improvements in Straw-Cutter.*—Patented September 12, 1854.

In this machine the knife *a* is carried by flange J, which revolves shaft H, and cuts against a piece of leather N, carried by flange M on revolving shaft L. The throat-pieces, *h i*, are adjustable by means of holes (with pins) 1 2 3 4 5 6, together with hinge *j*, and slot-hinge *k*. Now, if the throat be contracted, the two flanges grasp the straw-cutter at each revolution, and drag forward a shorter cut; but if the throat be expanded, the flanges seize the straw earlier in their revolution, and carry forward a longer cut.

Claim.—Flanges and throat as set forth; but disclaims mere adjustability of the latter.

No. 11,668.—A. J. GIBSON.—*Couplings for Vehicles.*—Patented September 12, 1854.

This invention consists—

1st. In the employment of a cylindrical bar of iron *a*, having a threaded bolt *b* projecting downwards, and working in a threaded cylinder *e* on the forward axle, for the purpose of excluding dust and preventing friction.

2d. In combination with the cylindrical bar of iron *a*, the manner of connecting the rear with the front axle, by means of a threaded bolt *g*, formed at the connexion of the rods or perches, and working in a threaded chamber *a*, substantially as set forth.

No. 11,669.—JOSEPH L. HALEY and SAMUEL MAXWELL.—*Improvements in Ship Ventilators.*—Patented September 12, 1854.

By the co-operation of the double-spring *a* and stud *b*, the ventilator can be retained in any desired position.

Claim.—Constructing a ventilator for ship-frames, consisting of the tube A, cap F fitting thereon, sustained by means of the double-acting spring *a*, on the stem E, by which the cap is kept open, or securely closed when down, in the manner set forth.

No. 11,670.—SEYMOUR N. MARSH.—*Truss for Hernia.*—Patented September 12, 1854.

This invention consists of a compound-pad, composed of an elliptical ring-pad B, surrounding a spheroidal ball-pad, which latter is adjustable relatively to said ring by means of spring D and screw E,

so that pressure can be made with either the ring or the ball, or with both, as may be desired. The truss-pad is especially designed for the treatment of inguinal hernia.

Claim.—I am aware that truss-pads have been constructed of two parts, a movable centre-piece surrounded by the body of the pad, the said centre-piece closely fitting into said body, and being attached to the latter by spiral or other springs. In those truss-pads, the centre piece is adjustable in relation to the body of the pad only by the degree of pressure applied to said body, and the consequent resistance of the abdomen of the patient. But what I claim as my invention is—

1st. The ring-pad, constructed as herein above described, to close the external and internal abdominal rings, by making pressure specially upon those parts, as herein above set forth, and not over the external surface of the canal.

2d. The interior ball-pad, combined with the ring-pad, substantially as herein described, for the purpose of producing upon the inguinal canal a pressure for the purpose of creating adhesive inflammation, which pressure is entirely independent of the pressure upon the ring-pad, and the consequent resistance of the abdomen of the patient, and which is capable of being regulated by a screw, or other equivalent means provided for the purpose.

No. 11,671.—J. W. Middleton.—*Improved Method of Applying Heat to Dilate Gases for the Purpose of Elevating Water.*—Patented September 12, 1854.

This apparatus is well shown by figure. Mr. Middleton surrounds the air-chamber A by an air-tight jacket G, which confines the heat to the external surface of the air-chamber A. A series of flues E pass through the air-chamber. Ventilation is accomplished through holes *a a*, &c. The inventor alleges and claims this special method of applying heat as being useful in certain cases.

No. 11,672.—Gilbert Maynard.—*Corn-Sheller.*—Patented September 12, 1854.

In this machine, *a b* are two wheels nearly opposite each other, and on parallel axles, turning in opposite directions. The wheels are made adjustable, in relation to each other, by springs *o p*, so as to grasp an ear of any size. Crank *n* moves the machine, and the corn is fed in at ear-guide n^1.

Claim.—The applicant does not claim an adjustable guide, or two wheels, as such; but he does claim the arrangement herein described, whereby two shelling-wheels, with their axles parallel, turning in opposite directions, are made to operate on one ear of corn, the ear being fed in between said wheels, substantially as set forth.

No. 11,673.—James McGregor, Jr.—*Improvements in Ranges and Cooking Stoves.*—Patented September 12, 1854.

The claim allowed covers the juxtaposition of fire-box, ovens, flues, and water-table, for the purposes set forth.

Claim.—Having a flue, or flues, surrounding the oven, or ovens, for the purpose and in the manner substantially as above set forth.

No. 11,674.—Andrew Mayer.—*Improvements in Regulators for Gas-Burners.*—Patented September 12, 1854.

Claim.—I do not claim the employment of a conical valve to regulate the flow of gas, irrespective of the peculiar construction of the said valve; but I do claim the employment, as herein described, of a hollow conical valve C, perforated at its apex, and having openings around its base, and being arranged with a box, which receives the gas through an opening under the valve, substantially as herein set forth.

No. 11,675.—John W. Middleton.—*Improved Apparatus for Distributing Fluids.*—Patented September 12, 1854.

The design of this invention is to overcome the inequality of supply from ordinary water-pipes, in certain cases; and the drawing gives a vertical section of the supply-pipe, reservoir, and gauge-pipe, as constructed by the inventor.

Claim.—The arrangement of a water-reservoir, and air-vessel B, between the service pipe *a* and the distributing cocks *e*, or near the latter; also, the vertical pipe, water and pressure-gauge C, to regulate the flow of fluids through pipes.

No. 11,676.—Ephraim Morris.—*Improvements in Means of Weighing the Cargo in Canal-boats, and other Vessels.*—Patented September 12, 1854.

The nature of this invention consists in so attaching a pipe in the vessel, that it shall be above the level of the water when the vessel is heavily laden, and of a sufficient length to include the water-level when the vessel is empty. In the figure, *a* denotes the bottom of the vessel, to which a pipe *c* and cock *b* are attached, communicating with the exterior water—the pipe being nearly closed, so as to allow the water to pass in but slowly: *c* is the vertical pipe; 3 is a movable thimble setting on to the upper end of the pipe, and fitted to receive a screw-socket *g*, through which a hollow rod *d* passes, terminating at the lower end as a plunger, and cup-leather 1, fitting tight to the inside of the pipe *c*; *e* is a glass tube, attached to the top of the hollow-rod *d*, which is provided with a bulb *f*, and hole 4, on one side.

Claim.—Determining the level of the water and the consequent weight of the cargo, by means of a plunger, hollow rod, glass tube and bulb, applied to the tube containing the water, in the manner specified.

Also, the adjustable socket *g*, with an index marked thereon, in combination with the hollow rod and plunger. whereby the apparatus is adapted to different boats of the same size, or to the same boat under various circumstances.

No. 11,677.—Newell North.—*Improved Spoke-Machine.*—Patented September 12, 1854.

In the drawings, figure 1 is a perspective view of the machine; figure 2, a plan of the end of the carriage C, showing the index *g*, pawl 6, and the ends of the guides *m* and q^1. The nature of this improvement consists in planing spokes longitudinally, by means of three or more sets of revolving cutters, the spoke-timber being held by means of centres pressed into each end of the same, and these being fixed in a carriage, which brings the timber into contact with the cutters; and the cutters are guided by means of inclined planes, attached to the said carriage, for the purpose of giving to the spoke the required taper and form.

Claim.—The index *g* and cam-crank g^1, in combination with the forked centre, or holder, f^1, and the carriage C, or their equivalents.

Also, the combination of the handle and rod *j*, the lever *i*, the puppet centre F, the cross-bar G, which is adjustable by the screws *r r r*, passing through the slots in guides *m q* q^1, the same cross-bar being combined with the carriage-frame C and the guides *m q* q^1.

Also, the arrangement of the cutters *e* and *a*, with respect to the cutters *c*, for the purpose set forth.

Also, the support or standard K, and springs *t* t^1 and *u*, or their equivalents; and the combination of the set of cutters *c*, or any equivalent combination, for the purpose of planing two sides and one edge of the spoke with the same set of cutters.

No. 11,678.—William E. Osborn.—*Breech-Loading Cannon.*—Patented September 12, 1854.

This improvement consists in the peculiar manner of closing and opening the bore of a breech-loading gun, in such a manner that a tight joint is obtained by very simple and efficient means.

Claim.—1st. The eccentric or cam-shaped piece *d*, set in trunnions 1 1, so that the operation of rotating said breech-piece on its trunnions, by a lever or any suitable means, compresses the curved surface of said breech-piece against the rear of the bore or calibre of the gun, as specified.

2d. The mode of removing said breech-piece from the line of the bore or calibre of said gun, by rotating said breech in the reverse direction, causing the cam or projection 4, or its equivalent, to act as a fulcrum, on which said breech is lifted by the one operation of rotating the breech—the trunnions 1 1 sliding up the grooves 3 3, as specified.

3d. The construction and arrangement of the hammer *f* and nipple 2, whereby the hammer is cocked by its own weight, as specified.

No. 11,679.—Joseph Phares.—*Improvement in Tailors' Shears.*—Patented September 12, 1854.

This improvement consists, first, in placing the rivet R outside the angle formed by lines continuing the cutting edges inward, so that the motion of any particular point (as *a*) on the cutting edge of the upper blade A, as it passes through the cloth, will be inward, and tend to draw the cloth in instead of pressing it out, requiring consequently less force for a given result than in common shears; and secondly, in the use of a lip *s*, or other projection, as a guide, against which the shoulder of the blade B may work, in order to steady the motion of the cutting edges.

Claim.—1st. The placing of the rivet R of Taylor's shears outside of the angle formed by prolonging the directions of the cutting edges, for the purpose of giving to the cutting-point *a* of the edge an oblique backward motion, thereby increasing the ease of cutting, diminishing the resistance to working the shears, and bringing the cutting points nearer the hand.

2d. Combining with this the guide S, or stud, set in one blade, working in a curved slot in the other, having a screw-thread cut on it, on which is placed a rivet-head nut or other equivalent device, for the purpose of steadying the motion of the edges, and more effectually securing them from spreading in working.

No. 11,680.—Philander Shaw.—*Improvements in Sewing Machines.* Patented September 12, 1854.

The nature of this invention consists in an improvement in operating the feeding roller of a sewing machine.

Claim.—The combination applied to the shaft H, for imparting to it an intermittent rotary motion, so as to obtain the length of stitch as specified; such combination consisting of the cam F, the wheel G, the movable or sliding-box N, (or its equivalent,) and the spring W, applied together and to the shafts B and H, and made to operate substantially as above explained,

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No. 11,681.—Samuel Sheldon.—*Improvements in Portable Grist-Mills.* Patented September 12, 1854.

The runner and bed-stone are both secured in metallic flanged caps; face of the stones vertical, spindle and driving-shaft continuous; a slide regulates the feed, and a stirrer prevents choking. The adjustability of the runner to the fixed stone is secured by slotted flanges on the metallic cap, which, when moved into position, is secured by bolts.

Claim.—I do not claim the securing of the stones in flanged heads or caps, as such has been done before. But what I do claim is securing the stationary stone to an upright flanged plate E, and the adjustment of said plate by means of slotted flanges and bolts, for insuring in a simple and effectual manner the parallelism of the faces of the

stones as hereinbefore set forth, when the same is applied to a mill in which the axis of revolution of the running stone is horizontal.

No. 11,682.—Lorenzo Simonds.—*Plate for Artificial Teeth.*—Patented September 12, 1854.

Upon the main plate *a* is fixed a smaller plate *c*, leaving a chamber between the two plates. Spring *d* sustains plate *c*, which, by its elasticity, may be pressed down to diminish the capacity of said chamber, at the moment of inserting the plate into the mouth. Afterwards the spring expands the chamber, and by the increase of the atmospheric pressure the plate is held to the mouth.

Claim.—Attaching to an artificial palate an air-chamber constructed with a flexible elastic diaphragm, for the more effectual exhaustion of the air between the artificial palate and roof of the mouth, as herein above set forth.

No. 11,683.—Don Carlos Smart.—*Improvement in Curtain Fixtures.* Patented September 12, 1854.

Claim.—I am aware that a centre-pin inserted in a socket made in the end of a roller, and resting against a coiled spring placed in said socket, has been employed in curtain fixtures. I therefore do not claim such, nor is it to be considered in any respect as a contrivance equivalent or analogous to my invention, either in construction or operation; for with my improvement applied to a curtain-roller, I am enabled to dispense with a balancing weight to the curtain, and to obtain any amount of friction on the centres or bearings that may be necessary to overcome the weight of the curtain, and sustain it at any desirable height or position between the limits of its movements. I am also enabled by means of my improvement to dispense with the usual socket-pieces, or bearings for the journals, that become necessary in other fixtures for curtain-rollers, and particularly when one of the journals is made movable against a spring, as above set forth; therefore, what I claim as my improvement is the combining the centre-pin of the curtain-roller with the roller by means of a screw, and making the pin with a head, by which it may be revolved, the same enabling me not only to dispense with the usual counter balancing-weight necessary for the window-shade or curtain, but to form in the window-frame the female centres or bearing holes by the pressure of the screw, and thereby to dispense with the usual socket-pieces generally applied to the window-frame for supporting the roller, the whole being essentially as herein before specified.

No. 11,684.—H. G. Smith.—*Fire Engines.*

These engines are constructed with spring-brakes, as shown in figure. The *claim* covers so constructing them, or in any manner essentially the same.

No. 11,685.—Henry W. Adams.—*Breech-Loading Fire-Arms.*—Patented September 19, 1854.

This improvement relates to that description of breech-loading fire-arms known as the "faucet breech," and the first part of the invention consists in attaching the common gun-nipple *g* to one end of the roller which closes the breech, and making a vent or priming-hole extending therefrom to the solid part of the roller, which covers and closes the end of the barrel, so as to convey fire from the nipple to the centre of the powder in the barrel.

Secondly. In forming a cavity *s s s* within the seat all around the roller, and only leaving bearings at the ends of the roller, and around the projecting end of the barrel, so as to reduce the friction, in the greatest possible degree, and to prevent the roller from sticking tight in the chamber by the packing around it of the condensed gas, or unconsumed part of the powder.

Third. In fitting the opening in the rear part *a* of the breech-supporter, with the tube F, which enters the spall *s s* between the breech-roller and its seat, and fits closely up to the roller, serving the double purpose of giving the roller a bearing opposite to where the force of the explosion of the charge acts upon it, and of preventing the escape of the fire or gas through the back of the breech-supporter.

Fourth. In the use of the chamber E, detached from the barrel and fitting into the breech-supporter, so as to be incapable of turning therein, but to be capable of being forced up towards or into closer contact with the breech-roller by the screwing in of the barrel.

The *claims* are in accordance with the above four heads of the invention.

No. 11,686.—Elliot C. Badger.—*Improvement in Machines for Dressing Mill-Stones.*—Patented September 19, 1854.

The general character of the machine is sufficiently shown in the drawing. The chisel *u*, receiving its motion from the alternate action of the spring *n* and the cam H on the shaft E, and its apparatus, is supported by a frame G, at the end of slide D, which rests and moves upon one of the guides C C, the hole *r* of which encompasses the spindle. The guides C C have slots *x*, either straight or of any curve which it is desired to give to the furrow, in which a pin V plays; when, therefore, the guide is adjusted radially by means of a set-screw I, (a nut *i* upon which bites the projection *s*,) and the chisel-frame G is gradually drawn from the spindle by the handle *b*, the slot *x* in the guide gives the desired curve to the furrow.

Claim.—The guide C, with the narrow slot *x*, in a straight line or in such curve as it is desired to give the furrow, in which a projection V, from the frame carrying the pick, works, and by which the pick is guided as it is drawn out to cut the furrow desired, and this either with or without the thread-screw I, by which said guide is moved radially around the cylinder and spindle.

No. 11,687.—Wm. Black.—*Improvement in Generating Steam.*—Patented September 19, 1854.

Claim.—The mixing, by means of a revolving brush or equivalent, small drops or particles of water in the steam; also, immersing the ramming chambers in water or its equivalent, for chilling the saturated steam suddenly, and just before it is forced into the heated cylinder.

Also, forcing the highly saturated steam into the heated cylinders, in the manner set forth.

No. 11,688.—James S. Burnham.—*Improvement in Maize Harvesters.* Patented September 19, 1854.

The machine is mounted on a truck frame. The horizontal blade F F running across it, between the wheels E E, and anterior to the axle-tree B, has its edge inclined upward and forward, so that as the team goes forward the rows of maize pass on each side thereof, between the team and the wheel, thus being severed as the stalks meet the cutter-edge; arms G^1 G^1 of the horizontal reels H H receive the falling stalks and deposite them upon the jointed arms K K of the horizontal reach-piece A, from whence they are deposited in bundles upon the ground by a downward motion, communicated to arms K by lever N and rod M, at the direction of the operator.

Claim.—1st. The employment of the oblique self-adjusting, cutting, and sustaining platform G, having a flange *b* on its back edge, and cutters arranged on its front edge near either end (by which arrangement the cutters are caused to cut in an oblique upward direction, and the cut stalks can be sustained by the flange on the platform and prevented from falling on the ground before they are caught by the reels.)

2d. The employment of the horizontal collecting reels, made elastic, and of cima reversa shape, in combination with the guards I, oblique fenders L L, guides J J, and receivers or bundlers K K (intended to bring the stalks to a proper position for being severed, and after being severed to prevent them from falling crosswise the machine, and to be collected and held until a sufficient quantity to form a bundle has been cut.)

3d. The arrangement of the receiver arms or bundlers K K, moved by the shifting-lever N and connecting-rod M, for the purpose of readily effecting the discharge of the stalks when convenient, without the operator changing his position.

No. 11,689.—C. J. Conrad.—*Shingle Machine.*—Patented September 19, 1854.

The only device claimed in this machine is exhibited at *m*, where notches are at equal distances on one side of the frame, and on the other at unequal distances. This carriage, being operated by weights, is moved one notch forward, at each end, for each operation of the saw; and the obliquity thus given to the block, in reference to the saw, gives to each shingle its required taper. Of course these notches on

the carriage fit into corresponding catches or teeth on the ways of the frame-work.

Claim.—The claim is to this device for tapering the shingle.

No. 11,690.—John Davis.—*Improvement in Telegraphic Keys.*—Patented September 19, 1854.

There is a key for each letter or symbol, and each key has a slot or groove through its entire length, in which is a sliding-bar B. This bar has a toothed rack at E; at one end, and just beneath the toothed rack, is a revolving toothed cylinder D, which extends under all the keys. When any key is pressed down by the finger, the toothed rack of its sliding-bar is caught by the revolving cylinder, which puts the bar in motion, and causes a series of notches and elevations *a b c* to act upon a bar G attached to the lever of the common break-circuit key. The relative lengths of the notches and elevations give the required combinations of lines and dots.

Claim.—I do not confine my invention solely to the producing of the dots and marks which Mr. Morse uses in operating his telegraphic register; any arrangement may be produced. Neither do I confine my invention to the operating of Morse's telegraphic register; it may be applied to any telegraphic registering apparatus where spaces, dots, long and short marks, are used for transmitting and recording information by telegraph. Neither do I confine my invention to the working of the respective slide with its pinion and rack; it may be operated by passing the slide against the shaft or roll—friction producing the same as the rack. Neither do I confine my invention to the spiral springs; any other may be used.

What, therefore, I do claim as my invention is the construction of a bank of telegraphic keys, as herein described, and operated by their respective pinions, or by a roll, with or without teeth; said pinions or rolls may be operated by clock-work, or by any known motor; and thereby operating the well known magnetic lever, as herein set forth; causing the connections of the battery-circuit to be completed and broken a succession of times by a single operation of the operator; said connections to be of a longer or shorter duration as the respective symbol on the respective slide shall indicate. Disclaiming any right to other telegraphic keys, and to other telegraphic operations for the producing of dots and marks.

No. 11,691.—Henry Eddy.—*Improvement in Bee-hives.*—Patented September 19, 1854.

This improvement consists in metallic strips *o o* flanking the bee-opening *n*, attached to and rising above slide *m*, and fitting closely against the front face of the hive, which the patentee calls protectors; alleging to have discovered that strips of metals placed thus on the sides of a bee-hive have the power to prevent the escape of anima heat from the inside of the hive.

Claim.—The arrangement of metallic protectors in a movable slide or bottom, substantially as described and for the purpose set forth.

No. 11,692.—William G. Elliott.—*Improvements in making Slag Ware.* Patented September 19, 1854; in England, October 5, 1852.

The improvement refers to the manufacture of bricks, pipes, tiles, and other articles capable of being moulded from slag (or from any liquid mass anologous to slag) in a fused state; and consists in expelling the gases of the slag by piercing and pressure during the presence of the fused slag in the mould, and in subsequently subjecting the moulded slag to the action of an annealing furnace, all in order to prevent cracking or bursting of the product.

Claim.—This is confined to expelling the gases of the slag by piercing and pressure while in the mould. No illustration.

No. 11,693.—B. Fulghum.—*Machine for Sawing Timber.*—Patented September 19, 1854.

This invention consists in placing a saw D in a jointed swinging frame C, which vibrates about an axle G, and adapts itself to the positions of the saw as it moves over or through the timber, so that the lumber is sawed with any required dimensions without moving the log.

Claim.—"I do not claim the principle of a saw moving over the log; but I do claim placing a saw D within a carriage C, attached to frames E F^2, (jointed and self-adjusting) operating as hereinbefore described."

No. 11,694.—Wm. P. Goolman and S. Morris.—*Portable Staging.*—Patented September 19, 1854.

The nature of this invention consists in so connecting two platforms G G^1 on separate standards E E^1, that the operator on one of them can raise or lower both of the platforms simultaneously. Also, in hinging the rails of the connecting platform or bridge T, so that they may be folded to occupy less space in transportation.

Claim.—The mode of operating the same.

No. 11,695.—Thaddeus Hyatt.—*Vault Lights.*—Patented September 19, 1854.

This improvement consists in the mode of making a vault-cover by the union of two metal pieces A A and B^1 B^1 B B B^1, the latter of which is formed as a grating, and the former is formed with an opening, whose area is at least equal to the combined area of all the openings in the grating, (the area of the one being covered over by the grate bars of the other,) in combination with a glass or layers of glass C, protected by the grating B B B, and covering the opening of the metal

frame in which they are set, substantially as described, and for the purpose of protecting the glass both from fracture and from being obscured by persons or vehicles passing over the vault-cover.

No. 11,696.—James R. Napier and Wm. J. M. Rankine.—*Improvement in Caloric Engines.*—Patented September 19, 1854; in England, June 9, 1853.

The nature of the improvement consists in the adaptation of a heat-screen S, separate and distinct from the plunger P, which drives the air or other gas from the hot to the cold end of the receiver K, and *vice versa.*

Also, in the adoption of tubular receivers, for the purpose of heating and cooling the air by the aid of rod-shaped heat-screens or plungers, nearly filling the tubes and serving, by being moved out and in, to admit and expel the air and promote its circulation over the heated or cooled surface.

No. 11,697.—J. W. Middleton.—*Hydraulic Ram.*—Patented September 19, 1854.

Mr. M. avails himself of the force of a current to operate a ram, adapted to this end. The principle being well known, it is only necessary to explain the figure. The current passing through the large pipe A closes the valves or jets *a*, and checks the column of water within the pipe, an instant; this, by reaction, opens the valves *v v*, and a portion of said column of water escapes through them into chamber Q; the valves *v v* then close, and those *a* open, and the weight *i*, which was partially raised by the closing of valves *a*, now drops to its wonted position, (since equilibrium is restored between the checked water and the water without the tube,) and this completes one operation, supplying one increment of water to the reservoir.

Claim.—The arrangement and construction of parts to effect this end.

No. 11,698.—Wm. H. Morrison.—*Revolving Fire-Arms.*—Patented September 19, 1854.

This fire-arm is of the description known as revolvers; and the invention consists in the peculiar arrangement of its several parts.

Claim.—1st. The arrangement of the turning lever L, and the manner in which it is made to turn the revolving cylinder E; and of the plate G behind the cylinder on which the turning lever operates.

2d. The arrangement of the levers *x* and *v*, and their combination with the catch *c*, (that arrests the revolution of the cylinder,) by which the catch is operated on; and the manner in which these levers are worked by the turning lever.

3d. The arrangements, substantially as described, by which the revolving cylinder is thrown out to the side, so as to clear the barrel, in loading, without detaching the former from the gun. (See figure 5.)

4th. The use of the cutter at the bottom of the bore of the barrel for opening the cartridges, substantially as described.

No. 11,699.—Henry B. Myer.—*Mode of converting the backs of Car-Seats into Beds or Lounges.*—Patented September 19, 1854.

Claim.—The construction or formation of beds or lounges on the backs of railroad-car seats, by turning them up to and retaining them in a horizontal position, and so arranging the backs of contiguous seats that they may meet and remain in the same horizontal plane, by the methods herein described or by any other substantially the same, and which will answer the intended purposes.

No. 11,700.—A. N. Newton.—*Breech-loading Cannon.*—Patented September 19, 1854.

This invention, which is applicable mainly to cannon, but may be in part applicable to fire-arms of every description, consists: 1st. In constructing the breech with a hinged lip *d*, which fits to a recess in the chamber and receives the charge when the breech is drawn back, but forms part of the chamber when the breech is in place for firing; and which, when the breech is moving back and forth, is capable of a slight vibration, to compensate for any want of truth in the breech or its fittings, and to enable itself to rise from the floor of the recess in the chamber to be supported by a friction roller d^1 in running back and forth, but to bed firmly on the floor of the recess when the breech is in place for firing.

2d. In the method of operating the clamps G G to lock and unlock the breech, by means of the crossed levers or shears H H, the double-slotted lever I, and the plate or broad arm *q* on the transverse shaft E, all constructed, arranged, and operating as set forth.

3d. In moving the breech back and forth by means of arms *e e*, attached to the same shaft E, which is the first mover of the mechanism which actuates the clamps to lock and unlock the breech; the said arms entering recesses in the sides of the breech substantially as set forth.

4th. The attachment of the parts of the lock of the gun to the movable breech or carriage, substantially as described, whereby the movement of the breech is made to effect the cocking and setting free of the hammer to explode the charge.

5th. In so constructing the inclined way K on the gun-carriage, which actuates the arm W of the lock in cocking the hammer, that if the hammer escapes it will be prevented, by the arm W coming in contact with the said way, from striking the needle, or its equivalent, which explodes the charge, until the breech-pin has entered the chamber of the gun, substantially as described.

No. 11,701.—Isaac Pitman.—*Improvements in Lamps for burning Rosin-Oil.*—Patented September 19, 1854.

A perforated sliding ring may be so adjusted as to feed in or cut off the supply of air ascending through the cone to the wick, the latter being arranged, as stated in the claim, between two tubes of unequal height—the outer one being depressed.

Claim.—I do not claim the use of the ventilating ring to regulate the inner current of air of the burner, as claimed by Harvey Tomlinson in patent to him September 1, 1843; it being in my lamp of very little, if any, practical value, as may be seen by experiment.

What I do claim is the regulation of the outer current of air of the burner, by means of a sliding ring, or by substantially like means, the same in combination with the vertically stationary and constantly and unvaryingly exposed wick, setting snugly between two tubes of unequal height, as herein described and set forth.

No. 11,702.—Marvin Smith.—*Water-Meter.*—Patented September 19, 1854.

This improvement effects the reversal of the movement of the piston without the assistance of valves, by a peculiar construction of piston, in combination with its partially reciprocal rotation about its own axis, at the end of each stroke.

The piston E has a recess-chamber F in connection with the inlet pipe and upper part of cylinder. This recess is so constructed as to allow the ingress of water above the piston, until the stroke is finished; at this moment the piston is caused to revolve about its own axis far enough to close this flow, and direct it (by means of a similar recess F^1, similarly constructed with regard to the *lower* part of cylinder) to the under side of piston, causing the stroke's recommencement, at the same time two such recesses G G^1 suffer the water to escape at each stroke of the piston.

The mechanism for imparting this partially reciprocating movement to the piston is seen in the figures. A tongue *m*, clamped to the rod, is turned with the rod, alternately to right and left, by the action of the weighted pivoted levers k k^1. The water forces the rod up, and the tongue *m* bears against the lever *k*, thus separating the two, *k* and k^1, until that stroke is finished; the weight then forces the tongue past a guide *g*, against which it bore in ascending, and the lever k^1 then falls against the tongue and keeps it against the guide on its opposite side, until it arrives at the end of down stroke, when it is again pushed into its normal condition.

No. 11,703.—W. G. Sterling.—*Improvements in Counting-Machines and Machines for indicating Motion.*—Patented September 19, 1854.

A ring A is cut with a screw-thread, upon which works a revolving screw-nut C, from which the ring receives a slow motion like the circumference of a rotary wheel. C receives its motion from any prime mover, or counter, whose motions are to be indicated, as, for instance, a carriage-wheel. The outer circumference of the ring A is removed, so as to leave a smooth surface upon which may be laid down suitable graduations, to give the required indication of number, or motion, or distance, which graduations are read through an opening in the case or guide, in which the ring is enclosed.

Claim.—I do not claim the revolution of a ring by means of cogs working in a screw or spiral commonly termed a tangent-screw.

But what I do claim as my invention is the combination of the revolving endless screw marked with figures on its surface, as above described, with the stationary toothed nut, with a female screw in its centre, fitting the screw on the revolving ring in the manner set forth, for the purpose of causing the revolution of said ring, as above described.

No. 11,704.—JOHN TAPLEY.—*Pumps.*—Patented September 19, 1854.

Claim.—The arrangement of two cylinders A B in a right line, connected by a frame G T, and fitted with valves, stuffing-boxes, and a tubular plunger H working in both, and with a valve K in its middle; the plunger and each of the cylinders being made in two pieces, at the junction of which is a valve, so that without separating the cylinders and plunger, or dismounting either, either valve or packing may be easily gotten at for repairs, etc.

No. 11,705.—W. THORNLEY.—*Safety-Washer for Wheels.*—Patented September 19, 1854.

The nature of this invention consists in so arranging a washer between the hub and linch-pin, as to prevent its wearing or coming out.

Claim.—The washer C, provided with flanges D D projecting, at right-angles from its face, outward over the linch-pin F, in connection with the stop or stops E E projecting in the same direction, and extending from the inner diameter of said flange towards the centre of the washer; also, the cap with the stop or stops E E, as described.

No. 11,706.—JOHN J. WEEKS.—*Improvement in Sausage-Stuffers.*—Patented September 17, 1854.

This machine consists of a stationary hollow cylinder A, provided with a stand to rest upon, B, and a tangential spout C, and with a feed-passage and hopper D. A shaft E is arranged inside of the cylinder, eccentric to the axis of the same, having sliding-plates so arranged as to force the sausage-meat out of the cylinder into the spout. A tube is placed on the spout for receiving the case or gut, which tube has an air-passage extending from its front to its rear end, so that the air can escape while the case is being filled. A swinging arm K extends from the cylinder, which supports a shaping or protecting tube L, through which the case or gut passes while being filled; this tube serving to protect the case from unequal pressure, and give it the proper even shape as fast as it is stuffed.

Claim.—The arrangement of the adjustable shaping and protecting-tube K, in combination with the filling-tube, substantially as and for the purpose described.

No. 11,707.—A. WINTER.—*Machine for Sawing Wood.*—Patented September 19, 1854.

A series of endless chains D carry hooks E^1, which bring the wood in contact with any number of circular saws I, from which the pieces drop beneath the machine by their own weight.

Claim.—The combination of endless chains thus provided with circular saws.

No. 11,708.—LOREN J. WICKS.—*Improved mode of Operating Guide-Rollers and Feed-Clamps in Sawing-Machines.*—Patented September 19, 1854.

This improvement consists in rendering the feed-clamps and guide-rollers of sawing-machines for re-sawing self-adjustable, by means of pinions and racks, arranged as specified. Figure 3 is a plan of the machine. Figure 2 is an under view of the guide-rollers, showing the segment-racks and pinions by which they are adjusted.

Claim.—Connecting the two clamps *u u* of each pair together, by means of the racks *x x* and pinions *w w*; one clamp of each pair being made adjustable, and connecting the guide-rollers G G together by means of the segment-racks *j j* and pinions *k k*; the rollers, racks, and pinions being secured or attached to a movable or jointed frame F.

No. 11,709.—BENJAMIN F. UPTON.—*Apparatus for Polishing Daguerreotype Plates.*—Patented September 19, 1854.

The buffer A is supported on two rockers B C, to which a rapid vibrating motion is given by means of a band and pulleys, which, turning the crank I, produce, by means of the pitman G, the desirable parallel motion of the buffer A.

No. 11,710.—ABNER WHITELY.—*Improvement in Grain and Grass Harvesters.*—Patented September 19, 1854.

The improvement and claims consist in—

1st. A reel *c c c*, having on one of its blades a swinging rake O, suspended in *g g*, whose ends pass between and are combined with ways or guides *q q*, for the purpose of not only delivering the cut grain at the rear of the platform, but also better directing the standing-crop to the cutters 3.

2d. The latch *f*, with appendages *l m n*, to be set in motion from the driver's seat C, for the purpose of interrupting the action of the rake. (and thus causing it to gather more or less grain when set in action, or to gather it at the moment when there is enough of it on the platform to give a full sized sheaf).

3d. Placing the vibrating knife-bar (3) and cutters thereon between alternately placed fingers (4 and 5), for the purpose of dispensing with the slot-guards, and sustaining the line of cut by throwing the action of the alternate shear-edge of the blade of said cutters on the upper and lower sides of the fingers.

No. 11,711.—William H. Aikins and Joseph C. Burritt, assignors to William H. Aikins.—*Improvement in Calendar Clocks.*—Patented September 19, 1854.

This is designed for a perpetual calendar, as it is called, showing the year, the month, the day of the month, and the day of the week, all the required changes being made automatically for a long period of years. The days of the week are printed upon a cylinder F to be seen through an opening in the clock face. This cylinder is moved in the following manner: A snail-cam V is connected with a clock so as to revolve in twenty-four hours and raise a lever Y. This lever acts through the rod 31 upon an arm projecting from a disk 44, that plays freely upon the axis of the cylinder F, to which arm is also connected a pawl 41. This pawl, at its upper limit of motion, drops over one of seven teeth on the wheel 45. Before this takes place the extremity of the arm 44 has struck the detent 23 and lifted it above the range of the teeth on the wheel 45, the cylinder F in the mean time retaining its position by a slight friction. When the lever Y drops from the cam V, at the end of twenty-four hours, the pawl 41 catching upon the tooth of wheel 45, and impelled by the force of the reacting spring 5, carries that wheel and the cylinder F through one-seventh of a revolution, till the motion is arrested by the detent 23, which in the mean time has been dropped into its place.

The wheel L of thirty-one teeth, upon the axis of which is fixed the pointer for showing the day of the month, is operated in substantially the same manner as the wheel for showing the day of the week, the parts corresponding to those already described in the latter being the detent X, the pawl 37 with its impelling spring 7, and the rod 30, which raises the pawl 37, and has attached to it a pin 55, that in approaching the upper limit of motion strikes and lifts the detent 23. But there is added a contrivance for making the wheel L overleap at the end of the short months. To this end the pawl 37 admits of a range of motion equal to four spaces of teeth, or more, so that if one, two, or three teeth are omitted on the wheel L, their places on coming to the detent X will pass by till the wheel is arrested by the detent catching the next following tooth. The wheel L is provided with four circles of teeth, in one of which three teeth are omitted, in another two, in another one, and in another none. The detent works in the first mentioned of these during the month of twenty-eight days, in the second during the month of twenty-nine days, in the third during the month of thirty, and in the last mentioned during the month of thirty-one days. The movement of the detent from one of these circles of teeth to another is effected by a slotted lever Q, which embraces the detent, and is operated through the shaft P by a pin O resting upon the corrugated circumference of a revolving disk N. The different degrees of motion made by the pawl 37 and rod 30 under these different circumstances, are provided for by leaving the rod 30 free to slide upward in the lever Y by which it is raised. The disk N revolves once in four years, being moved through a forty-eighth of a revolution at the end of each month. The months are printed upon a cylinder G, which revolves in a year, and this cylinder and the disk N each derives its motion from the revolution of a cam

2 upon the axis of wheel L, by means of a mechanism like that which operates the wheel L or the cylinder F. The same may be said of the manner in which the cylinder H, on which is printed the year, derives its motion from the revolution of the cylinder G.

Claim.—1st. The arrangement of the four rows of teeth on wheel L, as shown in figure 4, in combination with the corrugated plate N, the detent X, and the arm O, the rocking-shaft P, and the slotted arm Q, or the equivalent of said arms and rocking shaft, and for the purposes set forth.

2d. Raising the click (or pawl) 37 over four or more of the teeth of the wheel L (when run down) on the first day of the month, thereby acquiring a retaining power sufficient to be used in the short months, thus moving the wheel L carrying the hand on the dial from the 28th day of February past the 29th, 30th, and 31st divisions of the wheel L to the figure 1, or the first day of March; those teeth (the 29th, 30th, and 31st) being removed, the detent X stopping the wheel L at the point marked 1 in figure 4, indicating the first day of every month, one tooth only being used, except at the last day of a short month, the rod 30 slipping through the end of the lever Y.

3d. We also claim the combination of the helix V, the lever Y, lifting-rod 30, the detent X, the pin 55, the click 37, the wheel L, and spring 7, and for the purposes described, that is, giving movement to the wheel L; the rollers F, G, and H being moved by similar devices.

No. 11,712.—Edward L. Seymour, assignor to D. B. Brown.—*Improved Gold Separator.*—Patented September 19, 1854.

Claim.—Making the receptacle of two, three, or more sections, arranged one above the other, perpendicularly, so that they may be slid off in succession, in a horizontal direction, to remove the refuse matter separated from the metal in the top section, and the other layers in the other sections, according to their respective specific gravities.

No. 11,713.—John Williams, assignor to F. Curtis & Co.—*Improvement in Calendar Clocks.*—Patented September 19, 1854.

The subject of this patent is the mechanism by which the wheel showing the day of the month is made to overleap at the end of the short months. The wheel *e* for showing the day of the month has thirty-one teeth, one of which is caught at each revolution of the twenty-four-hour wheel *b*, by a pin 6 projecting therefrom. But at the end of a short month, a lever *n*, which is carried by the wheel *e*, and plays upon a pin 25 projecting from that wheel, is caught by another pin 24 on wheel *b*, which pin 24 acting upon the lever throws wheel *e* forward more than one tooth. The lever *n*, however, moves freely before the pin without acting on wheel *e*, till it comes in contact with a pin 23, and according to the quantity of this free motion of lever *n*, will be the number of teeth by which wheel *e* is thrown forward. The quantity of free motion is determined by an arm O projecting from lever

n, and resting upon one or another of several pins 19, 20, 21, projecting from the face of a toothed wheel *l*, also carried by wheel *e*, upon a centre pin. For the month of thirty-one days the arm O falls entirely back between the pins 19, 20, 21. The wheel *l* has fifty-eight teeth, one of which, at each revolution of *e*, is caught by a fixed or stationary pin 26 at a time when lever *n* has fallen over upon pin 23, so as to leave the arm O clear of the pins 19, 20, 21. It will be obvious that the wheel *l* performs its circuit in four years.

Claim.—The wheel *l*, carried by the wheel *e*, and combined with the lever O and its stop 23, and the pin upon the wheel *b* to engage the lever O, the said wheel *l* having on its periphery forty-eight cogs or teeth, each cog or tooth representing a month, and having upon its upper face three pins 20, and a fourth pin 21; the three pins 20 marking the month of February for three successive years, and the fourth pin 21 the leap year; also, the pins 19 to mark the months of thirty days; the whole operating for the purposes described.

No. 11,714.—N. AUBIN.—*Improvement in Gas Generators.*—Patented September 26, 1854.

A steam generator E^1 connecting with a gas generating retort B^1 are arranged in separate flues, so that the supply of steam, at a high temperature, furnished to retort B^1 may be regulated by the supply of water furnished to retort E^1. The steam generating portion a^2 of the latter is filled with some porous substance to prevent the water from assuming the globular form while passing to the bottom. Vessel C^3 is the reservoir of the substance from which steam is to be generated, and which is applied therefrom to retort B^1 through a funnel C^1. The gas generator passes through funnel F into cooler F^1, which is provided with an inclined bottom, constructed in a coiled shape to run off the sediment, while the purified gas passes into distributing-pipe F^2.

The improvement and claim are confined to the gas generating retort B^1, with the diaphragm steam generating retort $a\ a^2$, charged with porous earth, pieces of brick, pumice-stone, or other porous substance, substantially as described, and for the purpose set forth; thus obviating an undue pressure of steam suddenly evolved.

No. 11,715.—FORDYCE BEALS.—*Repeating Fire-Arm.*—Patented September 26, 1854.

The nature of the invention consists in a simple device for rotating the cylinder of a repeating pistol.

Claim.—Rotating the chambered breech by means of a double ratchet B B attached to the trigger-lever C, (producing rotation by both forward and backward movement of said lever,) and acting on the side surface of the large diameter of cylinder at or near the ends thereof.

No. 11,716.—EDWARD BROWN.—*Improvement in Porous Elastic Cloth for Gaiters.*—Patented September 26, 1854.

This improvement consists in cementing between two pieces of stocking fabric strips of India rubber, or a sheet of India rubber previously perforated, for the purpose of furnishing a material pervious to moisture. See figure.

Claim.—The above described elastic fabric, the India rubber being confined between two thicknesses of stocking-work, in the manner and for the purpose set forth.

No. 11,717.—S. BRIGGS and JOHN G. TALBOT.—*Neck-Yoke for Horses.*—Patented September 26, 1854.

This instrument consists in making two or more sections of a screw $I\,I^1$ on each of the rods which carry the end rings, H H, in combination with the nut J in the bar of the yoke, so that it may be used with one end short and the other long, or both ends either short or long, as may be necessary or desirable.

No. 11,718.—GARDNER CHILSON.—*Improved Hot-Air Furnace.*—Patented September 26, 1854.

This improvement refers to the tapering character of the radiators, whose internal surfaces reflect back the ascending volume of unburnt gases, so as to mingle with the current of heated air introduced by the channel under the plate *c*. There is also a new arrangement for agitating the grate and regulating the lower draught.

No. 11,719.—GEORGE COPELAND.—*Harness Clasp.*—Patented September 26, 1854.

This invention consists of two plates, which are placed one in front of the harness shaft and the other behind it, and furnished with teeth, which pass between the heddles on the under or inner side of the shaft, and are so suspended from the strap that its tension draws them towards each other and causes the shaft to be confined between them.

Claim.—The clasp formed of two plates A A, having holes $b\ b^1$ to receive the strap, and catches or teeth *a a* to catch the harness-shaft or rail.

No. 11,720.—JOSEPH ALBERT CORWIN.—*Improvement in Knitting Machinery.*—Patented September 26, 1854.

Figure 4 is a perspective view of one of the loop-forming tools on a magnified scale.

Claim.—The tool on which the loops are formed and interwoven, consisting of two pieces terminating in hooks or equivalents thereto, and so combined that when motion is given to said pieces, one of the

hooks shall seize the loop last deposited and retain it, while the other shall take up and cast off the loop of the previous course, whereby the two become intertwined and a netted fabric formed.

Also, the flange, or any equivalent for making a recess or groove upon the sides of the plate or shank of the horn, whereby a space is made for the point of the take-up hook to pass behind and seize the loop, as described.

No. 11,721.—JOHN DAME.—*Improved Parrel and Bow.*—Patented September 26, 1854.

This invention consists in the construction, arrangement, and combination of the upper and lower semi-bands A A and B B with the side-pieces and supporters D D, together with the parrel bow H, to which the yard is secured.

No. 11,722.—JOHN DRAYTON.—*Improvement in Bedstead Fastenings.*—Patented September 26, 1854.

The end-rails are made with crooked or curved tenons on each end, which fit into corresponding mortises in the posts, as seen at *a*, so that these rails cannot be connected or disconnected with the posts without turning the posts, and of course cannot be disconnected while the side-rails are in their places. The side-rails are constructed with dowels or tenons at each end, fitting into corresponding openings in the posts, as shown in letter G. The side-rails and posts are drawn together by means of clamps and wedges, as shown in letters B and D, one of the ears of each clamp being fitted into a mortise made for that purpose in the face of the post, as shown at letter C, and the other ear entering a large mortise in the face of the rail, as shown in letter H; a wedge is driven through the rail and behind the last-mentioned ear, thus drawing the rail and post tightly together, and preventing the posts from turning.

Claim.—The manner of fastening the end-rails to the posts by means of the curved or crooked tenons, in combination with the clamp or wedge for securing the side-rails to the posts, as described.

No. 11,723.—ALEXANDER HALL.—*Improvement in Electric Clocks.*—Patented September 26, 1854.

The oscillations of the pendulum are maintained by means of two electro-magnets E E^1, which act alternately upon two soft iron armatures, which communicate their motion to a lever-beam H, which vibrates upon a pivot or centre-pin *a*. The beam H does not act upon the pendulum directly, but indirectly, through the medium of a slender spring *b*, which projects from H, and has its far extremity connected to the pendulum-rod G by a small rod C. When the galvanic current is changed from E to E^1, or *vice versa* H instantly makes its whole vibration without waiting for the pendulum. The latter is impelled simply by

the elastic force of the spring *b*, and is thus in a degree freed from the inequalities of the electric current. The vibrating beam H at the same time gives motion to the hands by means of two clicks *n n*, acting alternately upon a pair of toothed wheels *l l*, fixed upon a common spindle K. The circuit changes are effected by the motion of the pendulum in the following manner: The circuit of the electro-magnet is broken by a small space between the metallic pieces *j j*, and the closing is effected by a small metallic wedge *k* dropping between those pieces, while the closing of the circuit of E is in like manner effected by another small metallic wedge k^1 dropping between two other metallic pieces *j j*, on the other side, as shown in the drawings. The wedges *k* and k^1 are both fixed to the upper end of a crutch lever I, capable of vibrating upon a centre-pin, and this crutch-lever has at its lower end a wide loop through which the pendulum-rod passes. Towards the end of each oscillation the pendulum-rod strikes the loop and tilts the lever, which, carrying with it the wedges *k* and k^1, breaks one circuit and closes the other. The crutch-lever also carries at its upper end small pieces of iron, *m m*, which being attracted by the magnets J J, J^1 J^1, on both sides, cause either wedge *k* or k^1, when it falls between its corresponding metallic pieces, to maintain in contact therewith a gentle pressure.

Claim.—1st. Giving motion to the clock movement and to the pendulum by means of a beam H and spring *b*, said beam carrying and deriving its motion from the armatures of two electro-magnets E E^1, through which electric circuits are alternately closed and broken, and transmitting motion to the clock movement by means of clicks and ratchets, or their equivalents, and to the pendulum by means of the spring *b*, which serves to maintain its isochronous vibration without regard to the strength of the current, and thereby makes the clock keep perfect time, and serves to regulate a number of electric clocks, substantially as herein described.

2d. The manner of closing and breaking the circuit of the battery, so as to make it pass through one and the other of the electro magnets alternately, by means of wedge-shaped points *k* k^1 of silver or other metal, which are caused to vibrate by the movements of the pendulum, and pass between small posts *j j*, of suitable metal, attached to permanent magnets, or other conductors, which form parts of the separate circuits through the two electro-magnets, as herein described.

3d. Securing the connexions which close the separate circuits when they are made, by means of two pieces of soft iron *e e*, which vibrate in connexion with the wedge-shaped pieces *k* k^1, or other equivalent means of closing the circuit, and are brought, when the circuit is closed, into contact or nearly into contact with permanent magnets J J, as herein fully set forth.

No. 11,724.—WILLIAM GRAHAM and LAWRENCE MCLAREN.—*Improvement in Railroad-Car Seats.*—Patented September 26, 1854.

This seat is constructed with a reversible back connected with the upper or seat part, which works upon a circle on the stationary base.

From the seat on each side leg-rests are suspended, which are connected with the base by means of double levers hinged at both ends, one end being fastened to the leg-rest and the other end to the lower edge of a cross-rail that connects the two sides of the base. These levers elevate or depress the leg-rests, as may be required for the comfort of the person occupying the seat, and are brought into play by sliding the seat over the circle on the stationary base.

Claim.—The levers E E, in combination with the leg-rests D D and the movable seat C, constructed and arranged substantially as described.

No. 11,725.—Moses E. Halsey.—*Improvement in Chair Frames.*—Patented September 26, 1854.

This invention consists in constructing the back of the chair so as to get the curves necessary to form an easy rest for the sitter, and yet to have the grain of the wood lie in the several directions requisite to insure the greatest strength the material is capable of affording.

The posts are made like the common chair below the seat, but above the seat the posts are carried about one-half the usual height. Here they are secured by mortise and tenon to two pieces, *b*, being supplementary posts which cross the upper ends of the first somewhat obliquely, and the lower ends of which are set in the back rail of the seat. The upper ends are curved inward, and connected by a piece *c*, forming a top rail.

A short rail *d* completes the frame ready for the usual "cane." By this construction, the grain of the posts may run nearly the entire length, while that of the pieces *b* may run in the direction of the length in that part of the pieces on which the greatest strain will come, viz: the central portion.

Claim.—The construction of the back of a chair in the manner described; that is to say, combining with each post, and with the back rail of the seat, a supplementary post, sustained and braced substantially in the manner and for the purpose set forth.

No. 11,726.—Aaron L. Hatfield.—*Improvement in Machines for Adding Numbers.*—Patented September 26, 1854.

This machine consists of a case A; an outer disk and lining B; an intermediate disk C; an upper disk D; a lower disk E; centre-pivot F; reckoning-lever G; and washer H. The disk D has numbers upon its outer edge commencing at 1 and running up to 100; the disk C has numbers upon its outer edge commencing at 100, and running by hundreds up to 10,000 or more; the disk B has numbers upon its outer edge commencing at 1 and running up to 100. The disks B C D, and the reckoning lever G, are fastened together by means of a pin *f* passing through the pivot F and the washer H. Steady-pins d^2 pass up from the lower disk E, through an opening in the centre of the disk C, into corresponding holes in the disk D; consequently there are no means of turning the disk C, except the friction consequent upon its

being placed between the two disks D and E, while the disks D and E move simultaneously as if they were made in one piece, by means of the steady-pins d^2.

Suppose the reckoning-lever G is turned against the stop *b*, as seen in fig. 1; through the slot g^1 may be read the figures 5,200 on the disk C, and 6 on the disk D. Suppose that it is desirable to add to this amount 15; in order to do so, the reckoning lever G is turned round until the slot arrives over the figure 15 on the disk B. The lever is now pushed back again to the stop *b*, and the spring-ratchet K catching in one of the sunken teeth on the disk D, carries the disk D with it and the lever; and when the lever arrives against the stop *b*, the correct sum will be observed on looking through the slot g^1, the amount now being before the eye 5,200 and 21.

On the lower side of the disk E, sunken teeth *e* are cut round the outer edge. Into these teeth a spring-ratchet *y* takes and prevents the disk E, and consequently the disk D, from moving while the reckoning lever G is being turned in the former direction, but permits the turning of the disk E and D when the reckoning lever G is moved in the contrary direction. The disk C, being pressed between the two disks D and E, would revolve with these disks by reason of the friction, were there no means to prevent it. To accomplish this, the disk C is bent towards its outer edge in the form seen in figure 2; and through the bend thus made, slots are cut entirely through, as seen at C in figure 3. Into these slots the spring-lever *x* (fig. 2 and 3) catches and prevents the disk C from revolving. In order, therefore, that the disk C may be moved at the proper time, some means must be devised for releasing the spring *x*. This is done by the cam *a* affixed to the bottom of the disk E. At every entire revolution of the disk E, the cam *a* comes round, and, striking the spring *x*, (as seen in fig. 2,) bears it down until the cam *a* has passed the spring *x*, when the latter flies up again and stops the disk; the movement of the disk C at this time is only equivalent to one notch, which exhibits a corresponding increase of 100 in the figures seen through the slot g^1; therefore, as often as 100 is reckoned by the disk D, the disk C is moved forward one notch, and in this manner the correctness of the sums reckoned is insured at the slot g^1.

Claim.—The slotted reckoning-lever G, with the spring-ratchet attached to it; the disk D, with its sunken teeth; the curved disk C, with the slots cut in the curve; the outer disk and lining B, with springs *x* and *y*; the disk E, with its sunken teeth *e*, cam *a*, and steady-pins d^2; the whole being arranged and combined in the manner and for the purposes set forth, or in any other manner substantially the same.

No. 11,727.—Thomas Hardman and Albert Vose.—*Whiffletree.* Patented September 26, 1854.

The nature of this invention consists in providing a whiffletree with a frog-shaped iron B^1, working in a slot B, and kept in place by means of a slide C or catch G, so as to prevent danger from the traces being accidentally detached.

No. 11,728.—Henry Hochstrasser.—*Improved Machine for Paging Books.*—Patented September 26, 1854.

The machine is constructed somewhat in the form of a table or desk A, with the bottom B extended to one side for the purpose of supporting a shaft M, and a spiral form C, containing the requisite numbers arranged on the upper and under sides of its periphery. The shaft has a spiral groove corresponding to the turns of the form C. Motion is given to the platens L K by the treadle G, which is returned after the impression is given by a counter weight under the table, and operates in its passage the adjustable escapement F', to bring a new set of numbers in place for the next impression. Thus, one motion of the treadle G causes the impression of two numbers on the leaves of the book placed on the table A; the platen K printing the even numbers, and L the odd numbers. Ink is supplied to the form on its forward movement by the rollers R R.

Claim.—A peculiar arrangement of the escapement F and roller E, which, by entering spaces in the form C, holds it while the impression is being made.

No. 11,729.—J. F. Keeler.—*Improvements in Scales.*—Patented September 26, 1854.

These improvements consist in the arrangement of the levers M' M² and R R', with connecting-rods P P, with suitable pin-joints, beneath the platform, for the purpose of raising the platform from off the frame G, and resting it upon the pins T, thereby preventing the levers and bearings from sustaining injury by jarring or straining when loading or unloading the scales. By turning the lever J to J', the platform descends with its load, and rests on the pivots H, ready to be weighed. Also, in attaching a spring-balance, as seen at *a*, to the platform-scales, for the purpose of readily determining the weight of an article as soon as it is placed upon the platform without moving a weight or poise.

Claim.—The raising or lowering of the platform or platform-scales simultaneously at all points, without regard to the position of the weight upon the platform; the weighing levers being retained in their proper places for weighing and preserved from swaying about, while the raising and lowering is being done, by the intermediate platform or frame G, substantially as described.

Also, the combination of the spring-balance with the platform scales, arranged substantially in the manner described, and for the purpose set forth.

No. 11,730.—Charles Robert Landman.—*Improved Safety Lamp.* Patented September 26, 1854.

The novelty consists in so pivoting the disk-extinguisher (attached to a rod and spring running vertically through the lamp) upon the top of a vibrating weight, that the upsetting of the lamp detaches the pivot from its seat, and permits the spring to bring down the extinguishing-disk upon the flame.

Claim.—The use of the pendulum or swinging shaft, in combination with the balance-rod (having reacting openings in contact therewith) and camphene or other explosive fluid lamp, substantially as set forth.

No.11,731.—John Baptiste Laville.—*Improvement in the method of Felting Hat-bodies.*—Patented September 26, 1854. Patented in France August 20, 1852.

This invention consists in felting hat-bodies by causing them to pass between two series of rollers, when the two series are mounted in two separate frames, and operated by a continuous but slow rotary motion to carry the hat-bodies through between them, and a longitudinal reciprocating motion in the direction of the axes of the rollers; the two series moving in opposite directions for the purpose of felting, the lower rollers being combined with a trough containing hot water, so that, as they rotate, the lower part of their peripheries shall rotate in the hot water, which is thus carried up in sufficient quantity to keep the under surface of the hat-bodies moistened, whilst the upper rollers and the upper surface of the hats are moistened and heated by hot water which drips through small apertures in the bottom of another vessel.

Claim.—Arranging the two series of rollers *e e* and *v v*, mounted in separate frames *b* and *t*, held or pressed together as described, when the two series of rollers have a continuous rotary motion and a longitudinal reciprocating motion; the two series moving in opposite directions.

Also, in combination with the two series of rollers for felting hats, the mode of supplying hot water to the two surfaces of the hats, as they are passed through the machine; and the patentee declares that, in the above description, he understands the words "hat-bodies" to include every description of hats made from any matters capable of being felted.

No. 11,732.—Paul Moody.—*Improvement in connecting a Series of Car-Brakes.*—Patented September 26, 1854.

Claim.—The arrangement of bent levers B and D, at each end of every car, having their longitudinal arms projecting beyond the ends of each car, in such manner that, when the cars are coupled together, the faces of each opposing arm shall come into contact, and, without any fastenings, form a continuous mechanism for operating the brakes throughout a train, substantially as described.

No. 11,733.—Septimus Norris.—*Improvement in the Running-Gear of Locomotive Engines.*—Patented September 26, 1854.

Claim.—I claim in a locomotive engine, not having more than one pair of flanged driving-wheels, the combination with the driving-wheels of one or more pairs of flanged guide-wheels to keep or aid in keeping

the engine upon the rails, when the driving and guide wheels are so arranged that, while running upon a straight rail, the former shall carry the load, and the latter act as guides.

No. 11,734.—Joseph B. Stockton.—*Improvement in the Springs to the Knives of Straw-Cutters.*—Patented September 26, 1854.

This improvement consists in an adjustable double spring-guide E E for the knife F, secured to the front part of the frame A, and united at the top; the peculiar function of this spring being to keep the knife properly up to its work by pressing it with the force of both its sides against the steel-face B of the box, which forms a stationary cutter, and thereby prevent the substance operated upon from passing through uncut.

Claim.—The combination and arrangement of spring-guide E E, the moving knife F, and the fixed cutters B; whereby the moving knife F is held up to its work, whether the resistance opposed to it be at the middle, or at either end.

No. 11,735.—John J. Weeks.—*Improvements in Harvesters of Grain and Grass.*—Patented September 26, 1854.

The improvements refer to two parts of the machine, viz: a track-clearer, which is constructed in spiral form, and placed at O, at the side of the machine opposite the gearing, and revolves in the direction indicated by the arrow, thus throwing the grass out towards the centre of the frame A, and leaving a space free from grass for the driving-wheel B to run in, upon the return motion of the machine. The second improvement, as clearly indicated by the claim, is intended (in combination with the indentations *d d d* on fingers *a*, and with the range of movement of the sickle-bar so extended that, at every vibration thereof, two of the teeth *b b* pass the fingers *a*) to secure the severing of the grain, to facilitate it, and to obviate clogging.

Claim.—1st. The track-clearer, constructed in the form of a spiral.

2d. Having each tooth *b* of the sickle working through two of the fingers *a*, in combination with the bevelling of the cutting edges of every alternate tooth, so that, while one tooth shall have its cutting edges on its upper face, that next to it shall have its cutting edges on its lower face, as herein shown and described.

No. 11,736.—Moses D. Wells.—*Improvement in Washing-Machines.*—Patented September 26, 1854.

This machine consists in general outline of a circular tub, within which a circular rubber C operates upon the clothes, the periphery of the rubber constituting its operating surface, with elastic wings W placed between the periphery of the rubber and the sides of the tub, the position of said wings being adjustable for the purpose of regulating the pressure on the clothes, and for facilitating the removal of the same. The invention consists in constructing the rubber with a broad

flange *f* at the bottom, extending under the wings, for preventing the drawing of the clothes under the rubber by its rotation, for facilitating the movement of the clothes, and for permitting the dirt, grit, and other impurities to descend to the bottom of the tub, and be kept separate from the clothes during the operation of the machine.

Claim.—The construction of the rubber with a flange *f* at the bottom, substantially as and for the purposes hereinbefore set forth.

No. 11,737.—Joel Wisner.—*Improvement in Washing-Machines.*—Patented September 26, 1854.

This machine in its general outlines presents a circular tub, within which the clothes are acted upon by a circular rubber C for cleansing them; an alternate, partial revolution being imparted to the rubber. The invention relates to the spindle upon which the rubber operates, and consists in constructing the spindle in two parts; the under, which passes through the rubbing-disk C, containing a socket D for the reception of the lower extremity of the upper portion of the spindle E, which passes through the lever *l* by which the rubber is operated. A compound spindle is thus formed, which not only steadies the rubber in its revolutions as well as a long spindle would if passed through the rubber and lever, but obviates the necessity of lifting the bottom of the rubber to the level of the top of the long spindle when the rubber is removed from the tub; as also, the liability of the rubber to bind upon the spindle and sides of the tub in lifting, when one long spindle is passed through the rubber and lever from the bottom of the tub.

Claim.—I do not claim the employment of a single spindle passing through the disk and operating lever.

But what I do claim as new, and my own invention, is the compound spindle D E, composed of the socket D and the spindle E, constructed, arranged, and operating substantially as hereinbefore set forth, for diminishing the amplitude of the vertical movement required in lifting in and removing the rubber, and preventing the binding incident to the said operations when a single spindle is used.

No. 11,738.—Arad Aldrich, assignor to John L. Cooper and A. Aldrich.—*Machine for Cutting Irregular Forms.*—Patented September 26, 1854.

Two expanding cutters A A are made to revolve on a shaft turned by pulleys D D. The work to be cut is suspended in a sliding-frame E, having pattern slots on its two sides, which guide the expanding cutters as the frame is moved across between the supporting posts H.

No. 11,739.—D. W. Gitchell, assignor to John C. Wagstaff.—*Improvement in the method of Uniting Bats in the Process of Manufacturing Seamless Felt Garments.*—Patented September 26, 1854.

This invention consists in temporarily uniting the surfaces or edges of woollen and other bats in the manufacture of felt garments, with glue,

or other equivalent cementing substance, preparatory to the final union by the felting process.

Claim.—The use of glue, or other equivalent cementing substances, substantially as specified, as a means of holding together the surfaces until they can be thoroughly united by the felting process, as described. No illustration.

No. 11,740.—Wm. P. McConnell.—*Improvement in Process of Making Illuminating Gas from Wood.*—Patented September 26, 1854.

The improvement consists in subjecting the gaseous products of the destructive distillation of resinous woods to a high degree of heat after they leave the retort. It is alleged that this process leaves no tar unconverted into gas, and promotes the condensation of the pyroligneous acid, thus affording a cheaper and better illuminating gas than could be obtained otherwise.

The process is exemplified by a receiver A enclosed within a receiver B, and the whole set in masonry. The space *e e*, between the two, serving as a flue for the gases generated in A to be exposed on their way, g^1 *h e*, towards *d*, to a degree of heat higher than that necessary to effect the decomposition of wood.

Claim. –The claim is restricted to the improvement herein described in making gas from wood.

No. 11,741.—Abner Chapman.—*Improvement in Paddle-Wheels.*—Patented October 3, 1854.

The claim allowed in this application covers a paddle-wheel composed of a double series of segments carried in opposite directions, and so arranged as to form continuous wave-lines, when this is combined with the unbroken open space between said series.

No. 11,742.—Charles M. Cresson.—*Improvements in the Form of Gas Retorts.*—Patented October 3, 1854.

The improvement consists in constructing the exterior walls of retorts of a number of longitudinal cells extending from end to end, or nearly so, made perfectly air-tight, and connected with each other, or with the central cell, in such manner that any gas contained or generated in either of them may be made to permeate all the other cells, either in succession or otherwise, and for any length of time necessary to obtain the most favorable results from the materials used, whether the same be mineral, vegetable, animal, or atmospherical.

Claim.—The construction and use of a gas retort with a cellular shell or exterior wall, instead of the usual solid shell; the cells being made to communicate substantially as specified, so as to form either one consecutive or several collateral series of communicating cells.

No. 11,743.—Victor Beaumont.—*Improvement in Steam-Gauge.*—Patented October 3, 1854.

The nature of this invention consists in using a flattened sphere A, figure 3, provided with a pipe B, through which the steam rushes inside the sphere, and to measure the pressure by the degree of inflation of the sphere. The sphere is fastened on a frame as indicated, figures 1 and 2 in C, by one of its depressed poles; the other pole plays by the action of the steam, and this play, properly measured, indicates the pressure of the fluid introduced into the instrument.

Claim.—I do not claim the elastic metallic disk, or combination of several of them, as I have learned lately it has already been used. But what I do claim is the peculiar variety of the shape of the so-called flattened spheres, consisting in conical surfaces combined together so that when the pressure is extending the one, it is compressing the other.

No. 11,744.—Thomas Batchelder.—*Machine for Manufacturing Frames for Wood-Saws.*—Patented October 3, 1854.

Claim.—"The arrangement and combination of a number of rotary chamfering cutters *m n*. the bridge-rest P, the side-rests or guides R Q, the back and fore stops Y Z, for the purpose of enabling a person to give each edge of a bar a tapering chamber of a determinate length and form." The piece T^1 is secured in a frame E, and passed over revolving cutters *m n*. The two spring-guides U V press ng it against the guides Q R; thus the curved faces and chamferings are formed. The round parts are formed by submitting it to an ordinary cutter at *e f*, and the circular saws M N form the tenons of the straining bar, the mortises for receiving which in the two side-pieces are formed by a revolving bar O.

No. 11,745.—P. S. Devlan.—*Improvement in Revolving Brick-Presses.*—Patented October 3, 1854.

This belongs to a description of brick-press in which the moulds are contained in a revolving wheel, each mould having its appropriate plunger; each mould *f* being filled from the hopper I. The clay receives a toggle-joint pressure from plunger G, which is actuated by a crank *c*, attached to an eccentric pin *b* on the stationary journal D, around which the mould-wheel revolves. The cam H is so shaped and placed as to thrust forward the follower *g* exactly as the plunger *e* retreats, so as to withdraw the brick from the mould under continuous pressure, and the cam K serves to draw the follower *g* into the mould again, leaving the brick upon the arm C, whence it is pushed off upon a belt or table by the arm J.

Claim.—The above described manner of actuating a number of plungers G G, to wit: by the cranks *c c* attached to the eccentric pin *b* upon the stationary journal or axis D, by which I am enabled to adapt the well known toggle-joint pressure, in a simple and yet effective manner, to a number of moulds in a revolving brick-press.

No. 11,746.—Richard Deering.—*Improvement in Machinery for Cutting and Dressing Stone.*—Patented October 3, 1854.

In the annexed figure the cutters are represented, which are revolving disks of sheet-metal, hung on the shaft C, and firmly secured by the hub *d*. The disks are formed of the sectors *g*, for the purpose set forth in the claim.

Claim.—Constructing a circular stone-saw of sectors of a circle, cut out of rolled or sheet metal, in such manner and in order that the fibre of the metal may be made to run radially through the centre, or thereabouts, of each sector, and thus present an end fibre cutting-edge all around its periphery, substantially as specified.

No. 11,747.—Stephen J. Gold.—*Improvement in Warming Houses by Steam.*—Patented October 3, 1854.

This arrangement is designed to render the heat radiated from steam, which may be generated in a boiler by the fire used in the kitchen-range, applicable to warm the apartments of the house, and is to a great extent self-acting after the fire is applied, rendering a special care of it unnecessary. The condensed water is returned to the boiler direct; the pressure of the steam on the water in the return-pipe being counterbalanced by atmospheric air admitted at the orifice R, which is always open. The mode of constructing the surface condenser renders the steam-space tight, allowance being made for expansion and contraction in the corrugations, by riveting the plates in the way claimed.

No. 11,748.—R. L. Hawes.—*Improvement in Machines for Drying Woollen Goods.*—Patented October 3, 1854.

Claim.—The combination of the steam-cylinder A, with the hoops of tenter-hooks B B, when said hooks, after being adjusted to any desired width of cloth on the cylinder, shall move with and have no motion independent of said cylinder, as described.

No. 11,749.—Thomas J. Harris, Jr.—*Improvement in Buttons.*—Patented October 3, 1854.

This invention consists in making the eye of the button in two or more parts, one part being connected by a joint capable of opening inwards, and kept to its place by a spring, as seen at *b a* D, the other part being firmly and unyieldingly attached to the button-plate. The ends of these parts of the eye, which meet, are so formed that the movable parts shall be pressed outwardly against the stationary part, the joint where the two parts meet presenting an entirely smooth surface around the eye.

Claim.—The new manufacture of button herein described, viz: a button having an eye capable of being conveniently opened and closed, in the manner and for the purposes herein set forth.

No. 11,750.—John Kimbel.—*Dumping-Car.*—Patented October 3, 1854.

The nature of this invention consists in supporting a single body by a bearer *c c*, depending from the same and resting on opposite faces of double inclined planes A A, as described, so that the load may be discharged on either side at pleasure, and the bed returned to a horizontal position without the aid of windlass, chains, or other mechanical devices.

No. 11,751.—James Y. Leslie.—*Improvement in Knitting-Looms.*—Patented October 3, 1854.

A description of the construction of this machine would occupy too much room in the Report.

Claim.—The combination of the lifting-pins with the teeth provided with grooves for receiving the lifting-pins, that the range of loops may be pushed over the pins, and with hooks to hold the crimped thread, whilst the range of loops are lifted up and discharged over the said hooks; the said lifting-pins and teeth being constructed and operated for the purpose specified.

Also, the bar termed the presser, operated as specified, in combination with the range of teeth and lifting-pins, as specified, and for the purpose of forcing the range of loops over the said lifting-pins after they have been let down into the grooves, as specified.

Also, in combination with the hooked-teeth and the lifting-pins, the discharging bar, for discharging the range of loops from the lifting-pins after they have been lifted up over the hooks.

Also, in combination with the hooked-teeth, the employment of the thread-layers, having a motion downwards and forwards, for the purpose of crimping the thread between the teeth and forcing it under the hooks by one and the same motion.

Also, the employment of movable and adjustable stops, in combination with the thread-carriers, for the purpose of determining the width of fabric to be knitted, and narrowing and widening the same, as specified.

No. 11,752.—Jacob I. Lownds.—*Improved Pen and Pencil Case.*—Patented October 3, 1854.

The peculiar construction consists in an arrangement of the pen and pencil tubes and slides, by which the case is made to contain both pen and pencil, and the use of either allowed separately, without interfering with each other, and at the same time allowing the case to be extended or lengthened when in use, and shortened and rendered portable when not in use.

Claim.—The special arrangement of the slotted-tubes *a* B E, and pencil-tubes C, and pen-holder F, as shown in the drawings; the tubes B C having enlarged or expanded ends, and the tube E and pen-holder F having contracted ends, for the purpose of causing the tubes, pen-holder, and pencil-slide to work snugly, and without unnecessary play or looseness.

No. 11,753.—Francis H. Smith.—*Improvements in Brick-Machines.*—Patented October 3, 1854.

The general character of this machine is sufficiently shown in the drawings, and the special improvements consist—

1st. In the use of a pulverizer, a triangular or other bar of similar shape, *i*, upon the shaft G, and beneath the crusher B in the hopper E.

2d. In the use of a conical plug of wood *b*, which is set into the iron hub raised from the mould-bed M of the pug-mill, and into which the bottom *e* of the shaft J is stepped—said hub and shaft being enclosed as shown, in the stem *c* of the screw D, which is thus permitted to sweep close to the openings in the mould-bed M, while the interposition of the wooden-plug *b* prevents the iron steps of the shaft and the iron hub from grinding upon and wearing away each other, which would inevitably be the case, if, with the sand and water between them, they were allowed to act upon each other; and,

3d. In the construction of the mould-frame with a single removable bottom-plate k^1 between the flanges *m m*.

Claim.—The flat, square, or triangular bar *i*, for pulverizing the clay, substantially as described.

Also, I claim, in contradistinction from a metallic step, a step composed of wood and iron combined, substantially as, and for the purpose, above set forth and described.

Also, I claim the open portable mould-frame with a projecting flange *m*, said mould resting on a single detached plate k^1 for a bottom, and so that when the mould is thrown on the floor, the brick does not at the same time come in contact with the ground, because the flanges interfere, the concussion being just sufficient to give it a start, when it slips easily afterwards from the mould, substantially as described.

No. 11,754.—Wm. H. Robertson.—*Improvements in Stone-Cutting Machines.*—Patented October 3, 1854.

The general character of the machine is shown in the drawings. The chisel-carriage P is mounted on a slide O, and has attached to it an endless chain passing over wheels U and V, upon the axis of the latter of which wheels is a forked arm X, embracing a cam Y, from which a short reciprocating motion is communicated to the chisel-carriage P. The cam Y is mounted on the shaft S, a square portion of which (upon which it slides) forming also a motive-shaft of the cam-roller R, which actuates the chisels. In the front of the chisel-frame is a bar *r*, suspended from the rods *t*, against which press springs *v* v^1 to hold them in a horizontal position while the chisels are in operation; said bar *r* is either straight, or of any curvature to which it is desired to adjust the chisels, and is brought down beneath them for that purpose. Between each of the chisels E is a catch-spring *q*, which serves to catch and hold any chisel in action, as occasion may require.

Claim.—I do not claim the invention of a series of cutters or chisels applied respectively to levers operated by a set of cams; but what I do claim in combination therewith, is the turning-stop or adjustment bar

r applied to the chisel-carriage, and made to operate substantially in the manner and for the purposes as specified.

I further claim, in combination with the movable frame, the chisels and the mechanism for imparting to them their up and down movements, a sliding-carriage and mechanism for imparting thereto short and reciprocating endwise or lateral movements, substantially as specified, in order that the chisels may be made to cut the stone without producing ridges between the parts, as specified.

I further claim the combination of the series of catch-springs or bars *q* with the chisel-levers Q and their carriage.

No. 11,755.—Wanton Rouse.—*Self-acting Mule.*—Patented October 3, 1854.

Claim.—Communicating rotary motion to the spindles, and governing the said motion in breaking off and winding on the yarn during the progressive stages of the building of the cops, through the agency of the double inclined table A, having either a rectilinear or circular motion, with every portion of its face moving in a plane as described, the said table transmitting motion to the shaft which drives the spindle, through any mechanical means whereby the required result may be obtained.

No. 11,756.—Andrew Rankin.—*Hat-Bodies.*—Patented October 3, 1854.

Claim.—The combination of the bowing apparatus, as described, with the picking cylinders; also the handle, having layers of silk or other material between the upper and lower perforated material around the edges, as described; also, the employment of the transparent cone for setting up and stopping off hat-bodies, as specified.

No. 11,757.—Silas S. Putnam.—*Improvement in Curtain Fixtures.*—Patented October 3, 1854.

This device consists of the brackets as represented in the figures. The weight of the curtain and the curtain-roller acting on the brackets, tend to force the spur H into the wood or slide of the groove in the window casing, and at the same time to keep the upper end of the arm F of the bracket in contact with the front side of the groove.

Claim.—My improved self-fastening curtain-roller bracket, as made with a spur or its equivalent projected from below the axis of the curtain-roller, in combination with a rest or arm extending above the same, and so that said spur and arm may be applied to the opposite sides of a sash-groove, and be made to hold the curtain-roller in place, substantially as specified.

No. 11,758.—Samuel Peck.—*Improvement in the Manufacture of Daguerreotype Cases.*—Patented October 3, 1854.

The boxes are made of a composition of shellac and saw-dust, or fibrous material, with a suitable coloring matter, passed between hot rollers, and when plastic, pressed into moulds.

Claim.—Covering the surfaces of the composition with thin plates of burnished metal or paper, previous to its being pressed in the die. The coating thus made gives the advantage of surfaces to paste the linings to, and also a very neat metallic ornament at a small additional cost.

No. 11,759.—William Palmer.—*Improvement in Apparatus for Starting Railroad Cars.*—Patented October 3, 1854.

Claim.—The apparatus for starting cars herein set forth, consisting of the ratchet-wheels C attached to the car-wheels, acted upon by the spring-pawls *i h*, situated within the slotted bars *c d*, which are connected by suitable frame-work with the draw-bar *f;* the whole being so arranged that on starting, the traction of the said draught-bar shall be directly upon the top part of the wheels, until the pawls are thrown out of gear; and on stopping the car the draught-bar shall be pushed back, thereby setting the pawls for starting again, substantially as described.

No. 11,760.—Zach. M. Paul.—*Improvement in Brick-Machines.*—Patented October 3, 1854.

The general character of this machine is sufficiently shown in the drawing, and the improvements consist—

1st. In so arranging the two mould-wheels A and A^1 together, that each block *a* (to which an increased convexity is given, so that its rolling pressure will be equivalent to the direct pressure of a plane surface) of one wheel shall coincide with a mould *b* of the other wheel; and,

2d. In ejecting the bricks from the mould *b*, upon the belts D, by the *concussion* (instead of gradual pressure) of an arm *l*, or the frame *k*, upon the stubs *e* of the platens *d*, said frame *k* being raised between each stroke by the notches *m* on the mould-wheels.

Claim.—The above described construction and arrangement of the two mould cylinders A A, which work in close connexion one with the other, to wit: Forming the intervening blocks *a*, between the moulds *b*, of quicker convexity than is due to the circle which would circumscribe them, and so arranging the said blocks and moulds of the two cylinders that they alternately mesh one into the other, whereby the outer face of the brick will be less straight, and the brick be hard pressed in the mould of either cylinder alternately in continuous succession, substantially as specified.

Also, I claim ejecting the brick from the mould *b*, by percussion or sudden jerk applied to the platen *d*, by means of a releasing-frame *k*, arranged and operating substantially as specified.

No. 11,761.—Spencer Moore.—*Improvement in the Feeding-Hoppers of Threshers and Separators of Grain.*—Patented October 3, 1854.

The improvement and claim is confined to the employment or use of flap or swing-blind G, guard-board H, and shoulder *x*, arranged in the manner and for the purposes described.

The manner of arrangement of the parts claimed is clearly shown in the drawing. The purpose alleged is to prevent the dust and grain from passing upward in the face of the operator, the blind G carrying the dust, and board H causing the grain to pass through the machine.

The cylinder, concave, and all other parts of the machine, are disclaimed.

No. 11,762.—John Mabie.—*Improved Pen and Pencil Case.*—Patented October 3, 1854.

The nature of the invention consists in the arrangement for operating the pencil-slide by means of two tubes, having spiral grooves or slots cut in them in reverse directions, the tubes being placed one over the other, the inner tube stationary and the outer tube movable.

Operation.—The pen-slide C is shoved out and in the case by the rims on band D, as usual, and the pencil-slide E is forced out from or drawn within the case, by turning the upper portions G H of the case, which are connected to the tube F. The tube F, as it is turned, forcing the pin *e* along the spiral slot *c*, in the upper part of the stationary tube B, and either up or down according to the direction in which the tube F is turned.

No. 11,763.—William C. McRea.—*Improvement in Railroad Draw-Bridge and Switch Telegraph.*—Patented October 3, 1854.

Without giving a minute description of this invention, which would occupy too much room for this Report, it will be sufficient for an understanding of its general features to give its nature and operation in connexion with the accompanying drawing.

The nature of the invention consists in the arrangement of a galvanic circuit, in such manner that the engineer, conductor, or passengers of a train of railroad cars may, upon the approach of the train to a draw-bridge or switch, be advised of the position of the draw-bridge or switch in time to prevent danger in case the bridge or switch are so placed that the train cannot with safety pass; the method employed being to connect one pole of a galvanic battery, by a wire, with a portion of the railroad track which is insulated, by breaking the continuity of the rails, and supporting the same between the break on some non-conducting substance, while the wire from the other pole connects with the ground, the connexion of the main wire being kept up and broken by the closing and opening of the bridge. The signal is given by the completion of the circuit by the passing of wheels, connected with an electro-magnet on the car, over the insulated portion of the track. The operation is as follows:

During the running of the train the arm *t*, of the shaft *s*, rests on the armature I of the electro-magnet; and supposing the train to be moving towards the bridge, as soon as the wheel *p* rests on the insulated section of the rail *f*, the circuit will be completed, because of the connexion between the insulated rail and the other portion of the track through the wheels *p p*^{1} and the electro-magnet E, and the armature I will be drawn to the magnet. This moving of the armature I to the magnet releases the hammer *q*, which, by the action of the spring F, violently strikes the bell R, and gives the signal that the draw is closed, and the passage therefore safe. Should the draw be open when the train approaches, the connexion of the main wire will be broken, as the plates *c d* and *c*^{1} *d*^{1} will not be in contact. The wheels *p p*^{1} passing over the rail *f*, cannot, therefore, complete a circuit; consequently the movement of the armature I cannot take place and the bell will remain mute, by which all on the train may know that the draw is open.

Claim.—The giving of a signal on a car or locomotive by the arrangement of an electro-magnet upon said car or locomotive, in such manner as to constitute part of a galvanic circuit, when the wheels of the car or locomotive touch an insulated portion of the track while the train is in motion, thereby causing the electro-magnet to be acted upon by a distant battery, for giving said signal, substantially as and for the purposes set forth.

Also, I claim attaching the wires of a galvanic circuit, at railroad draw-bridges or switches, in such a manner that the opening of the draw, or changing of the switch, may separate a part of the wire of said circuit, and closing the draw or replacing the switch, shall again complete the connexion of that part of the wire which was so separated, when used in connexion with the before specified arrangement for signalizing on the car or locomotive, when in motion, the completion of the circuit, substantially as and for the purposes set forth.

No. 11,764.—Benjamin B. Webster.—*Improvement in Mosquito-Curtains.*—Patented October 3, 1854.

In the drawing, A represents a window-frame, provided with two sashes B C. D is the curtain-roller, arranged across the lower girt of the window-frame, and below the lower sash, and supported in bearings seen at E F, in the figure. There is rolled around and attached to this roller a lace, open, or other suitable curtain G, one end of which is affixed to the rollers, while the other end is fastened directly to the lower bar of the lower sash, or, what is better, to a movable bar H, so attached to the sash as to admit its being easily removed therefrom, or affixed thereto, as occasion may require. The curtain-roller is provided with a coiling winding-up spring *a*, applied to one end of a box or case *c*. When the sash of the window is raised, it will elevate and unwind the mosquito-curtain, so as to cover the open space of the window in such manner as not only to allow air to circulate through the same, but to prevent the ingress of mosquitos or other insects.

Claim.—I do not claim the combining a mosquito-curtain with a window; but what I do claim is, to so combine it therewith, that it may be attached to the sash of the window, and a roller applied to the window-frame, and be operated by said sash, and so as to close the opening produced by the raising of said sash, substantially as above set forth, the said curtain being wound upon the roller by the action of a spring, or its equivalent, when the sash is in the act of being closed.

No. 11,765.—Ervin B. Tripp.—*Improved Printing-Press.*—Patented October 3, 1854.

This is an arrangement for feeding sheets of paper to the form to be printed, and removing them therefrom after being printed, and also for a device to ink the form. The paper is placed on the table D^1, and is fed into the press by the vibrating-roller N, and nipper-bar T, and guides U U, which are governed in movement by the reciprocating tympan G^1; after being printed, it is delivered on to the fly-board E. The inking is done by the rollers *v*^{1} *v*^{1}, fed from the ink-fountain W, by rollers *v w x*, on which the ink is spread by oblique rollers *a*^{1} *a*^{1}, on an endless board Y. Figure 2, in the drawings, is a top view, the tympan being drawn forward.

No. 11,766.—R. A. Tilghman.—*Improvement in Processes for Purifying Fatty Bodies.*—Patented October 3, 1854. Patented in England January 9, 1854.

The discovery consists in the fact that fatty or oily bodies of animal or vegetable origin, containing glycerine as their base, if mixed with from a third to a half their bulk of water, and heated, thus mixed, to the melting-point of lead, in a clear vessel, will give as product free fat acids, and a solution of glycerine.

To arrive at a practical result, the fatty body, reduced to a fluid state, may be placed in a vessel *a*, mixed as stated with water, and kept in rapid motion by a perforated disk-piston *b*, to form an emulsion. This emulsion is conducted into an air-tight and strong iron vessel *d d d*, by a force-pump C, and when exposed for about ten minutes to a temperature of melting lead, it is permitted to pass through cooler *h*, from whence, cooled down to about 212° Fah., it is permitted to escape into a water reservoir, furnished with a loaded valve, strong enough to prevent the escape of the mixture from the boiler *d d d* into the cooler *h*, by the mere action of heat, but yielding to the action of heat and of the force-pump C combined, so that it shall be impossible for the air to enter the boiler *d d d* during the operation. The hot mixture of fat acids and solution of glycerine escaping into the water reservoir, separates by subsidence. If the fatty bodies, before being placed in the vessel *a*, be mixed with the proper proportion of carbonated alkali in solution, and heated, as described, up to a temperature of melting tin, the product obtained will be soap—the carbonic acids escaping from the exit-valve, free. Higher temperature accelerates both processes

For a trial of the boiler, as well as for the control of the process.

sundry cavities may be filled with different metals, the fusion of which will guide the operator.

Claim.—Manufacturing of fat acids and glycerine from fatty bodies, by the action of water at a high temperature and pressure.

No. 11,767.—Joseph Thatcher.—*Improvement in Gas-Meter Movement.*—Patented October 3, 1854.

The improvement and claim consist in operating the index of gas-meters by means of the lever C, adapted to move or slide against a controlling pin or fulcrum H, or its equivalent—the measuring-wheel and index-movements being connected with the lever by means of the cranks A F, or their equivalents.

The modification of the index-gearing, the extension of sealed tube I, and the foot-index K, are disclaimed.

No. 11,768.—Joseph Welsh.—*Improvement in Moving-box Loom.*—Patented October 3, 1854.

Claim.—The application to the lay of those looms requiring or having a moving shuttle-box, of a periodically moving shuttle-stopper A, which receives its motion from any suitable part of the loom, and independently of the picker and shuttle-box, or either of them, and continues so to act as to arrest or stop the motion of the shuttle (without injury to the same or box) on its arrival within the said box, and then immediately turns or moves from the same, so as to allow a perfectly free and independent motion of the box, and also of the picker, during the working operation of the loom, as described.

No. 11,769.—John Wilcox and Stephen H. Whitridge.—*Improvement in the Construction of Needles.*—Patented October 3, 1854.

Claim.—A sewing-needle, the stem or body part of which is made of gold, and the point of iridium, the two metals being reduced and united, as described.

No. 11,770.—John E. Grant, assignor to Cyrus Carpenter and A. D. Shaw.—*Improvement in Stoves.*—Patented October 3, 1854.

The peculiar devices here used in combination are intended to secure a more thorough combination of the fuel than is done in a simple fire-chamber.

Claim.—The deflecting-plate E, with its saddle-flange *h*, when interposed in the combustion-chamber between the products of combustion and exit-pipes, in the manner and for the purpose herein described.

No. 11,771.—Levi Van Horsen, assignor to New Haven Iron Railing Company.—*Improvement in Piano-Forte Stools.*—Patented October 3, 1854.

This stool, in general appearance, resembles those in common use. It is constructed with a double-acting dog or pawl *c*, (as seen in the figure,) so as to act upon the rack E E¹, on the grooved tubular section, by means of projections or swells *b b*¹ on the bar or rod F, which works within for that purpose. A lever G is connected with a spring *g* and the bar F, so that the spring will cause this lever, by means of the bar, to compel the double-acting dog *c* to hold the parts firmly at any elevation that may be desired; while this lever may, by hand, be made to unlock the dog from the rack, and allow the seat to be elevated or depressed at pleasure. A spiral spring is also placed in the lower part of the pedestal, or body of the frame, so as to render the seat an easy one.

Claim.—The combination of the part E E¹ (with its serrated or notched edges) with the double-acting dog *c*, when the dog is operated by the bar F, and the whole constructed, arranged, and combined substantially in the manner as herein described.

No. 11,772.—Charles P. Bailey.—*Improvement in Railroad-Car Seats.*—Patented October 10, 1854.

This invention consists in so hanging the back, seat, and feet-rests of a car-seat, that the back may be reversed, and the seat and feet-rests swing both ways of a vertical line drawn through its centre, so as to make it equally applicable as a seat without regard to which end of the car goes foremost. A represents the supports of the seat, permanently attached to the car. To these supports at 1 1 are pivoted the bars B B. The bars B are connected at their tops, respectively at each end of the seat, by a rail C, which may serve as an arm-support, said rail being connected thereto by pins 2 2 so as to make a free joint. The bars and rails thus connected admit of the free swinging of said bars, but always with a parallel motion, so that the foot-piece not in immediate use is drawn under the seat and out of the way. The seat D is pivoted to the bars B at 3, both front and rear; the fulcra of the bars being at 1, keeps the seat and arm-rests parallel to each other, as one moves forward and the other back, and are always in a horizontal plane, as they should be to make the seat perfect, and prevent the occupant from slipping down.

Claim.—Having thus fully described the nature of my invention, I would state that I do not claim an easy-chair having a self-adapting position to the incumbent, as this has been done before. But what I do claim, is the so bringing together of the back, seat, and feet-rests of a car-seat, that the back may be removed, and the seat and feet-rest swing both ways of a vertical line drawn through their centres, for the purpose of forming a self-adjusting seat, applicable alike to the car, whichever end may go foremost, substantially as set forth.

No. 11,773.—Leander W. Boynton.—*Improvement in Machinery for Making Hat-Bodies.*—Patented October 10, 1854.

In the drawing, F is a horizontal cylindrical tube of the same diameter as the basis of the hollow perforated cones G, which are placed on the cylinder F, as seen in the drawing. The tube F is sustained on a shaft I, which rests in a bearing *h*, in which it is revolved, in part, to give a vibratory motion to the tube F, to vibrate the cones G and G. On the shaft I is placed a pulley K with a hollow shaft *i*, on which is a pinion *j* which gears into the spur-wheel L, which, by means of the crank-pin or stud *k* and the slotted-bar M, vibrates the cones above the pinion *j*. On the same shaft is a bevel-gear wheel *n*, which works in the two wheels N and N to revolve the cones G and G, so as to present all parts of their surfaces equally to the apertures H and H. On the rear side of the tube F there is an inflexible bar *o*, which, by means of the vibrating slotted-bar *p*, the bar *q*, and the plates *r r*, vary the position of the apertures H H, so that the fur will be blown at all times on the middle of each of the cones, and a part of the time extending alternately to the ends, so as to make the middle part of the hat-body thickest. The plates *r* and *r* are adjustable by means of the holes at *s s*, so that the apertures H and H may be increased or diminished at pleasure.

Claim.—The method of using the cones G, by means of giving them a rotary and a vibrating motion, in such a manner as to bring every part of the outer surface of each cone into such a position, that each part may receive its due proportion of stock to form a hat-body, when constructed and made to operate as described.

Also, the method of varying the direction of the apertures H H, by the vibratory motion of the cones, when constructed to produce the effect in the manner substantially as described.

No. 11,774.—John A. Bradshaw.—*Shingle Machine.*—Patented October 10, 1854.

Claim.—Shaving shingles by causing them to be fed, by feed-rollers F, between two revolving disks D E, having volute threads cut thereon, and armed with suitable cutters K, one of said disks being self-adjustable to varying thicknesses, substantially as described.

The volute faces, in revolving, carry the piece forward and laterally against a straight fixed guide-bar M, and the planing-irons K smooth it as it passes through.

No. 11,775.—Jesse Carpenter.—*Improvement in Spinning Rope and Cordage.*—Patented October 10, 1854.

Claim.—The elevation of the spool S above the flyer-shafts *d d*^{1}, so as to occupy the space between the flyer and the ball, whereby the heads of the flyer can be shortened, and a greater velocity obtained for the revolution of the flyer, thus increasing the speed of spinning by Whipple's process; and the regulation of the revolution of the spool S, by means of the friction-wheel O, whereby the yarn, whose draught and twist are governed by the capstan *n*, is wound up as fast as it is delivered, with less tension and less liability to break.

No. 11,776.—S. D. Carpenter.—*Rotary Pump.*—Patented October 10, 1854.

Through a fixed semi-spherical shell S^2 passes shaft V, obliquely to the axis of this shell. On this shaft a circular diaphragm D, convex towards water-chamber, fixed at right angles to the shaft, fits closely the shell. A semi-circular vane A, pivoted at *w* in the shaft, works in a slot through the shaft and diaphragm. A flat cap-piece B is secured fast to the face of the shell at *p*^{1} *p*^{1}. As the shaft is revolved, the straight edge A^2 of this fan-shaped vane bears against the plane surface of the cap-piece B, fitting closely thereto, thus forming a partial vacuum behind it, in the plano-convexo-zonical water-chamber. The ingress and egress apertures E F are pierced, one below and the other above the portion D, and at that line of the chamber where the straight edge A^2 of the vane or valve becomes a common tangent to the convex diaphragm and the face of the cap-piece.

Claim.—The claims cover this peculiar construction.

No. 11,777.—Samuel Carpenter.—*Improved Machine for Turning Hubs and Tool Handles, &c.*—Patented October 10, 1854.

The peculiarity of this invention is, giving a rotary motion to the stuff to be turned and bored, by having it fed to the cutters through the centre of a pulley driven by a band, and the device for operating the cutters, &c. The stuff D^1 is made square, so as to pass through the square hole in the axis *b* of the pulley D. The screw-rod G gives the feed-motion, and is rotated by the belt *c*^{1}. The stationary cutter R roughs off the corners of the work, and the requisite form is given by the cutters O Q and auger S, and the finished work is cut off by the agency of the arm *r* attached to the upright *q*.

No. 11,778.—John D. Dale.—*Cutter-Heads for Planing-Machines.*—Patented October 10, 1854.

Claim.—The combination and arrangement of the screw-hubs E E^1, (with the heads A^1 A,) capable of adjustment by hand, so that knives of any desired length may be inserted and clamped, &c., to suit different widths of mouldings, &c.

No. 11,779.—Edwin G. Dunham.—*Improvement in Stone or Rock Drills.*—Patented October 10, 1854.

The operation of this machine is as follows: motion is communicated to the driving or double crank-shaft *l*, from which it is communicated

to the lifter-shaft K through the small pinion *m* and spur *n*; the spur also causing the small pinion *k* to revolve, and consequently the worm and its wheel.

As the lifter-shaft revolves, each of its arms comes in contact with the friction-plate I, and, in endeavoring to escape by it, inclines it slightly and causes it to bite very rigidly upon the bar G, as the lifter F raises the plate and bar together; and simultaneously with the raising of the bar, the worm *k* and its wheel turns it. After the bar is raised its full height, and the lever escapes from under the plate I, the hold of said plate is released, and it assumes nearly a horizontal position, and it and the bar descend together. To raise the bar out of the hole entirely, the spring L must be moved out of contact with the friction-plate I, so as to allow of the plate descending freely by its own gravity, independently of the drill-bar. When the lifter escapes from under it, the second friction-plate J must be moved to the position shown in figure 3, and held at an inclination by the bracket-shaped catch *f*; this plate being properly arranged, the lifter is turned as before, and the first friction plate I will raise the drill-bar gradually out of the hole, the small plate J retaining it elevated until it is drawn entirely up; after this the plate is moved down to position figure 2, and made to serve for raising the bar.

Claim.—So arranging a horizontal plate on the drill-rod, that by bringing the lifter in contact with it in the manner described, it will be caused to incline slightly during the raising of the drill-bar, and consequently to bite or impinge upon said bar, and hold it firmly until it is raised to the position desired, and then, as the lifter escapes, again assume nearly a horizontal position, quit its hold, and fall with the drill, substantially as, and for the purpose, set forth.

Also, rendering the friction plate for raising and dropping the drill-bar, capable of removing said bar entirely out of the holes, which are drilled by employing in connection with it the friction plate J, which is set inclined and made to hold the bar, as it is gradually raised, in the manner substantially as herein described.

Also, the plate J, when set inclined sufficiently to hold the drill while it is being raised out of the holes that are drilled, whether it be used in connection with the friction plate I, or other arrangements in use for raising the drill-bar.

Also, increasing the friction of the plate I upon the drill-bar, and accelerating the descent and blow of the drill-bar by means of a spring, arranged in the manner described.

No. 11,780.—Augustus Eckert.—*Improvement in Magnetic Alarm Bells.*—Patented October 10, 1854.

This machine was designed more particularly to be used for telegraphing signals on railways. The bell-hammer is operated by a train of mechanism regulated by a fly in the manner of the common striking train of a clock. The contrivance for unlocking the train by means of the electric current is as follows: Upon the axis of the fly is an endless screw H, engaging a toothed wheel I, which carries upon its axis several radial arms 12.

The train in motion causes the wheel I to revolve until the extremity of one of the arms 12 is arrested by a detent 14, when I becomes immovable, and the further revolution of the screw H causes its axis to move endwise in its bearings, until the revolving disk G, fixed upon it, comes in contact with fixed studs L L, by the friction of which the motion of the train is arrested. The detent 14 has its bearings in fixed brackets 15, and is in one piece with the arm 13, the extremity of which is held down by a detent W, having its bearings in the pillars Y above. On W is fixed a soft iron armature E, which, on the passage of the electric current, is attracted by the electro-magnet T T', and causes 13 to be released from W. When this takes place, a spring 19, pressing upon the extremity of the axis of H, forces it back, and with it the wheel I and radial arm 12, causing the detent 14 to tilt until 12 passes over it: and the disk G being then separated from the friction studs, the train resumes its motion until again arrested in the manner above described.

No. 11,781.—Thaddeus Fowler.—*Improved Sewing-Pin.*—Patented October 10, 1854.

This invention consists in the construction of an emery ball, with a metal rim and back, the rim having a short pin firmly attached to it, and the back also being provided with a pin for the purpose of attaching it to the dress of the person using it, or to the cloth upon a table. A thumb-screw may be attached to this pin for the purpose of fastening it to the edge of the table or work-stand.

Claim.—As a new article of manufacture, the emery ball, with the pin-point fixed in its metallic rim, and provided with the hinged pin and hook, by which it is attached to the dress of the user, or to a table-cloth, for the purpose above set forth and described.

No. 11,782.—Louis A. Gossin.—*Improvement in the Construction of Sugar-making Apparatus.*—Patented October 10, 1854.

The apparatus consists of a large rectangular range of open evaporating pans, 1 2 3 4, exposed underneath to the naked fire. On each side of the same range, and exposed to the same fire, is a steam cylinder or pipe L filled with water to supply the coils of steam-pipe in the pans, of which the pipes in 1 2 3 4 are illustrations of the different modifications, to aid the fire-flues in heating the syrup. Over the surface of each pan is arranged an endless belt of skimmers B B, which discharge the scum into a hopper-formed basin H K I, whence it passes back into the pans. There is also a discharge-cock R for the finished syrup, having a water-space around it to protect the syrup left on the sides thereof from burning while running off the charge.

Claim.—1st. The arrangement of the boilers L L for generating steam, the pans 1 2 3 4 for evaporating the juice, and the furnace, whereby a single furnace is made to supply the heat for both the generation of steam and the boiling of sugar, through the contact of the naked flame with the bottom of the pan.

2d. The combination of the skimmer, consisting of a series of scoops

B, inclined aprons H and K, and conduit I, operating as described, with the evaporating pan, substantially as specified.

3d. (Disclaiming a water-jacket or its application to any other purpose than the pipes of sugar-pans.) The combination with the discharge-tube R of the sugar-syrup pan 4 of a jacket communicating at either side with, and forming a part of the feed-pipe of the steam-boiler, whereby a stream of water is kept constantly flowing through the jacket, to protect the syrup adhering to the sides of the pipe from being discolored by burning, as described.

No. 11,783.—Benjamin F. Gossin.—*Improvement in Machines for making Railroad Chairs.*—Patented October 10, 1854.

The peculiar features of this machine are devices for cutting and turning the lips of chairs, so that they will properly fit around the lower flanges of the rails. These improvements will be best understood from the claims themselves, reference being had to the figures illustrative of them.

Claim.—1st. The combination of the semi-circular wheels *m m*, pillow-blocks *h h*, rods 13 and 14, levers 22, and rod 15, for giving motion to the crank-shafts and throwing in and out of gear.

2d. The combination of the two crank-shafts B B, the cutters 10 10 attached to the said cranks, the frames 9 9, and the cutters 11 11 attached to the said frame, for cutting the lips from the blanks and turning the same around the mandrel.

3d. The tapering of the two sets of cutters 10 and 11, so that the cutters will fall freely from the chain after being completed.

4th. The adjustable sliding-piece *s*, to which the cutters 11 11 are attached by means of bolts, &c., the piece *s* being held in its place by the key *k*, and made so as to adjust the cutter to different thicknesses of iron.

5th. The table *f f* on which the blank-chain is laid, between the two sets of cutters 10 and 11, the upper surface of said table extending up flush with the upper surface of the shaft-cutters, and attached to the frame of the machine.

No. 11,784.—John W. Griffith.—*Improvement in the Construction of Ships.*—Patented October 10, 1854.

As indicated by the *claims*, the improvement consists in the method of increasing the strength of ships by vertical plates of iron *b b* extending up vertically from the keelson *a* to one or more decks, and secured to the keelson and deck, and extending the whole length of the ship; and in giving additional strength to ships by means of longitudinal bulk-heads *h h* of plate-iron interposed between the centre keelson and the sides of the ship, and extending from the side timbers to the deck, and secured to them, whether made water-tight or lattice-work.

No. 11,785.—Robert Grant.—*Improvement in Brakes for Checking and Starting Cars.*—Patented October 10, 1854.

This invention consists in the application of a torsional spring-clutch acting upon the wheels of railroad cars, and resisting their advance when desired, in such a manner that the compression of said spring may be employed as a starting force whenever the cars are to be put in motion again.

Claim.—The application and employment of a spring, spiral or other convenient form, in combination with the axle or wheel, or other running-gear of railroad cars or other vehicles, constructed and operating substantially as hereinbefore described, and for the purpose of stopping and starting, or either, a car or vehicle, as hereinbefore mentioned.

Also, the apparatus for winding up or compressing said spring, and causing it to act upon the axle or wheels by means of the fast and revolving clutches with their connections and escapements, substantially as described.

Also, the employment and application of sectional tubes or washers on the axle or shaft, when used in the said combination, for the purpose of preventing the spring from binding, and to enable the same to be easily and fully compressed.

No. 11,786.—Eben N. Horsford.—*Improvement in Compounds for Neutralizing Chlorine.*—Patented October 30, 1854.

The discovery consists in a preparation of sulphurous acid, cheap, transportable, odorless, hardly soluble in water, and in the presence of bleaching-salt strongly reacting. To obtain the preparation, milk of lime is saturated with sulphurous acid, employing a surface of three and a half feet by two feet of burning sulphur for a ton of lime. The water is then drained off and the remainder dried and stored away for use. The preparation when used has to be stirred up with water in small quantities, until the presence of chlorine is no more perceptible by the usual tests.

Claim.—The process of neutralizing chlorine by means of the substance herein described and called anti-chloride of lime.

No illustration.

No. 11,787.—Simon Ingersoll.—*Improvement in Pawl Drills.*—Patented October 10, 1854.

Claim.—The centre-piece E constructed with two gudgeons or pivots, or their equivalents, for the wheel G G to turn upon, and to form or support the fulcra of the lever J by which the drill is operated.

No. 11,788.—John Jack.—*Improvements in Saw-Gummers.*—Patented October 10, 1854.

Claim.—The arrangements of the parts of the machine, as hereinbefore set forth, in combination with a short die-lever D, bearing a fric-

tion-roller E, and another hand-lever G to manœuvre an eccentric F, working on said friction-roller, as a means for working a hand-machine for gumming saws.

No. 11,789.—Lyman Jennings.—*Improvement in Cans for holding Liquids.*—Patented October 10, 1854.

Claim.—I do not claim the adaptation of a handle to this or any other form of vessel, neither do I claim making a keg for containing any liquids of wood, as this has been done before; but what I do claim as my invention, and desire to secure by letters patent as a new article for containing milk and other liquids, is the above described wooden can, having its upper head convex, and being furnished with a handle, in the manner and for the purpose set forth.

No. 11,790.—Stephen C. Mendenhall.—*Improvement in Looms.*—Patented October 10, 1854.

Claim.—Opening the shed by a pattern-wheel D, so arranged with its parts as that while its rotary motion commences the opening of the shed, it shall have a vertically yielding motion to and with the treadles, when combined with a wedge-shaped bar J, on the lay, arranged to separate the treadles, and thus complete the opening of the shed, both the pattern-wheel D and the wedge-shaped bar J being moved by the lay, substantially as described.

No. 11,791.—Elijah Morgan.—*Improvement in Cutting Shingles.*—Patented October 10, 1854.

Claim.—1st. The mechanism which feeds the head-block G with the bolt K to the saw, so that, at each passage of the carriage C C by the saw H', a shingle will be cut with its proper taper. This is effected by giving the head-block G a zig-zag movement as it advances each time to the saw, for another shingle. A zig-zag slot I, in the under side of the head-block, causes this movement by means of a fixed pin *a*; the set-screw J allows the head-block to vibrate to its different positions. Figure 1 shows it in one of such positions. The pawl N moves the head-block on the backward movement of the carriage C C into such oblique position, by striking against the fixed-stop O. Being thus obliqued, the carriage C C (by ordinary means) advances, and the tapered piece is cut and falls.

2d. A toggle-jointed dog P P on the head-block is made to clamp or unclamp the bolt K, by a pinioned lever *m*, (fig. 3,) gearing into a rack *l*; the pawl O holds it to its clamped position. The claims cover these two mechanisms.

No. 11,792.—Richard Oliver.—*Improvement in Buttons.*—Patented October 10, 1854.

In the figure, A represents the eye hinged to the back B of the button, as seen at *c*. The eye is made nearly as long as the button, the middle portion being reduced in thickness, so as to be elastic; *f* is the hole, around which is a cavity or counter-sink *b*, to facilitate the insertion of the hook *a* in the hole *f*.

Claim.—In buttons or fastenings for clothes, having one end of their eyes hinged or rigidly fasted to the button, making the eye elastic, in combination with the cavity or counter-sink, to facilitate the inserting of the other end of the eye into the hole, or its equivalent, into which it is hooked in closing the eye to fasten the button, substantially as described.

No. 11,793.—Emerson Prescott.—*Improvement in Horn and Shell Splitting Machines.*—Patented October 10, 1854.

In the figure, A denotes the metallic bed or base, having a press frame B applied over it; this frame is made to carry a press platen C, and a powerful screw D, for forcing the platen downwards towards a movable carriage E placed between the platen and bed, and caused to move longitudinally under the platen, for the purpose of carrying the horn or shell to be split. F is the splitting-knife, placed as represented in the figure.

Claim.—In combination with the movable carriage and the splitting-knife, and arranged with respect to them, as specified, is a single platen press, of power sufficient, when the shell or horn is softened or rendered expansive by heat, to reduce it to a uniform thickness on the carriage, and to preserve it in such state, preparatory to, and while it may be moved against the splitting-knife, as stated.

No. 11,794.—John P. Sherwood.—*Improved Damper for Ovens.*—Patented October 10, 1854.

This peculiar damper R, used for a flue surrounding an elevated oven, gives control over the admission of the heat to one side or the other, or to both at the same time, as may be found expedient.

Claim.—The arrangement, herein described, of the revolving damper, whereby the heat of the oven can be tempered and regulated, as herein specified.

No. 11,795.—Cornelius Speer.—*Improvements in Ginning and Cleaning Cotton.*—Patented October 10, 1854.

Claim.—The combination of the endless belt E with the roller-beater G, the said roller-beater being placed so as to work directly upon the flat or closed portion of such belt or chain, while its closed teeth hold the fibre; thus performing the whole separating process without the intervention of any other machinery than that of feeding and cleaning the machine, as described.

No. 11,796.—Henry Tongue.—*Improvement in Rotary Steam-Engines.* Patented October 17, 1854.

The improvement consists in constructing the piston B of a semi-rotary engine with sliding metallic packings *e e*, in combination with the stop C and cylinder A, substantially as set forth.

No. 11,797.—Henry Volkening.—*Polishing Machine.*—Patented October 10, 1854.

Claim.—Placing between the revolving cylinder and the sand-paper, or its equivalent, an elastic substance, for certain advantages, as set forth.

No. 11,698.—Albin Warth.—*Improvement in Turning-Lathes.*—Patented October 10, 1854.

The nature of this invention consists in having a slide-rest, with a number of suitable tools attached, which are made to operate on the material to be turned by means of levers, which follow the configuration of fixed metallic guides.

Claim.—The special claim is for the guide-levers $p\,p^2$, in combination with the opening-slides $j\,j^1$, and the guide-plates *r*.

No. 11,799.—Irvin A. Williams.—*Improvement in Locomotive Lamps.* Patented October 10, 1854.

Claim.—Constructing the can B with partition, for preventing the swash of the fluid, and insuring a steady feed to the burner.

Also, the combination of the perforated, inverted cone *b*, cap *f*, funnel *d*, and perforated tube *c*, constructed, arranged, and operating, for admitting air to the can, and preventing the slopping of oil from the vent.

Figure 5 represents a part of the apparatus on a larger scale.

No. 11,800.—Thomas B. Woodward.—*Improvements in Smut Machines.* Patented October 10, 1854.

The improvement and claim are confined to covering the apertures by which the air is discharged from the fan-case K into the side-pipes I with gauze *g*, to temper and diffuse the blast, and to prevent the grain from getting into the fan-case and being broken by the fans, and thus retarding the machine by the friction they would produce.

No. 11,801.—Edward J. Woolsey.—*Improvement in the Construction of Sugar Boilers.*—Patented October 10, 1854.

Claim.—Apparatus consisting of a centrifugal distributor E, placed within a heated pan A, or otherwise arranged relatively to heated surfaces, which are equivalent to the heated interior surface of the pan, or of the coils C contained therein, so as to throw the juice, syrup, or solution to be evaporated, in a shower, or minutely subdivided state, on the said heated surfaces, and allow it to trickle down the sides of the pan, or of the said heated surfaces, in a thinly diffused state, substantially as set forth, for the purpose of evaporating its moisture.

No. 11,802.—Samuel B. Howd, assignor to Thomas F. Davis, James S. Leach, and Richard F. Stevens.—*Improvement in Processes for the Manufacture of Salt.*—Patented October 10, 1854.

The improvement is based upon the discovery that water may be heated under pressure of steam to a sufficient extent, and the evaporation carried so far before the crystallizing of the salt, as to cause the separation or crystallization and deposite of the muriates of lime and magnesia while the salt remains in solution. The drawing exemplifies the application of the discovery. The crude brine is forced through K into the steam-chamber B of the boiler A, in order that it may become highly heated by the steam, causing rapid evaporation; and by being mixed with a portion of strong brine, which is thrown into the steam-chamber B from the boiler A below, its strength is raised sufficiently to cause the crystallizing of its impurities while the salt remains in solution—that is, before the brine has reached the point of saturation. The latter then passes through D E F, into the settling chamber placed in the lower part of the boiler A, where it is sufficiently free from the currents caused by the fire in R, to allow the impurities to deposite. The boiler A is thus supplied with pure brine, and a large portion thereof may be drawn off at J into the salting-vat L, before crystallization commences. By the rapid working of a forcing-pump, set in motion by an engine S, actuated through G, by the waste steam of chamber B, the boiler is again filled, the engine kept constantly in motion, and the escape-steam in H J completes the evaporation in the salting-vat L, which latter may be facilitated by connecting a revolving paddle M with engine S.

Claim.—1st. Mixing weak with strong brine in the steam-chamber of the boiler for the purpose described, and passing the brine thus mixed into a settling apartment connected with the lower part of the boiler, and thereby causing the separation and deposite of impurities from the brine, before it comes in contact with the fire-surface of the boiler, substantially as set forth.

2d. The method described of purifying brine, viz: by evaporating it in closed boilers to the extent stated, in combination with vats, for crystallizing the salt from the brine thus purified.

No. 11,803.—E. B. Bigelow.—*Loom for Weaving Cut-Pile Fabrics.* Patented October 17, 1854. Patented in England December 31, 1851.

A description of the nature and operation of this invention would occupy too much space in the Report.

Claim.—The method of adapting the cutting-knife r^1 to the proper position relative to the wire to be cut out, under the varying conditions

sides as described, to guide and direct the deposite of fur on the cone or former.

Claim.—The method of adapting the cutting-knife r^1 to the proper position relative to the wire to be cut out, under the varying conditions of the loom, by making the frame or carriage p, which supports the cutter-knife r^1, movable.

Also, in connexion with said movable frame or carriage p, which supports or carries the cutting-knife r^1, a guide or guides a^1, to rest against the wire to be cut out, to preserve said frame or carriage and cutting-knife in a proper position relative to said wire.

Also, connecting the cutting-knife with the reciprocating bar e^1, by means of a double-acting or compound joint (shown in fig. 6.)

Also, in combination with the reciprocating bar e^1, or its equivalent, with which the cutting-knife r^1 is connected, the employment of a guide g^2, which shall move in unison with said cutting-knife, to insure its proper position relative to the wire to be cut out.

Also, the method of preventing the wires from being drawn down on their sides by means of hooks or bars m^2, as specified. In the drawings, the wires are represented by broken lines. Fig. 1 is part of a vertical section, and fig. 2 part of a plan of the machine; figures 3, 4, 5, and 6, are on enlarged scales.

No. 11,804.—Joseph T. Barnes.—*Improvements in Power Looms.*—Patented October 17, 1854.

Claim.—Fitting the journal-boxes B, of the crank-shaft C, to slide on ways *a a* on the framing, upon which, when liberated, by reason of some obstruction in front of the reed, they are capable of being drawn back, to carry back the crank-shaft from its operative position, and prevent the further advance of the lay by springs *d*, or their equivalents.

Also, setting free the journal-boxes of the crank-shaft from the hooks or their equivalents, which hold them in proper operative position, by means of a rock-shaft E, or roller, hung in bearings in rear of the breast-beam, or otherwise conveniently placed near the front of the loom; said shaft having attached to it a bar F, which is conveniently placed for the breast-beam to pass under it, and for the shuttle, when the latter is arrested in front of the reed, to be driven against it and drive it forward, and thereby throw up two arms *g g*, which are attached to the shaft, and cause these latter arms to set free the journal-boxes of the crank-shaft, and allow them to retreat and carry back the shaft.

Also, furnishing the crank-shaft C with cams *i i*, which, when the loom is started, with the shaft thrown back, work in contact with projections *m m* on the loom-framing, and throw the shaft and its journal-boxes forward to their operative position.

No. 11,805.—Daniel Barnum.—*Improvement in Machine for Forming Hat-Bodies.*—Patented October 17, 1854.

Claim.—In combination with the picker or brush *l* and perforated cone or former *o*, the employment of currents of air at the bottom and sides as described, to guide and direct the deposite of fur on the cone or former.

Also, the employment of a form d^1, made of grass-cloth, or other flexible material, pervious to air, on which to deposite the fibres in forming the bat, and to be taken from the perforated metallic cone or former with the bat, and retained inside as an "inlayer" during the after-process of hardening.

Also, the employment of an India-rubber cap e^1, to be put on the bat of fur, to hold the fibres together in taking off the bat from the perforated cone or former, and to facilitate the hardening of the bat in the dry state, as specified.

No. 11,806.—Joseph D. Elliot.—*Improved Water Meter.*—Patented October 17, 1854.

The nature of this invention consists in combining with a two-way cock a measuring apparatus and register, so that, by simply turning the cock, a measured quantity will be let out, and at the same time a measured quantity let into the apparatus; which, in turn, may be let off by turning the cock in an opposite direction, and each measured quantity thus drawn indicated correctly.

Fig. 1, in the drawings, is a front elevation of this meter; fig. 2, a vertical transverse section through the machine, with the plug or cock C.

Claim.—The combination of the measuring chamber F F^1 with the cock L. Also, in combination with the cock C and reservoirs F F^1, the air-passage K, with its float, or equivalent valves L, for the purpose of forming a governor, to receive and discharge the water; all substantially in the manner and for the purpose specified.

No. 11,807.—E. A. Hill.—*Smoke-Consuming Stove.*—Patented October 17, 1854.

To obviate the loss of fuel which passes off in the form of smoke, the devices here arranged together are such as to direct the combustible vapors and gases from the chimney-flue, causing them to pass under one of the two sets of grate-bars of this double stove; as the combustible matters pass up through them into the clearly burning fire above, they are consumed. A draught-flue is connected with the stove, to insure a sufficient supply of air to the fire, and fresh air to be warmed to enter the apartments.

Claim.—1st. The combination and arrangement of the smoke-passage C, dampers F F^1, and draught-flues G *f* G^1 *e*, substantially as herein described, for the purpose of conducting the unconsumed smoke or carbonic oxide through completely ignited coals, in a simpler and readier manner than has been done before, as set forth.

2d. I do not claim the pipe H I for the purpose of ventilating a room; but what I do claim is, the combination of the draught-flues G *f* G^1 *e*, and *i i*, in combination with the pipe H I, for the purpose of supplying the stove with the necessary quantity of air, to insure the complete combustion of the fuel, or for preventing the smoke from smothering the fire, substantially as set forth.

No. 11,808.—D. W. Horton.—*Improvement in Shoemakers' Edge-Planes.* Patented October 17, 1854.

The head F of this plane has an inclined recess for the reception of the blade *a*, and a slot *h*, which forms the throat for the escape of the shavings. The blade is capable of adjustment for regulating the thickness of shaving by the screws *e e*; *b* is a regulating-guard, which can be moved to the right or left upon the head, to regulate the width of surface to be planed; and *c* is the set-screw, by which the guard is held in position.

Claim.—The combination of the guard *b* with the head F and the blade *a*, in such a manner as to form a sole and heel edge-plane that is adapted to the use of the right or left hand, substantially as set forth.

No. 11,809.—Bernard J. La Mothe.—*Iron Buildings.*—Patented October 17, 1854.

Claim.—1st. The construction of the frame or skeleton of the buildings with bands or plates of iron or steel, or other metal, riveted or screwed together in sets of several parallel bands, the same extending from the foundation to the top of the structure, in lieu of columns, pillars, or walls.

2d. Making the beams for floors, and rafters for the roof, by bending a certain number of the parallel bands which have been used in the perpendicular walls below, to the required position to serve as beams and rafters, the same being strongly riveted or screwed together.

3d. The vertical continuous beam, figure 2, constructed of several parallel plates strongly riveted together; also, the combination of the horizontal and vertical beam of parallel plates I, as shown in figure 1.

No. 11,810.—John H. Manny.—*Improvement in Grain and Grass Harvesters.*—Patented October 17, 1854.

Claim.—1st. The arrangement of the platform L obliquely to the cutter-bar, so that the gavels of the cut grain will be discharged at a sufficient distance from the standing grain to leave a clear pathway between the two for the team to travel in.

2d. Combination of the platform of a wing M, to facilitate the gathering of the grain, by affording to the operator a point of resistance, against which he may throw it with a rake from the stand P.

3d. Forming the caps of the guard-fingers D with a pair of knives I projecting from their rear end over the cutters C C; and,

4th. Making the outside dividing fingers F hollow, so that while it affords sufficient room for the play of the end of the sickle, the bearing of the latter thereon will not be so wide as to afford a lodgment of grain, &c.

No. 11,811.—Charles Ross.—*Grinding-Surface in Mills.*—Patented October 17, 1854.

Into a cast-iron concave of conical shape, with flanges at top and bottom, pieces of burr or other stone, cut into a radial or wedge shape, are inserted through an emargination in the flange left for that purpose. The last piece, being firmly drawn into its place, acts like a wedge to keep up the whole of the lining, which acts as a grinding-surface. The nut is of solid stone.

Claim.—Forming a grinding-surface in mills by lining a cast-iron concave with radial segments of burr or other stone, said segments being fitted or secured to their places in the manner herein set forth.

No. 11,812.—Moses Sargent, Jr.—*Improvement in Roving Tubes.*—Patented October 17, 1854.

Claim.—Combining with the common trumpet-mouthed roving tube A, one or more hooks C, so as at all times to secure the condensing of the roving while unbroken, and permit a broken roving to be pierced without stopping the machine, or even a single tube, in the manner described.

No. 11,813.—John J. Squire.—*Improved Sawing Machine.*—Patented October 17, 1854.

The nature of this improvement consists in the employment of a radius-guide E, applied to the saw, for the purpose of controlling and guiding it as it enters the stuff to be sawed; and also to insure a true movement of the saw, and prevent it from vibrating; likewise in the employment or use of feed-rollers F F, G G, placed within a sliding-frame H, for the purpose of gauging the stuff to be sawed, properly presenting it to the saw, and guiding it while being sawed.

Claim.—The arrangement and use of the devices, in the manner and for the purpose specified.

No. 11,814.—Richard B. Stevenson.—*Improvement in the Mode of Constructing Pipe.*—Patented October 17, 1854.

Claim.—The combination of pipe, of sheet-zinc or other suitably cheap and durable sheet metal, and an exterior coating of hydraulic cement mortar of requisite thickness for strength, durability, and impermeability, for conveying water or other fluids beyond the action of frost, from one point to another.

No. 11,815.—Conrad F. Thomin and Charles Stumer.—*Improvement in Process for Enamelling Iron.*—Patented October 17, 1854.

The improvement consists in dusting on the powdered frit upon a wet surface, instead of putting the frit on in the form of a paste previously mixed up with water or other liquid.

Claim.—The claim is restricted to treating the cleansed surface of the steel or wrought metal to be enamelled, with a mucilage or viscid solution, and powdering or otherwise evenly distributing the pulverized frit thereon. No illustration.

No. 11,816.—Henry Wayne.—*Improvement in Joints for Toilet-Glasses.* Patented October 17, 1854.

This toilet-glass is provided with a joint, which renders the glass presentable in any direction, both lateral and vertical, so as to bring different parts of the person successively within the scope of vision, and to adapt it readily and steadily to the requirements of persons of different heights. A bracket *b c d*, sustaining the glass, extends at its lower edge in the form of a segmental wing *d*, having shallow and somewhat tapered notches *i*, as represented in the figure; it is supported on a pivot *e*, in a cup *f*, said cup being slotted, 2, to permit the play of the bracket. A pawl *g* fits within the notches, and is held to the desired pressure within the notches of a spiral-spring *h*, which bears at one end against a shoulder on the pawl, and at the other end against a shoulder 4, in a cylindrical shank *i* of the cup. This shank fits and rotates within a socket *j*, let into and secured to the top of the toilet-table or bureau. The pressure of the pawl is so adjusted by means of the spring, as that the glass shall be held securely to any position in which it is placed, and prevented from shifting by the action of any force short of an intentional one against the mirror.

Claim.—The vibrating bracket, having a segmental wing, with tapered indentations and spring-pawl, or their equivalents, in combination with the horizontal rotating pivot as described, forming a shifting joint for a toilet-glass.

No. 11,817.—E. D. Williams and T. Tyrrell.—*Improvements in Brick-Presses.*—Patented October 17, 1854.

This machine consists of a wheel A, receiving, through any known device, an intermittent motion, and having six moulds, 1 2 3 4 5 6, two of which are at each pause beneath the fixed heads V and V¹, to receive the pressure given to the brick, by the pressure which platens N receive from the plungers I and I¹, said plungers being actuated by the advance of a rack-bar between two racked sectors, as shown in the drawing. In position b^1, the mould receives the clay from the hopper; at b^2 it receives the first pressure; at b^4 its final pressure; at b^5 the brick is expelled by the upward thrust of plunger J^2, actuated as plungers J and J¹. At b^6 the mould is idle; while at b^3, between the first and second pressures, the brick is perforated by a number of pins *g g*, in a block *o*, working in a box G, to release the confined air. The stud *i*, working in a slot *j*, in a plate attached to bar E, operates the rod Q and lever P, which depresses the pins *g g*.

When the wheel A is brought to stand, that the brick may receive pressure, it is thrust up so that the faces of the moulds are in close contact with the surface of the fixed heads V, V¹; but during the intermediate motion, the wheel is let down to prevent the otherwise unavoidable friction. This is effected by placing around the shaft B, and above the tight collar *f*, a loose collar *l*, upon which the hub of the mould-wheel A rests, and both of which collars have prominences *m* and depressions *n*. These are alternately allowed to fit into each other, (thus lowering the wheel,) and caused to oppose each other, (thus raising the wheel,) by the action of the two spring-dogs *o* o^1 (attached to standard R upon bar E) upon the projections *p* p^1, the one taking effect during the advance, and the other during the retreat of the bar E.

Claim.—The employment, placed between the mechanism which produces the first and that which produces the final pressure, of a perforating apparatus, consisting of a number of pins *g g*, which are perforated through the bottom of a box or its equivalent G, and which is otherwise arranged and operated substantially as herein described, to perforate or prick the partly pressed clay, to allow of the escape of air which may be contained therein before final pressure, as herein set forth.

We do not claim giving to the revolving mould-wheel a movement in the direction of the line of its axis, for the purpose herein set forth; but we claim, 2d. The particular method herein described of giving the said movement by means of the loose collar *l*, fitting to the shaft and having prominences and depressions corresponding to similar depressions and prominences on a fixed collar *f*, and having projections *p* p^1 on its sides, to come in contact with spring-dogs *o* o^1, attached to the framing E, the whole combined, arranged, and operating, as herein set forth.

No. 11,818.—John Yandell and Joseph H. Johnson.—*Iron Tress Bridge.*—Patented October 17, 1854.

This improvement does not consist in simply combining the tress-frame with the suspension cords, for that is old and well known; but it is limited to the peculiar manner of connecting together the several parts of the tress, and that with the suspension cables. None of the parts are of themselves claimed as new.

Claim.—The peculiar mode of connecting together all the several parts, as they are employed in the tension-tress-work; and also, the mode of combining the same with suspension-cables, in the manner and for the purposes set forth.

No. 11,819.—James H. Stimpson, executor of James Stimpson, deceased.—*Improvement in Vessels for Holding Liquids.*—Patented October 17, 1854. Antedated April 17, 1854.

Claim.—I do not claim the double wall as a means of intercepting heat; nor do I intend to claim such a device, as applied to any structure or vessel whatever, for the purpose of economizing in ice, unless attended with all the advantages and results of my double-wall ice-pitcher. It is obvious that refrigerators, urns, tumblers, double-plates, and such-like articles, occupy special positions in household economy,

and distinct from my double pitcher, and that no one of them can be made to subserve all its purposes and ends; and I therefore disclaim

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No. 11,823.—John D. Bedwell.—*Improvement in Smut Machines.*—Patented October 24, 1854.

and distinct from my double pitcher, and that no one of them can be made to subserve all its purposes and ends; and I therefore disclaim them, one and all, and confine my claim to the double-wall pitcher.

It is obvious that the lid, from its small surface and position in reference to the circulation of heat, may be made single with comparatively small loss, but I prefer to make it double, as set forth.

What I claim, therefore, as my invention, is the double-wall pitcher, the same consisting in a pitcher with double sides, double bottom, and a hinged cover, from which the liquid contents are to be poured through or over a nose or lip, substantially as herein set forth. I am aware that a lever has been used upon the covers of molasses-pitchers, for raising the cover, and this I do not claim; but I do claim the employment of a chain or string attached to the handle and lid of the pitcher, as described.

No. 11,820.—John Richardson.—*Improved Pen and Pencil Case.*—Patented October 17, 1854.

The invention consists in the employment of a single operating sleeve D on the case, capable of sliding and turning, so as to operate the pen and pencil holder alternately, or either, at pleasure; and in the method of locking and unlocking the pen and pencil holders, so that one shall be held in a retracted position, while the other is free to slide out and in; this is accomplished by transverse slots *o i* in the upper part of the inner case. In the drawing, the two cross-sections are on an enlarged scale.

No. 11,821.—Henry F. Baker.—*Improvement in Ploughs.*—Patented October 24, 1854.

In this plough, mould-board B, share C, and curved-arm D, are cast in one piece, which turns upon pivot *a*, in point A. The arm D has a slot *d*, which slides upon *b* of arm *c*, which is cast with the land-side. Rod E is capable of partial rotation, and carries arm F, which has a slot *e* sliding upon pin d^1 of the mould-board. By means of a lever the ploughman turns rod E, and with it the mould-board through arm F, in order to give a desired width to the plough. The slotted arms F and D only are claimed, in combination, as an improved means of adjusting the mould-board.

No. 11,822.—Mark S. Bassett.—*Improvement in Sifting and Bolting.* Patented October 24, 1854.

This is an economical arrangement of a revolving sieve of coarse meshes, in connection with a fixed one of finer texture, which may be attached directly to a mill, and used as a flour-bolt.

Claim.—The riddle, as arranged and described, in connection with a shaft and bearings, centralizing said riddle so as to rotate against an ordinary flat sieve-disk at its margin, as a feedor, distributor, and vibrator combined, for the uses and purposes herein set forth.

No. 11,823.—John D. Bedwell.—*Improvement in Smut Machines.*—Patented October 24, 1854.

The improvement is clearly set forth in the claim, which, the trunk C being disclaimed, embraces but the rotating inner and stationary outer cylinders I and J, both constructed of overlapping metal-bars *b b b*, (giving a corrugated surface to the cylinders, and at the same time admitting a current of air through them,) when combined and arranged with an outer close cylinder G, and operating in connection with a fan-blast, or suction, made to communicate with the interior of the rotating bar cylinder I, as well as with the enclosed space surrounding the outer stationary bar cylinder J, and with the trunk C, as shown in the drawings, for the purposes set forth. These are to expel the smut more rapidly, and more thoroughly separate it from the grain whilst it is scoured through the spaces of the two bar-cylinders, and thereby avoid discoloration of the wheat by loose smut adhering to the blossom-ends of it.

No. 11,824.—Archibald Bowen.—*Improvement in Straw and Grain Separators.*—Patented October 24, 1854.

The invention consists: 1st. In constructing the straw carrier and separator of an ordinary threshing machine of two superposed beds, B and E, both of them jointed in two or more points, and both set in a vibrating motion by a common gearing, as represented in the drawing; one of them, viz: the upper one, being perforated for the transmission of the grain to the lower one, and the lower one being inclined towards the head of the machine, to carry the grain falling over it to the blast and riddles.

2d. In creating an artificial eddy on the screen *m*, in order to prevent the sound grain from being carried by too strong a blast over said screen.

Claim.—1st. The method of separating the grain and chaff from the straw, by the combination of the inclined vibrating bed E with the perforated jointed bed B, arranged and operated substantially as set forth.

2d. The extending of the upper-screen *m*, by the double inclined plane *r p*, in combination with a blast compressed by a covering I above the screen, for the purpose that an eddy may be formed by the blast, and the grain, if carried too fast by the latter, be returned, upon the inclined plane *p*, to screen *m*, substantially as herein set forth.

No. 11,825.—Robert Boyack.—*Machine for Softening Hemp, Flax, &c.*—Patented October 24, 1854.

Claim.—Softening flax, hemp, &c., by means of a reciprocating plate E, having a slot *h* through it, and working between two pairs of fluted rollers B B, B^1 B^1; the flax or hemp passing between the two pairs of rollers, and through the slot in the plate, and operated upon by the plate and rollers.

No. 11,826.—Samuel W. Brown.—*Improvement in Machinery for Cleaning Cotton.*—Patented October 24, 1854.

Claim.—Making racks or grids E, to be used in cotton and other pickers, of a number of bars of iron or other substance, each of these bars being bevelled to an edge, and these edges being so arranged in the rack that the cotton will first come in contact with the edges of the bars, as it is thrown forward over them by the beater B; the bars of these racks being tied or held together once in about three inches, more or less, by cross-ties, they being cast with the bars of the rack, or otherwise connected to the bars, for the purpose of staying them, and always presenting parallel slats of equal width for the dirt to pass through.

No. 11,827.—Patrick S. Devlan.—*Improvement in Chairs for Round Rails.*—Patented October 24, 1854.

Claim.—I am aware that tubular rails, of various forms, have been devised for railroads, and that the outside jaw of an ordinary chair has been so elevated as to take the tread of the wheels in passing over the joint; these I do not claim.

But what I do claim herein, as new, is the method of confining cylindrical rails at their joints, by a chair which forms the rail between the joints, and so made as to keep and support the rails in proper line, whilst they may, at the same time, be turned in their bearings in said chairs, as well as the intermediate ones, substantially as described.

No. 11,828.—George L. Dulaney.—*Improved Mill Bush.*—Patented October 24, 1854.

The constant friction and abrasion of the bush and spindle is remedied, by the two hollow cones which surround the spindle being made to slide like wedges over each other, having all their surfaces kept in contact by the operation of the springs F F upon the nut *g*, drawing B and D together by means of the bolt E, all of which is done without the interference of the miller.

Claim.—Use of the springs F F, actuating the nut g on the draw-bolts E E, for the purposes set forth in the specification.

No. 11,829.—Absalom B. Earle.—*Improvement in Seed Planters.*—Patented October 24, 1854.

In this machine, E is the hopper from which the seed passes into hole *e*, and is then received by opening *n* of the reciprocating feed-slide, and carried beyond plate *m*, where it drops through drill-tube L. Spring J presses a guard-plate *u* into hole *e*, where the plate *u* meets the forward stroke of the feed-slide, and cuts off the flow of seed without breaking the kernels. The feed-slide consists of two parts, so adjustable upon each other as to increase or diminish opening *n* at pleasure, and is moved one way by a spring, and in the opposite direction

by bell-crank H, which is struck at intervals by pins *s* in the hub of wheel A.

The drag-bar K is hinged in front, and, transfixing the drill-tube L, is held in the rear by a chain; two notches *t t* fit the side of the drill-tube, and are kept in place by wedge *v*. For sowing broadcast, the drill-tubes can be removed, and the seed allowed to fall upon a directing-board which swings under the axle.

Claim.—I am aware that drill-tubes have been constructed to drag-bars by means of lugs, brackets, braces, and screw-bolts, and that drill-tubes have been inserted into a beam attached to and parallel with the axle of the machine; but as it is the object of my invention to dispense with and supersede these devices, I do not claim them, either separately or in connection. I am also aware that a spring-guard-plate has been adapted to a series of rotating discharging-cups—but not in such manner as to detain any excess of seed which the cup might contain, and drop it into the next; to such a guard I make no claim. But what I claim as my invention, is constructing the drag-bar and drill-tube, and connecting them, in the simple and substantial manner herein set forth. Also, the spring-guard-plate fitted in each delivery-opening between the hopper and the slide, to prevent the fracture or bruising of the seed when the slide is drawn suddenly back, as herein described.

No. 11,830.—Ebenezer Ford.—*Improvement in Granaries.*—Patented October 24, 1854.

This invention consists in constructing granaries and bins for grain with double walls *l*, partitions *i*, ahd floors, and filling the interspace with common salt, to protect grain from insects. A stove-fire is also necessary, to prevent the salt from attracting moisture, and thus injuring the grain. The inventor is aware that salt has been employed as a filling between the timbers of ships and between the two walls of ice-houses, but claims the mode herein described for making granaries, having the walls, floors, and partitions filled in with common salt, in the manner substantially as set forth.

No. 11,831.—Julius Herriet.—*Improvement in Gutta Percha Stereotype Composition.*—Patented October 24, 1854.

Equal parts, by weight, of gutta percha or caoutchouc, and pulverized graphite, or soapstone, or plaster of Paris, or chloride of lime, or peroxide of manganese, or other equivalent, are mixed together, heated, and moulded while hot. The proportions may be varied to suit the desired softness or toughness of the mass. The alleged qualities of the composition are plasticity, sufficient hardness to present sharp-angle lines and yet to resist pressure, aptness to be remoulded, and cheapness.

Claim.—The making of moulds and plates, for printing characters or figures, of gutta percha or India rubber, compounded with some other substance, substantially such, and for the purposes, as described. No illustration.

No. 11,832.—Joseph Johnston.—*Improved Bran-Duster.*—Patented October 24, 1854; antedated April 24, 1854.

The machine is constructed in a more than usually substantial manner, with heavy cast metallic, vertical, and horizontal framing, which is connected by a system of conductors with the wire-gauge cylinder-beaters, and other portions, in such a manner as to avoid the clogging and other annoyances caused by the attraction of light matters, dust, bran, flour, &c., to the meshes of the wire-gauge, from the electrical disturbance kept up during the rapid revolution of the various parts of the machine.

Claim.—Constructing the frames of bran-dusters of cast metal, so as to secure the objects and advantages herein specified, in the manner described.

No. 11,833.—Barton H. Jenks.—*Improvement in Looms.*—Patented October 24, 1854.

Claim.—The single spiral cam K in combination with the shifting-clutch 24 and lever L, for raising and lowering alternately a two-shelf shuttle-box, or holding the same stationary for a longer or shorter period, as set forth.

Also, the method described of rendering the pattern or pin-wheel capable of working larger patterns than it could heretofore work without increasing its size, by means of a multiplier J, whether the same be constructed, arranged, and connected with the wheel as described or otherwise, provided the wheel has its capacity increased thereby, substantially as set forth. Also, a shuttle-binder, whether placed in the front or back of the lay, in combination with a series of shuttle-boxes, in such manner that the binder will perform the ordinary duties of that instrument for every shuttle-box of a series however numerous, substantially as set forth.

Also, arranging and operating the shuttle-binder, independent of the shuttle-boxes, in such manner that it shall be withdrawn from the shelves at the proper time to allow the boxes to be moved without obstruction to it.

Also, the method herein described of clearing the shuttle from the picker, preparatory to raising or lowering the shuttle-boxes, by moving the shuttle from the outer end of the box a short distance by a slight forward-movement of the picker, or holding the picker slightly in advance of its extreme back position until the shuttle is in place, and then allowing it to retreat back from the end of the shuttle, whereby the picking mechanism detaches itself from the shuttle before the shuttle-box moves, instead of making the clearance dependent upon the motion of the lay or other parts of the looms, as heretofore.

Also, the construction of the shifting-cam for working the treadles, with its two screw-heads and nuts of unequal pitch formed on separate sections of the cam; the section which contains the thread of longest pitch being removable, so that a corresponding piece, with a thread of different pitch, may be substituted to adapt the cam to operating a variable number of treadles, and likewise to facilitate repairs.

No. 11,834.—John G. McNair.—*Improvement in Manufacturing Carpets of Rugs.*—Patented October 24, 1854.

Claim.—A new fabric, denominated tapestry-chenille, consisting of tapestry-chenille weft woven with the colors to produce the design, in sections, but without the ground-color of the intended design; which prepared chenille weft is afterwards woven into and combined with a Brussels ingrain or other web, which is to constitute the ground of the design.

No. 11,835.—Gustavus and A. H. Palmié.—*Prussian Needle-Gun.*—Patented October 24, 1854.

This invention consists in the application to a needle-gun of a cushioned valve-seat C^1 upon the end of the needle-bar *c*, to close the opening through which the needle passes into the charge, and to prevent concussions of the main-spring; also, in the application of a safety-locking-bolt G to the outside of the gun, being an independent positive stop, to hold the main-spring and prevent the discharge of the gun when desired.

Claim.—Same as above.

No. 11,836.—Myer Phineas.—*Pen-Holder.*—Patented October 24, 1854.

This invention consists in so constructing the metallic barrel of the pen-holder, that the tongue A of the blank shall form a spring, which will act not only on the length of the pen to retain it in the holder, but shall also act across it for the same purpose, by means of the spreading sides of the spring *b*, as shown in figure.

No. 11,837.—E. L. Perkins.—*Improvements in Machinery for Polishing Paper.*—Patented October 24, 1854.

Claim.—The combination of a pressing-roll *e*, a bed-plate *c*, (over which the roll runs back and forth,) to support the paper beneath the roll, and feeding-rolls *s* and *t*, or the equivalent thereof; arranged to feed the paper across the bed-plate, with an intermittent motion, which alternates with the passage of the pressing-roll along the bed-plate; and this combination, whether the several parts be constructed and arranged as herein described or otherwise.

No. 11,838.—James Renton.—*Improvements in the Process of Making Iron Direct from the Ore.*—Patented October 24, 1854.

The improvement consists in combining with the combined deoxydizing apparatus *a b*, and puddling furnace *e*, as described, the employment of a blast or blasts, to be forced on to the deoxydizing ore on the hearth or hearths, substantially as specified, to aid in decarbonizing the ore and increasing the heat, as specified.

No. 11,839.—John H. Rauch.—*Improved Sliding Pen and Pencil Case.*—Patented October 24, 1854.

The nature of the invention consists in forming three longitudinal slots *a b c* in the tube C, and a transverse groove *g*, in combination with a cylindrical turning-slide D, having a T-shaped slot G cut in its upper end; and spurs or pins *d e* secured to the pen and pencil-holders.

No. 11,840.—John Richardson.—*Improvement in Pen and Pencil Cases.*—Patented October 24, 1854.

This invention enables the operator to protrude the pen or pencil from the case at pleasure, by turning the sleeve *m*, to engage the pen or pencil, when either is desired. Two cases *p q* are also constructed so as to elongate the holders when in use, without preventing the operation of the sleeve.

No. 11,841.—Josiah Shanklin.—*Improvement in the Square, Scale, Level, and Bevil.*—Patented October 24, 1854.

The construction of this instrument is readily perceived from the drawing. To get the length of rafters, braces, stair-cases, &c., &c. The base of a triangle is four feet, the upright three feet: what is the hypothenuse? Take the instrument, loosen both screws, and slip the left end of the square until the fourth inch on it exactly coincides with the first inch on the cross-piece. Then turn the left-hand screw moderately tight. Raise the right end of the square until the third inch just clips the edge of the cross-piece, and it will strike the cross-piece at five inches; hence the hypothenuse is five inches. This instrument is adapted to use for the several purposes indicated by the implements upon which it is an improvement; and the manner of using it will be readily suggested to the mind of any practical mechanic upon inspection of it.

Claim.—The combination of the blades Z^1 Z^2 Z^3 with the grooves and thumb-screws, constructed and arranged in such manner that any instrument can be used for the purpose of a square, bevel, level, and scale, substantially as herein described.

No. 11,842.—Benjamin Sherwood.—*Improvement in Safes.*—Patented October 24, 1854.

In addition to the outer and inner casing of iron, the improvement in the construction of safes, secured by this patent, consists in a lining of thin brick or tile inside of the outer shell, and within that a layer of a composition of alum and clay, made into the consistence of mortar; which, when heated, shall give out water of combination, and otherwise resist the fire to which it may become exposed.

Claim.—In the construction of safes, the combination of clay with about an equal quantity of alum of commerce or any other salt that will melt with dry heat, to form a fire-resisting and fire-annihilating compound, as above described.

Also, I claim placing in the safe, next the outer wall, a thin fire-brick or tile, to protect the composition from the contact of fire when the iron shall have burned through; arranged substantially as above described.

No. 11,843.—Emile Sirret.—*Improvement in Fastening Lamps to Lanterns.*—Patented October 24, 1854.

This fastening consists of a vibrating lever on the bottom of the lantern, pivoted at its centre, and carrying two bolts, pivoted near either end, moving the bolts in and out of the slots or grooves, and locking or unlocking the lamp on both sides at the same time. When locked, the handle of the lever is caught by a notch, and so retained by a spring.

Claim.—Fastening the lamp to the bottom of a lantern by means of a vibrating spring-bar carrying a bolt pointed near each end of it; said bolts passing through the bottom of the oil cup, to enter a groove or flange inside the bottom of the lantern.

No. 11,844.—O. W. Wade.—*Improvement in Stoves.*—Patented October 24, 1854.

The improvement consists in having the vertical sides of the casing to the fire-box double, the outer surface being of transparent material, mica or glass. Inside is a lining of earthen or metallic plates, removable at pleasure.

No. 11,845.—Wm. Warwick.—*Improvement in Mills.*—Patented October 24, 1854.

The bevelled friction roller, actuated by a set-screw, serves to adjust the nut and concave of the mill for grinding coarse or fine, and at the same time subserves the ordinary purpose of friction wheels.

Claim.—The mode of regulating the cut of grinding-mills, by the insertion of a travelling wheel, or anti-friction roller, in combination with the bevelled track on which the roller travels.

Also, the position of the thumb-screw, it being parallel with the handle, and not, as in other mills, perpendicular with the cutting-bar and shell.

Also, its use as a journal for the travelling roller.

No. 11,846.—Benjamin H. Wright.—*Improvements in Rotary Steam-Engines.*—Patented October 24, 1854.

Claim.—1st. Whenever a central piston wheel is used, the double cylinder, the one sliding on the other, in the manner and for the purpose, and substantially the same, as set forth.

2d. The two parts separately and in combination, viz: the method

of inserting a single piece of packing *e* in the inner surface of the piston, through an aperture or recess in the latter, with a corresponding but limited cut in the piston wheel, together with the mode of protecting this aperture by the lateral overlap of the base or flanges of the piston.

3d. The double-oscillating valve V, having opposite wings, nevertheless preserving the advantage of a single wing through the peculiar outline or use of a lesser cylindric surface between the wings on the side of the piston channel, reducing the cut in the cylinder for the passage of the piston to the least practicable dimensions.

4th. The introduction, in connexion with a like cylindric surface, between the two wings on the opposite side of the valve, of a partition *p* and separate chamber, adjacent to the other wing, for the purposes explained in the foregoing specification.

5th. The arrangement, in connexion with the oscillating valve V, of the induction and eduction passages O and O', such that the first opens just at the termination of the revolution of the valve athwart the piston channel; and the second by an aperture in the valve cap, uncovered by the opposite wing. When the valve is in the position before stated, the purpose of the arrangement being to promote regularity of movement and the working of steam expansively. I claim, also, the method of compensating for the less ready action of steam directly on the piston by the use of the tappets *t t*, which are forced, by the revolution of the valve, down the abrupt inclination of an exterior cam-wheel.

6th. I claim separately the passage through the valve *b*, commencing near its periphery and terminating at the plane surface, or valve-seat, as described, and as a combination for bringing the valve down across the piston channel. I claim the combined action, 1st, of the entering steam on its adjacent end of the valve; 2d, the steam passing through the valves, entering its induction wing from the piston channel, and discharging from the eduction wing against the valve-seat; and, 3d, taking away to any desirable extent the resistance in the separate chamber behind the eduction wing, substantially as described.

7th. I claim the method specified of balancing the pressure on the cylindrical cut-off valve; that is to say, by the removal of a suitable extent of surface *Z Z*, diametrically opposite to the passages; or when there are two passages proximately situated, it is obvious a middle point may be used. These cuts or openings not being designed for steam passages, it is evident that their size or dimensions will be governed by totally distinct considerations.

8th. I claim governing the velocity of the engine by changing the position of the eccentric disk, which governs the motion of the cut-off valves, by the lever L, from the governor; said disks when thus changing having a transverse motion on the shaft.

9th. I claim the annular steam-chamber 2, formed in one of the heads opposite to the piston channel, with branches to the cut-off cylinders respectively; and a like chamber 2 in the other head as a common receiving-chamber for the eduction ports.

No. 11,847.—WALTER BRYENT, assignor to JOHN B. KELSEY.—*Improvement in Air-Heating Furnaces.*—Patented October 24, 1854.

Claim.—The improvement is in the construction of the radiator, arranged over the dome of the fire-pot, the same consisting in making its bottom a concavo-convex plate or arch, and with the concave side disposed downward and directly over the said dome, whereby the ascending heat of the dome is retained in the concavity of said bottom, and not only made to warm to great advantage the air that rushes into the same, but to heat the radiator, so as to improve the draught through the fire-pot and supporting columns of the radiator.

No. 11,848.—WILLIAM CAMPBELL, assignor to Himself and E. W. SHIPPEN.—*Improvement in Bearings for Loose Pulleys.*—Patented October 24, 1854.

The object of this improvement is to supply a bearing for the loose or "dead" pulley around and independent of the shaft, (whether by a sleeve or tubular journal R, surrounding the shaft, and not in contact with it, or by friction rollers to receive the belt,) so that the wear from the running of the said loose pulley shall not be borne by the shaft.

Claim.—What I claim as my invention is a loose or suspension pulley or pulleys and hanger, having an axis whereby a loose pulley may revolve independently of the shaft.

No. 11,849.—WILLIAM PORTER, assignor to JOSEPH N. HOWE.—*Securing Lamps to Lanterns.*—Patented October 24, 1854.

The merit of this invention lies in the arrangement of the spring-bolts for readily fastening or detaching the bottom of the lantern, which carries the oil-pot, and the drip-cup for preventing waste and dirt from an overflow of oil.

Claim.—The above-described lantern, constructed substantially as described.

No. 11,850.—MARK R. PEARSON, assignor to MARK R. PEARSON and SAMUEL SHAW.—*Improvement in Roller-Catch for Self-acting Mill.*—Patented October 24, 1854.

Claim.—The combining with the catch H and the ratchet D, the arm K and its friction brake L, or its equivalent.

No. 11,851.—NATHAN ATHERTON.—*Improvement in Steam-Engines.*—Patented October 31, 1854.

The improvement relates to a driving cylinder T W, having screw-like grooves in combination with a piston-rod, for the purpose of converting reciprocating into continuous rotary motion; and the improvement consists in the connexion of such a cylinder with inclined projections *g h*, constructed and arranged substantially as herein described, for operating the valve-gear H K L I V, *i i*, by motion taken

directly from the cylinder, whereby the proper lead may be given to the steam, whether the cylinder be turning to the right or to the left.

No. 11,852.—Abraham Bassford.—*Tuning-Keys for Pianos.*—Patented October 31, 1854.

This invention consists in combining the socket spindle *a* with the handle spindle *i*, by means of cog-gearing *m e* and *d*, for the purpose of increasing the leverage of the handle spindle, relatively to the socket spindle, and at the same time have the axes of the two spindles in, or nearly in, the same line; and also in combining these with an arm or lever rest *h*, projecting from the plate g^1, to come in contact with some part of the frame of the piano in the operation of tuning.

No. 11,853.—A. M. and G. H. Babcock.—*Printing Press for Printing in Colors.*—Patented October 31, 1854.

This invention aims to print different colors, successively, on the same sheet, as it is carried upon a revolving platen; and its features are thus set forth in the claims made by the patentees:

Claim.—1st. The arrangement and combination of the polygonal platen *f* and beds *d*, substantially in the manner and for the purposes set forth.

2d. We also claim the construction and arrangement of the inking rollers, consisting of the vibrating arms *k* and springs *m* for holding out the rollers in place, as described.

3d. We also claim the combination of arms *g h*, *i* i^1 i^2 i^3, and c^1 c^2, or their equivalents, and connecting-rods *i* c^4, or their equivalents, for giving a series of impressions, forming progressive levers, in the manner specified.

4th. We also claim the apparatus for turning the prism, consisting of the vibrating arm S, disk S^1, springs and pins t^1, or their mechanical equivalents, with the apparatus for engaging and disengaging the same, as set forth.

5th. We also claim the arrangement and combination of the friskets *w* with the platens *f*, and the springs y^1 attached thereto, for giving a firm hold while drawing the sheet from the type.

No. 11,854.—Charles Baeder.—*Improvement in the Mode of Cutting Gradually Tapering Strips of Raw and Tanned Hide for Whips.*—Patented October 31, 1854.

This invention consists in the employment of a die *b*, upon which is the knife, resembling in form a coiled watch-spring, the coiled space between the cutting-edges gradually widening from near the centre of the die to the periphery of the same, so that the strips filling them will have the required width and taper. The knife is made of steel.

Claim.—The use of the spiral knife-die, to cut gradually tapering strips of leather for the manufacture of raw-hide and braided whips, substantially as set forth.

No. 11,855.—Joseph Barker.—*Improvement in Grain Winnowers.*—Patented October 31, 1854.

The improvement consists in employing the conical form for the screens, by means of which the grain is caused to pass over a great surface of screen, and to spread equally in all directions; thus, as it is alleged, being more perfectly cleansed than where the rectangular form is employed. The operation is as follows: The grain to be separated is placed in the hopper C, and shaft B being set in motion, the fan F rotates with it, while the two screens D G receive at the same time a rotary vibrating motion by the wiper-wheel L and levers *i j*, thus causing the grain passing through *e* upon D to spread radially over it and towards its end, whereby the sound grain passes through, while the superfluous foreign stuff of larger size passes off at the edge, and the light impurities are blown away by the blast from the fan; the grain then falls upon the shute E, which covers the fan F, and falls off of said shute upon the screen G, which is sufficiently fine to retain the grain but not the dust; the grain passes through the discharge-spout H into a proper receptacle, while the dust and other fine impurities are discharged through the spout J of the shute underneath the screen G.

Claim.—The combination of the conical hopper C, circular screens D G, with inclined sides or of conical form, and fan F; the said parts being constructed and arranged substantially as shown, and for the purposes set forth.

No. 11,856.—Ephraim Brown.—*Burglar's Alarm for Money-Drawers.* Patented October 31, 1854.

Claim.—1st. Making the drawer-knob movable, and so combining it with an alarm apparatus as to cause the alarm to be sounded at every attempt to open the drawer.

2d. The combination of the spring-bolt and secondary bolt b^1 and lever *d* with the drawer-knob.

3d. The combination of the alarm-pawl *m* with the knob by means of movable hanging-lever *n*, to be operated by a stud fixed to the knob-rod *s*.

4th. The decoy-key d^1, and its connnection with the hanging-lever *n*; also, connecting the latter to the secondary key or lever g^1, (which is not shown in the drawings, as it is on the same axis *f* and of the same dimensions as d^1, and exactly behind the latter,) so that a forward pull on g^1 shall move the hanging-lever *n* so as to sound the alarm.

5th. The combination of the numbered wheel p^1 and its operative mechanism with the knob-rod, (i. e., the pawl l^1 fixed to the lever *n*, and working against ratchet n^1 on the shaft o^1, which shaft also carries wheel p^1,) so as to exhibit, through a slot in the centre, the number of the attempts at opening the drawer; meaning, also, to claim the so combining the operative mechanism of the wheel p^1 with the hanging lever *n*, that a movement of the latter will effect a movement of the said wheel.

No. 11,857.—William Clemson.—*Improvement in Apparatus for Tempering and Flattening Hardened Saws.*—Patented October 31, 1854.

The improvement consists in making the ends of the plates, which the saw enters, with their faces of bevelled or other receding form, substantially as shown at *c f*, whereby they are enabled to impart heat to the saws by radiation before they enter, and thus cause every part of the saw to be heated to a proper degree before being submitted to the pressure of the upper plate.

No. 11,858.—H. H. Evarts, assignor to Himself and A. J. Brown.—*Shingle Machine.*—Patented October 31, 1854.

This is an ingenious and complete machine for sawing shingles from the block. A block Y (in the drawing represented in broken lines) is placed on each table P P^1; is seized by dogs, actuated by H and teeth t^1, and carried by the saws A as the cogged rim F revolves; the tables P P^1 are so inclined in respect to saws as to give the required taper to the shingle; the lever cams H are rocked on fulcrums in the rim D by cams n^1 n^1, so that two at a time of the dogs *i* shall pierce the block just as it arrives near the saw, or at Y, by which time the other two dogs *i*, which form the block, thus far are withdrawn; thus but two dogs, together with the teeth t^1, carry a block around. It must be observed, that, to give the proper taper, the beds P P^1 slope inward and downward from the saws, the angle required; as the block always bears against this bed, as it meets the saws, the taper necessarily results. The block is sawed alternately from end to end, giving the thin and thick ends of shingles alternately from each end of block. As soon as one shingle is cleared, it drops, and the dogs *i*, now holding the block, are withdrawn, (by cams' n^1 n^1,) and the block drops a distance equal to the thickness of the shingle just formed on the bed H, and is in the exact position to meet next saw, just before clearing which, two dogs *i* quickly clamp it and hold it until past this saw.

Thus it may be seen that a block placed on one of the tables, and the machinery being in motion, the machine will convert it into shingles without further manual assistance.

In the drawings, figure 1 is a plan of the machine, and represents only one half of it, the other half being exactly alike.

No. 11,859.—Junius Foster.—*For Ringing Alarm-Bells.*—Patented October 31, 1854.

This invention consists in combining the spring-barrel *d*, the zig-zag groove cut in its periphery, the lever *h*, the bell *l*, and the stop *g*, operating against the pins S, for the purpose of causing the bell to be rung when a door to which it is connected is opened.

No. 11,860.—William Gates, Jr.—*Machine for Filling Match-Frames.* Patented October 31, 1854.

This machine is designed to place matches securely in a frame, so as to insure dipping their ends equally into the inflammable composition.

Operation.—The match-sticks, designated by a^1, are placed on the box or hopper F, and a follower b^1 placed on the top of them, and slots or strips c^1 are placed between the uprights *q q* on the bed-piece M, a follower being placed upon them. Motion being communicated to the driving-shaft D, the vibrating frame B is drawn backwards, and also the feeding-bar N, and the projections *r r* force the lowest slats or strips c^1 outward from between the uprights *q q*, and the pressure-rods *o o*, then descend upon the slat or strip and force it down upon the rests *n n*, on the block K, the pressure-rods being depressed by the pin *v* acting against the rod U, and elevated again when the rod is relieved from the pin by the spiral spring U^1. The vibrating frame B now moves forward, and the rods *a* force out the match-sticks *d* from the box or hopper F—that is, those matches that were in the groove *d;* the match-sticks pass out between the strips or bars *i*, and upon the slat or strip c^1, which was previously operated upon by the projections *r r*. The vibrating frame B then recedes, and the feeding-bar N again moves forward, and throws a slat or strip upon the match-sticks, it being understood that the ends of the slats or strips fit in the grooved sides of the match-frame. When the vibrating frame B again moves forward, the feeding-bar N acts against the upright pins *t t*, and the levers W W force forward the gauge-block V, and press it against the edges of the match-sticks, and bring them all upon a line.

Claim.—I do not claim any of the parts relating to the operating of the match-sticks, viz: forcing them from the box or hopper F, for that has been previously invented; but what I claim as new is the feeding-bar N, with its projections *r r*, pressure-rods *o o*, and gauge-block V, with the springs W W, or their equivalents, combined and arranged substantially as shown, for the purpose of feeding the slats or strips c^1 properly to the match-frame J, and adjusting them therein, and also causing the ends of the match-sticks to be on a level, to insure an equal immersion in the necessary compound, with which they are covered.

No. 11,861.—Robert Heneage.—*Improvement in Toothed Clothing for Picking-Cylinders.*—Patented October 31, 1854.

Claim.—The improved manufacture of metallic clothing for a picker cylinder, the same being made of a thin plate of metal, with the teeth cut or stamped out of it, and bent from and directly above, and so as to stand at angles with the spaces from which they are cut, as specified.

Also, so arranging the base plates of the teeth on the periphery of a cylinder, or the surface to which they are to be fastened, that one of said base plates shall overlap the other, and extend over and cover the spaces *b b*, or out of which the teeth of the latter plate may have been formed, the same serving not only to give support to the teeth, but to prevent such spaces from being clogged with fibrous material, and also

to increase the pitch of the front ends of the teeth beyond what they would have were the entire lower surface of each strip made to rest upon the surface of the cylinder.

No. 11,862.—J. C. Howe.—*Breech-Loading Fire-Arms.*—Patented October 31, 1854.

This invention consists in a simple arrangement of devices, whereby the movable breech A can be drawn back and elevated by pressing forward the lever C; and by the backward movement of the lever the breech can be lowered and forced forward into place.

Claim.—The arrangement of the breech-operating lever C, by its hinges or joints *a* and *b*, with the breech A, hung and operating as described, and movable guide or slide D at the back of the breech.

No. 11,863.—J. Harris, J. B. Stott, and G. Richmond.—*Improvement in Machinery for making Rope and Cordage.*—Patented October 31, 1854.

Claim.—The arrangement of the gears *s* and *t* upon shaft N, in combination with the clutch and shaft I, so that by changing the position of the clutch we increase, retard, or arrest the motion of the friction rim B, and reverse these motions instantly. Also, the spider G, constructed as described, in combination with the cam K and the spiral spring on the shaft to give it a revolving motion, to rub the strands for the purposes described.

No. 11,864.—Chesley Jarnagin.—*Wagon Seats.*—Patented October 31, 1854.

This invention consists in constructing the running-gear of wagons with a double bolster, provided with the standards D D in each end, so as to allow of a comfortable and safe seat C for the driver, to be placed between said standards.

No. 11,865.—Richard Kitson.—*Improvement in Machinery for Picking Cotton and other Fibrous Substances.*—Patented October 31, 1854.

Claim.—Providing the cylinder or other foundation to which the picking-teeth are secured with orifices or perforations *d*, distributed in all directions among the teeth, for the purpose of blowing a number of streams of air among the teeth from the under side of and through the fibres, and thereby expelling outwardly, during the picking operation, all dust and dirt, and loosening the fibres, and finally blowing them from the teeth, as set forth.

Also, the method of securing the teeth H in the cylinder by means of notched strips I and shoulders *h* on the teeth, as described.

No. 11,866.—John M. Krider.—*Improvement in Tailors' Measures.* Patented October 31, 1854.

This improvement pertains to those tailors' measures in which protractors are used for obtaining the direction, in connexion with tapes for obtaining the distance from a fixed point on the measure to any given point on the body; and consists in applying said protractor T, with its metal tape S, among other points on the measure, at that marked 2, where it has not heretofore been placed, and by which, for the first time, the tailor is enabled to determine directly, and by one measurement, the cardinal point A. In use, the measure is applied under the shoulder, the point 1 and strap A' passing round the back horizontally, and the other end being passed over the shoulder, so that the point 2 falls on the shoulder-blade.

Claim.—The use of the protractors T at the point indicated by stud 2, for the purpose of determining the cardinal point A at the top of the back seam, in the manner described.

No. 11,867.—Samuel Lenher.—*Syphons.*—Patented October 31, 1854.

The inventor has obviated the use of various similar devices for partially exhausting the air within the syphon by a simple and effective one around the larger arm; near its extremity he places a packing C, fitting neatly the tubular cap-pipe D. This cap-pipe, being closed at one end and being thrust over this packing, will, on being quickly withdrawn, produce the effect desired.

No. 11,868.—Warren Lillibridge and Charles F. Lillibridge. *Improvement in Flexible Measures.*—Patented October 31, 1854.

This measure is formed of two steel springs *a b*, shown in figure 2 on a large scale, having between them a strip of leather *c*, the whole wound with fine wire *d*, so that the spring will be capable of a longitudinal motion under the wire.

Claim.—The construction of flexible measures substantially as herein set forth, so as to retain and show the form as well as the dimensions of the surface measured.

No. 11,869.—James Edward McConnell.—*Improvement in the Construction of Hollow Railroad Axles.*—Patented October 31, 1854.

The improvement consists in constructing hollow axles of bars of wrought iron running lengthwise, the edges lapping into each other by joints, substantially such as are shown by figures, and which are welded and worked into form, as herein set forth.

No. 11,870.—Daniel Moore.—*Breech-Loading Cartridge.*—Patented October 31, 1854.

This invention consists in forming the base of the cartridge of a cone 1, so as to concentrate and pass the flash from a detonating-cap to the apex of the cone 4.

No. 11,871.—Daniel Moore.—*Breech-Loading Powder-Flask.*—Patented October 31, 1854.

This invention consists in attaching a pipe *c* to the flask *a*, whereby said pipe forms a ramrod to force the ball into the barrel the required distance, and at the same time measures the powder for filling the chamber behind the ball.

No. 11,872.—Vincent Palen.—*Improved Apparatus for Sawing Off Piles under Water.*—Patented October 31, 1854.

This invention consists in the combination of several devices for guiding and holding the saw *a* up to the kerf, so as to prevent it from cramping and buckling in its kerf, viz: the arrangement of the guides L L and saw-shaft H on the adjustable frame D.

No. 11,873.—John Richardson.—*Improved Pen and Pencil Case.*—Patented October 31, 1854.

This is an arrangement of mechanism to protrude or retract the pen or pencil, at the same end of the case, by the act of extending the case to protrude the pen or pencil, and contracting the length of case to draw them in again. This is accomplished by means of racks E and G, and a spur-wheel F, made so as to turn, and engage the pen or pencil when desired.

No. 11,874.—Cancelled.

No. 11,875.—E. W. Scott.—*Machine for Manufacturing Mast Hoops.* Patented October 31, 1854.

This machine is similar to another having rotary cutters for operating on wood. The material is fed, by two ordinary feed-rollers, under the cutters F E, each of which finishes one-half of the round part, the flat side being previously finished. The piece passes between yielding guide-rollers *h s u*, and is allowed to take the course of the grain. The usual pressure-rollers, etc., are used. In the drawing the material is represented in broken lines.

Claim.—The arrangement of the devices mentioned for this purpose.

No. 11,876.—William J. Stevenson.—*Improved Soldering Furnace.* Patented October 30, 1854.

By the common process the work of soldering the bottom of tin cans is frequently attended with disfigurement of the article, and waste of time. The fire of the soldering-furnace being admitted to the whole bottom of the can, melts off the tin; by this device, however, the melting heat is allowed to act only on the groove and lap; a ring of solder being dropped into the former, at once firmly unites the two together. The top of the can is heated in the same manner.

Claim.—Providing a soldering-furnace with an air-tube B, and a recess *a a*, or their equivalents, so that the entire circumference of each of the joints of the can shall be soldered all at once; and during the performance of the same, no other parts of the can besides the lap and that portion of the bottom or top upon which the ring of solder lies exposed to a melting heat, substantially as, and for the purposes, herein described.

No. 11,877.—Samuel R. Thorp.—*Improvement in Odometers.*—Patented October 31, 1854.

On the inner end of the hub of the wheel an eccentric band *d* is attached, the edge of which engages with a flexible spring *a b*, causing it to vibrate horizontally, the said spring being confined at the float and rear end of the odometer-box, so that, as the wheel rotates, the centre of the spring is caused to vibrate as stated. Near the centre of the spring a catch *c* is secured, which, as the spring vibrates, engages with a ratchet wheel 1, causing said wheel to rotate, and, by means of a worm *n*, to rotate a notched wheel marked 2. This notched wheel sustains an index-hand passing on a dial, to indicate the distance travelled.

What I claim as my invention, is the peculiar combination of the spring *a b* with the band *d* and the ratchet-wheel 1. All else I disclaim.

No. 11,878.—Julius Thompson.—*Improvement in Odometers.*—Patented October 31, 1854.

The nature of this invention consists in the peculiar means employed for communicating motion from the wheel of the vehicle to the working part of the implement, viz: by having a cylindrical weight placed within the case of the implement, said weight being detached, and by its own gravity remaining stationary, or not revolving with the wheel, and causing, as the wheel rotates, motion to be communicated to the working parts of the implement. This odometer is attached to the outer end of the hub of the wheel.

Claim.—Communicating motion from the wheel of the vehicle to the working parts of the odometer, by means of a cylindrical weight on wheel D, placed within the case of the implement and detached therefrom, so that said weight or wheel will, by its own gravity, remain at the lower part of the case in one position, and by the arrangement herein shown, viz: the fork E and excentric F, or other suitable device, communicate the necessary motion to the working parts of the implement as the case A rotates.

No. 11,879.—Samuel Vansyckel.—*Improvement in Grate-Bars.*—Patented October 31, 1854.

Claim.—The casting or forming the pins, dowels, or catches *a a*, in one bar or set, with a corresponding hole *c c*, or its equivalent, in the

next bar or set, so that, when put together, they shall be held from warping, twisting, or dropping from the end plates or walls, substantially as described.

No. 11,880.—R. A. Wilder.—*Improvement in Spark-Arrester and Water-Heater.*—Patented October 31, 1854.

The improvement consists in the arrangement of the water-space *f*, the flue-spaces *m* and *e*, and the perforated cone *e*, all concentric with each other, in the manner and for the purposes set forth.

No. 11,881.—S. R. Wilmot.—*Water-Meter.*—Patented October 31, 1854.

This meter measures the water by registering the reciprocations of a piston within a cylinder of known capacity. The length (about fifteen pages) and details of the specification render it only possible to give the claims here.

Claim.—1st. Extending the sides of the piston upward in the form of a tube E, to enter an open-bottomed but closed-top chamber *b*, wherein a quantity of air, or its equivalent, is so confined as to press equally on the water above and below the piston, and thus prevent its overflowing the top of the tube on either side, hence to form an effectual air-seal, or packing, and allow the piston to be fitted to the cylinder so loosely as to produce no friction.

2d. Enclosing all the mechanism actuating the valves within the cylinder itself, or within a chamber having free communication with the same, as shown; thus avoiding the necessity for stuffing-boxes, or packing for the valves, rods, or other parts connected with the valves, and the consequent expense of construction, and friction of such packings, is essentially obviated.

No. 11,882.—Alonzo S. Woodward and Benj. F. Bartlett.—*Improvement in Machinery for Culling Rags for making Paper.*—Patented October 31, 1854.

Claim.—The cylindrics B B, constructed as described, for the purpose of cutting paper, rags, and paper stock.

Also, the cylindrics B B in combination with the cutting-knife F, when arranged and operated as set forth.

Also, the combination of the two sets of feed-rolls M M and Q Q with the cylindrics B B and knife F, one set of the feed-rolls running at a higher speed than the other set, Q Q, for the purpose of evening the stock before it reaches the cylindrics and cutting-knife.

No. 11,883.—William Sewell.—*Improvement in Surface Condensers for Steam-Engines.*—Patented October 31, 1854.

The improvement consists—

1st. In the elastic supplementary tube sheets, constructed and applied substantially, and in the manner and for the purposes, herein described.

2d. In the method for preventing the endwise sliding or creeping of the tubes, by means of a metallic sheet pierced with holes, or a metallic grating or series of bars *g*.

3d. In so constructing the guard *g* that it performs in addition to its own duty the further office of holding down the edges of the elastic tube-sheet, preventing the entrance of water behind the same; and,

Lastly, the injection or showering apertures in combination with a surface condenser, wherein the steam-space is outside of the tubes, and which is also provided with proper entrances and discharges for circulating water through the tubes, whereby a surface condenser may be converted at will into a jet condenser.

No. 11,884.—Daniel C. Ambler.—*Improvement in Sewing Machines.*—Patented November 7, 1854.

The object of this invention is to produce a felling-down stitch, by means of which two pieces of heavy stuff can be sewed together when the edges overlap each other, as in the seams of sails, awnings, &c.

Claim.—The method described of sewing a felling-down or zigzag seam by means of vibrations in a line perpendicular to the seam, or nearly so, imparted either to the needle or the cloth.

Also, the combination with a needle having such motions, or the equivalent thereof, of a shuttle, thrown in a direction perpendicular or nearly so to the general direction of the seam, substantially in the manner and for the purpose specified.

Also, an automatic lever for clamping the thread upon the up-stroke of the needle.

Also, imparting to the needle a partially reciprocating rotating motion upon its own axis, in the manner and for the purposes set forth.

Also, connecting two vibrating needles, each to each, in the manner set forth, whereby one vibrating mechanism serves for both needles, and said needles may also be adjusted so as to sew seams simultaneously at any required distance apart, substantially in the manner described. The automatic lever referred to in the above claim is the small bent lever *m*, (see the drawing,) pivoted at m^1 and attached by means of a hanger m^2 to the needle carriage. One end of this lever is weighted at m^3; the other end of *m* is bent at right-angles as at m^5, under a projection of m^6, and the thread passes between m^5 and m^6 to the needle. As the needle descends, the drag on the thread pulls m^5 down, and lifts m^3, allowing the thread to pass freely. When the needle ascends, the direction of the drag is altered, and the thread has no tendency to lift m^3, which holds it between m^5 and m^6, until the up-stroke is completed.

No. 11,885.—Jno. B. Brennan.—*Improvement in Locks.*—Patented November 7, 1854.

Claim.—Placing the side tumblers *h* between the two arms *c* and F, one of which, F, is attached to the bolt B, and the other arm, *c*, to the bolt-tumbler C; the tumbler *h* having recesses cut in them at each end, and arranged and operating in the manner substantially as set forth.

No. 11,886.—Albert Broughton.—*Improvement in the method of Polishing Stone.*—Patented November 7, 1854; antedated October 24, 1854.

The nature of this invention consists in polishing the surfaces of stones by means of a horizontal rotating plane of stone, or other suitable material, combined with apparatus for holding the stones whilst their surfaces are being polished, arranged in such a manner that the polishing friction exerted by the rotating plane upon the surfaces of the pieces of stone will cause them to rotate upon the axes of the frames which hold them above the revolving plane or disk. The letters *c c* represent the segments of stone which form the rotating plane or disk, placed and secured upon the wooden wheel A, which wheel is supported upon the shaft *d*. *k k* are the stones, suspended in the frames *b b*, *l l*, upon the spindle *e*, connected with the crane *g*.

Claim.—Causing the stones polished to be rotated around their own axes, or the axes of their receiving frames, by the polishing friction produced by the rotating polishing surface upon said stones, substantially as herein set forth.

No. 11,887.—Robert S. Craig.—*Improved Rat-Trap.*—Patented November 7, 1854.

This invention consists in the combination of the several parts shown, whereby the animal is made to shut himself in by pulling on the bait-hook K, and thus releasing the latch I, which then allows the wheel D to revolve and release (by means of the cords L) the trap-doors G G. The animal, being now imprisoned in the dark, seeks escape through a door in front of the hanging-door Q, which has been opened by means of the catch I hooking on to the bent rod S, and thence through the hanging-door Q; in raising which door Q, the detent T is drawn down to release the wheel D, which again revolves, and places the doors G G and the front-door in their first position.

No. 11,888.—Reuben Daniels.—*Water-Wheel.*—Patented November 7, 1854.

The inventor claims an improved joint between the outer rim of the wheel and the annular cap containing the series of shutes. This may be seen at *c c*, in which C represents the shutes and E the wheel, the peculiarity consisting in serrating alternate sections of the rim of the wheel, with the view to more readily clear said joint from any accidental substances, such as weeds, grass, twigs, &c.

Claim.—The claim is to this joint.

No. 11,889.—Ferdinand Davison.—*Improvement in Machines for Drilling Stone.*—Patented November 7, 1854.

This invention consists in the means by which the drill-bar is raised and released. See figure.

Claim.—The peculiar device for clamping and releasing the drills or drill-bars, consisting of the dog D, to which the chain or its equivalent is attached, and the trigger H, for locking and unlocking the same on the drill-bar; said dog and trigger being constructed, combined, and arranged within the catch-block C, substantially as described, so that the latter locks the former at the termination of the descent of the catch-block, and unlocks it at the termination of the ascent thereof, by striking some parts of the framing of the machine, or certain fixtures provided for the purpose.

No. 11,890.—Jacob Green.—*Improvement in the Art of Manufacturing Glass.*—Patented November 7, 1854.

In making use of this invention, the fire-chamber of the furnace is charged with fuel from three to five feet thick; then a sufficient quantity of air is forced through the pipes *g* into the ash-pit, the ash-pit door being closed; the air passing through the burning fuel, produces the combustible gases. (The damper *z* is regulated by the workmen.) Then a sufficient quantity of air is forced through the valves *s*, and becomes heated while passing through the heated pipes *i i*, and is distributed through the nozzles *m m*, in numerous small streams, thus uniting with the combustible gases in passing through the flues *t t*, producing a clear, steady, and intense heat in the furnace. The valves *s* are regulated by the workmen for the complete combustion of the gases.

Claim.—The introduction of a blast of hot air among the combustible gases after they have left the fire-chamber, and during their passage through an intermediate flue; so that the combustible gases and hot air may enter the furnace together, well mixed, and, through the presence of a sufficient supply of oxygen, effect an entire, or nearly entire, combustion of carbon and other combustible matter in the furnace, and consequently a great saving of fuel, and better color and quality of glass. The drawing represents only one half of the furnace, the two halves being exactly alike.

No. 11,891.—Samuel Gumaer.—*Corn-Sheller.*—Patented November 7, 1854.

In this machine A A are two rollers, in the form of truncated cones. They are armed with teeth C C, and work against spring-brakes 1 2 3. As the ears of corn leave the hopper J, they are brought (by the rollers) against teeth *d*, which cut down the large ends of the ears before the latter pass out.

Claim.—The carrying of the ears of corn from the hopper against the brake *d*, by means of the rotation of the cylinder, where the larger portion of the ears are first reduced, preparatory to their being finally divested of the grains, as described.

No. 11,892.—Sheldon S. Hartshorn.—*Improvement of Buckles.*—Patented November 7, 1854.

This improvement consists in making the buckle of three parts, represented in the figures. Fig. 1 is the finished buckle, fig. 3 the tongue, fig. 4 is that part of the buckle to which the standing part of the strap is to be attached, fig. 2 the wire frame.

Claim.—The manufacture of a buckle of *three* parts, by dies or swedges, in such manner that the two ends of the wire of the main frame shall be secured by the socket of the tongue-part, while the other part will have a free, independent motion, when the whole is constructed and fitted for use substantially as described.

No. 11,893.—A. K. Hay.—*Improvement in Glass Furnaces.*—Patented November 7, 1854.

This improvement consists in making a circular trench A around the fire-pot B, and between it and the siege or bench C, for the purpose of receiving the melted glass when the pot overflows or breaks.

Claim.—The trench around the fire-pot and between it and the siege, for the purposes herein set forth.

No. 11,894.—Horace S. Higgens.—*Barrel Machine.*—Patented November 7, 1854.

Claim.—The combination of the shaft A with the sectional expanding cutter-rim D B, for the purpose of chamfering and crozing barrels.

About shaft A, a rim B D, in sections H, F, G, E, is secured so that said sections may move outward or inward independently. These carry knives S to chamfer, and others, *h*, to croze, and others, *g*, to plane the end evenly. The barrel being placed on the rim D B, the sections are allowed to expand outward and fit themselves to the curvature of the cask, by loosening the springs *d b* from catches *n n*. The shaft A being revolved, the result is effected.

No. 11,895.—Thomas Kendall.—*Improvement in Bottle-Stoppers.*—Patented November 7, 1854.

The improvement consists in so constructing the screw-thread of the stopper and neck of a bottle, that the upper face of the thread in the stopper, and the corresponding recesses in the neck, shall be at right angles, or nearly so, to the axis of the neck, by which the firmest of all attainable bearings of a screw-stopper is obtained against any pressure within the bottle.

Claim.—The construction of bottles, jugs, or jars, with a tri-threaded screw in the neck of each, for the purpose of holding safely the cork or stopper thereof, and the convenience of inserting or withdrawing the same; the thread of the said screw having a peculiar form and bevelled surface, indicated by the form of the core on which said bottle-necks are to be formed, and which is herein described.

No. 11,896.—Joseph Leeds.—*Improvements in Furnaces for Warming Buildings.*—Patented November 7, 1854.

The improvement consists in arranging together in one furnace several devices, to wit: for more perfectly consuming the carbonaceous gases rising from the fuel, deflecting the heated current, reversing its direction, causing it to impinge against numerous and extended surfaces, which absorb all the heat before the incombustible gases are permitted to escape.

Claim.—In combination with the chamber above, the fire-box the deflector L and frustrum N, with the exit-pipe, M, passing through it, for the purpose of regulating the draught, and throwing it from the centre towards the side of the burning mass, and thus producing equable combustion, substantially as described.

No. 11,897.—E. E. Marcy.—*Improvement in Volcanizing Elastic Gums.*—Patented November 7, 1854.

The improvement and claim consist in the use of selenium for curing the elastic gums, in the place of sulphur, generally well known for such purpose. No illustration.

No. 11,898.—William Nelson Martin.—*Improvement in Coal-Hods.* Patented November 7, 1854.

This hod is constructed with a chamber C, for receiving the coal-dust, &c., as it falls through the grates F and I. The ordinary motion of the hod for discharging its contents into a stove effects the separation of impurities from the coal, the impurities falling into the chamber below, and which, when so separated, cannot again mingle with the coal. The coal-dust, &c., is discharged when necessary from the orifice A.

Claim.—Separating the main central chamber of a coal hod or bucket from the outer sides and bottom of the same, by an interior lining of sheet-metal, partially perforated, or of sheet-metal and wire grating combined, in such manner as to form a dust-chamber between said lining and the exterior of the hod or bucket, open at the rear and closed in front, by which the coal only will be discharged at the front side of the bucket, and the dust be deposited in the said dust-chamber; and when the coal is all discharged from the bucket, the dust can be removed from its receptacle therein by movements the reverse of those required in discharging the coal from its receptacle, substantially as herein set forth.

No. 11,899.—Ives W. McGaffey.—*Improvement in Potato-Diggers.*—Patented November 7, 1854.

In this machine, E uncovers the potatoes, whilst F digs them. Then two endless chains I and J (driven by cog-wheels upon the hind axles) carry two series of wings K and K[1], which sweep the screen or

separator G, through which the dirt falls, carrying the potatoes up to fall into the box or receiver M.

Claim.—Arranging two endless chains of elevators I J on drivers, (which have their axles standing at right-angles, or nearly so to the screen and digger,) and having the elevators of one of said chains come opposite the spaces of the elevators of the other chain, substantially as and for the purposes herein set forth.

No. 11,900.—B. McKeage.—*Sawing Bolts for Staves.*—Patented November 7, 1854.

The inventor finds that better staves are obtained by cutting the bolts from the block as shown in the figure, in sections whose sides or bounding planes do not pass through the centre or heart of the log, but pass tangent to it or to a circle of a certain size described around the heart.

No. 11,901.—Elliot T. Miller.—*Bomb-Shell.*—Patented November 7, 1854.

This invention consists in perforating bombs or shells with cylindrical apertures or barrels, communicating with the powder chambers in such a manner that shot or other missiles with which said barrels are loaded shall be projected therefrom simultaneously in all directions radiating from the centre of the shell.

Claim. The combination of the barrels *a* and chamber A, in the manner and for the purpose herein set forth, and constructed substantially as herein described.

No. 11,902.—George Miller.—*Improved Manufacture of Round Banding.*—Patented November 7, 1854.

Figure 1 denotes a transverse section of a piece of leather or other suitable material, in the form in which it is to be made previous to its being converted into a round band of my improved kind. Figure 2 exhibits a transverse section of such a band, and indicates the manner in which the strip is rolled up and cemented together.

Claim.—The improved manufacture of round banding, as made substantially as described; that is to say, by reducing a strip of leather or other suitable material to the shape denoted in figure 1, and subsequently rolling and cementing it together into that essentially as exhibited in figure 2.

No. 11,903.—Edmund Morris.—*Slate Frames.*—Patented November 7, 1854.

The frame A B is of a single piece, and is so cut by a circular saw. A groove to admit the slate is cut by passing the frame against a circular saw, which cuts through both ends *a b*, and is just of the width to leave a proper groove in each side to admit the slate through the ends. The piece C is then fitted in at each end, and completes the frame.

No. 11,904.—Marcus P. Norton.—*Improvement in Railroad-Car Brakes.* Patented November 7, 1854.

The object of this improvement is, to apply to a brake having double rubbers clasping the sides of each wheel—a mechanical arrangement, whereby the said rubbers shall always be ready to act upon the forward and descending part of the wheel, in whichever direction the train may be moving, so as to avoid the lifting tendency which would result from the reversed position of the brakes.

Claim.—What I claim as my invention is, the arrangement of machinery above described by which the action of the rubber or rubbers is confined to that part of the car-wheel which, as the car is moving, is forward and moving downward, and, when the direction of the car is reversed, brings another rubber or set of rubbers to act upon the other side of the wheel, which is then in like manner forward and moving downward.

No. 11,905.—Dewey Phillips.—*Farm Gates.*—Patented November 7, 1854.

The inventor combines with the gate frame an adjustable sliding lever L, which, by being confined as regards *vertical* motion at *x* and *j*, (but free to move longitudinally,) serves as a support to the gate. The gate and lever move on friction rollers; and by inspecting the figure, it will be seen that the *thrust* due to weight of gate is transferred from the post *n* to the auxiliary post *o*, thereby preventing all liability to *sag*, or change of position of posts.

No. 11,906.—William E. Rider and John Murphy.—*Improvement in Sulphurizing Gutta Percha and like Gums.*—Patented November 7, 1854.

The improvement consists in the removal of superfluous sulphur from India rubber or gutta percha, when it has been vulcanized or is in the act of being vulcanized, by filling the vulcanizing oven with hydrogen gas during the heating process, called the curing, and allowing the gas to escape as fast as it becomes neutralized; by which, as the inventor alleges, the after accumulation of sulphur upon the surface of said gums is prevented, and consequently the necessity of boiling them in caustic alkali entirely avoided.

Claim.—The claim covers the whole ground, substantially as set forth. No illustration.

No. 11,907.—E. W. Roff.—*Machine for Tenoning Blind Slats.*—Patented November 9, 1854.

Claim.—The employment of the gauge I, applied to an adjustable frame H, for the purpose of cutting the tenons of equal length.

The frame H being adjusted to or from the cutter-head D, to suit any required length of slat, and the guage I being set so that its stop *i* shall be a tenon's length from stop *j*, the slat *l* is placed on the rest F;

then by pushing the sliding gauge I until its *i* abuts against the stop *j*, the tenon will be cut by the revolving cutter D; the spring *k* draws the gauge I back as soon as pressure is released.

No. 11,908.—Charles Rumley.—*Improvement in Steam-Engine Valves.* Patented November 7, 1854.

Claim.—The combination of the compound valve-seat, consisting of an adjustable segment I and a self-adjusting segment J, with a rotating wing-valve K revolving isochronally with the piston, substantially as herein described.

No. 11,909.—Charles Rumley.—*Improvement in Rotary Steam-Engines.*—Patented November 7, 1854.

This improvement will be best understood from the claim allowed, which is to making the internal curvature of the cylinder to coincide with those portions of the lines of two or three intersecting circles of equal radius, and described from centres X, X^1, X^2, occupying the relative positions herein described, which are exterior to the points of intersection, whereby the construction of an elliptical cylinder is greatly simplified, so that it may be bored with precision with an ordinary boring-engine.

No. 11,910.—Isaac Searles.—*Improvement in Machine for Hat-Bodies.* Patented November 7, 1854.

Claim.—The brush-feeding roll B, in combination with the metallic bar Z; also, the use of two or more pickers, when used to throw the fur on all sides of one and the same cone or wire-gauge for the purpose of laying the fibres of fur in all directions, without depending on the rotary motion of the cone to equalize the thickness.

No. 11,911.—Robert M. Selleck.—*Improvement in Harness Saddles.* Patented November 7, 1854.

Claim.—The depressions B B formed on each side of the head of the cast-iron saddle-tree, in combination with the guilet-piece G, the tongue of the gullet-piece serving as a tack-hold, substantially as and for the purposes described. Also, providing the flaps L L with tongues M M, which pass under the lower part of the frame while the flaps pass on the top of the same, substantially as and for the purposes described. Also, making the false seat of tin and separate from the cantle, substantially as and for the purposes set forth.

No. 11,912.—James Slater.—*Circular Saw.*—Patented November 7, 1854.

The saw-plate is scolloped at opposite joints, leaving two opposite toothed segments. The object of thus forming the saw is to avoid the

bad effects produced by the irregularities of motion due to "dead-centres." It may be seen that the saw does not cut while the engine is upon its centres.

No. 11,913.—Jeremiah P. Smith.—*Improvements in Corn-Shellers.* Patented November 7, 1854.

In this machine the ears of corn are fed from hopper *u* upon the left end of toothed-cylinder *a*, and roll against the plain shelling-bar *g*, which is pressed towards the cylinder by a coiled spring *o*. The remaining shelling-bars *g g* have hinges *h h* and springs *i i*, (and all have guides *n* and frames *m*,) so that the ears of corn readily pass from the feeding end of the cylinder towards the right from one shelling-bar to another, and the large or small ears (and either end foremost) are constantly held against the cylinder. Small rests *j j* support the feeding-bars *g g*. A feed agitator *q s* is worked by a crank *r* and bell-crank *t*.

Claim.—I do not claim a concave cylinder, as the same has been in use before, nor the coiled springs *o o* and guides *n n*; but I claim—

1st. The jointed shelling-bars *g g*, having rests *j j* and springs *i i*, in combination with coiled springs *m m* and guides *n n*.

2d. I also claim the vibrating-feeder, operating substantially as set forth.

No. 11,914.—B. H. Washington.—*Improvement in Blast Furnaces.*—Patented November 7, 1854.

The two funnels D E, connected at their apex, are inserted in the casing of the furnaces underneath the fire-grate B, one of the funnels being within the casing and the other without. If the aperture *b* is not provided with the funnel E, the blast enters in the direction of the dotted lines in figure 2, and an eddy is formed around *b*. This, and the friction occasioned by it, is to be avoided by the application of the air-guiding funnel E. The inner funnel D is to serve a similar purpose, in guiding the air from *b* towards the grate.

Claim.—The employment or the use of the two hollow cones or funnels D E, for the purpose as herein shown; said cones or funnels being applied as described, or in any other way to produce the desired effect.

No. 11,915.—E. Webber.—*Machine for forming the Opening in the Heads of Shovel-Handles.*—Patented November 7, 1854.

The piece J is clamped in the revolving rim T by any convenient device, and the spindles T S, carrying the cutters B B^1, are caused to approach by hand-levers *b b*, and thus penetrate through the head, forming the *eye* of the handle. To give the eye its peculiar shape, a slight longitudinal reciprocating movement is intermittently imparted to the carriages G G, by cams E, and the spindles which take against the carriage at proper intervals, thus causing the cutters to form the oblong shape of the eye; the weights W move the carriage of the spindles, in

combination with the cams. One half of figure 2 represents a section, and the other half a side-view of the machine.

Claim.—The mechanical combinations to produce this compound motion.

No. 11,916.—Charles Wilson.—*Improvement in Locks.*—Patented November 7, 1854.

Claim.—The combination of the series of opposite tumblers *t t*, &c., attached to and moving with the bolt, substantially as set forth.

No. 11,917.—Wendell Wright.—*Repeating-Pistol.*—Patented November 7, 1854.

Claim.—1st. The employment or use of the thumb-trigger F, arranged and connected with the cocking-trigger K, substantially as shown, so that the trigger F may be operated by the thumb while the trigger K is operated by the hand.

2d. Countersinking the end of the stop M, which locks or retains the cylinder D as each chamber is fired, for the purpose of enabling said stop to enter the chambers when the cartridge, or powder and balls, are within them.

3d. The flexible pin *l*, at the end of the hammer F, whereby the pin is enabled to adjust itself to the vents *c* of the chambers *b*, and thus insure the ignition of the pills as set forth.

4th. The nipple-boss E at the side of the cylinder D, when said boss is inserted within a cavity *f* in the check-piece, and encompassed by a fire-ring *g*, for the purpose of preventing the explosion of more than a single chamber at once, or at one operation of the trigger K.

No. 11,918.—S. M. Yeaman.—*Improvement in Straw-Cutters.*—Patented November 7, 1854.

In this machine the V-shaped knives *a* and *b* are attached to sliding-frames *c* and *d*, which slide in grooved posts, being held in place by guides *l l*. Lever *i* is pivoted to the centre of frame *c*, and works upon the swinging or vibrating fulcrum *k*, of which the lower end is pivoted to the one post of the machine. Lever *g* is pivoted at the centre to frame *d*, and has a vibrating fulcrum *f* at one end, whilst the other end is connected to lever *i* by link or rod *h*. By this arrangement, if the lever *i* in working the frames be pressed backward against frame *c*, the action of link *h* is intended to draw frame *d* forward, so that the V-shaped knives will have their edges brought together with a closer shear-cut, in order to prevent the knives from sliding upon the straw, in case the frames, by wear, fail to press the knife edges together.

Claim.—I do not, therefore, claim the knives, nor the sliding-frames, nor the system of levers, nor the gauge-board, separate and in detail considered; but what I claim is my method of arranging the operating parts of a straw-cutting machine, for the purpose of making it, by the

pressure exercised during the operation on the driving lever, work close and be effective; when otherwise arranged, from working loose, it would choke or not cut at all.

No. 11,919.—Samuel T. Thomas and Eliza Ann Everett, administratrix of Edward Everett, deceased.—*Improvement in Loom-Beams.* Patented November 7, 1854.

Claim.—Forming the loom-beam of sectional parts or beam *a*, a^1, a^2, which, when arranged side by side on a shaft *b*, form the entire loom-beam, ready for insertion in the loom, by which arrangement the length of the loom-beam may be varied and a variety in the stripes produced, by simply varying the relative positions of the sectional loom-beams in the loom, as set forth.

No. 11,920.—John Jenkins, assignor to Roe, Horton, & Co.—*Improvement in Lifting-Jacks.*—Patented November 7, 1854.

Claim.—The arrangement of axle-rest or seat H, substantially as and for the purpose described.

No. 11,921.—John P. Avery, assignor to Joseph B. Bromley.—*Improvement in Machines for Cutting and Dressing Stone.*—Patented November 7, 1854.

The letters *a a* represent the rails upon which the platform *b* is moved, one of which is tongued for a groove in the wheel *c* to guide the platform; *d b* are brackets, by means of which the slab *e* is secured firmly to the platform *b* by the perpendicular screw 3, and moved towards or from the plate *f*, by means of the screws 2. The slab or block is thus secured to the platform, on a line with revolving face-plate *f*, fastened to which by means of screws are the revolving conical cutters or endless picks, the gritters, or the polisher. *g* is the cutter, *h* the gritter, and *i* the polisher; *j k l* are the clamps, washers, and nuts, for securing the stone to the platform *b*.

Claim.—The combination and arrangement herein specified, with the revolving face-plate or its equivalent, of the rotating taper or conical picks or cutters *g*, operating throughout their length on the stone, to face it, with a velocity or movement on their axis proportioned to the varied velocity given them on the revolving face-plate, which carries and drives them substantially as specified, and whereby the advantages herein set forth are obtained.

No. 11,922.—Edwin Allen.—*Improvement in Machinery for Carving Stone.*—Patented November 7, 1854.

The nature of this improvement is set forth in the claim, by reference to the annexed figure. (N is the tool-shaft.)

Claim.—The employment, for the purpose of carving stone and other substances, of two pantographs, combined with a tracer U and cuttin

tool as described, to wit: the pantographs being arranged at right-anles to each other, and having their main pivots connected or arranged in such way as to form or be equivalent to an universal joint, and the tool and tracer being suspended from or attached to the pantograph O P Q R, and passing through sockets in the legs of the pantograph A B C D, whereby the tracer and tool are allowed a universal movement, as set forth.

No. 11,923.—Levi B. Ball.—*Improvement in Smut Machines.*—Patented November 14, 1854.

The improvement consists in employing in the concave of smut machines, wood or iron slats, or any other hard and soft slats, arranged alternately at right-angles with the back of the fan-wings revolving within, in order to make said slats self-sharpening, the edge of wood or softer substance wearing down below the edge of iron, or the harder substance, and thus forming an appropriate scouring surface.

Claim.—The use or employment of the described slats, or equivalents.

No. 11, 924.—Wm. Bancroft.—*Improvement in Cultivators.*—Patented November 14, 1854.

In the cultivator the standard *c* is raised or lowered by screw *d*, to regulate the depth of working standards *f* and *g*, which are hinged to the beam *a*, to allow the above mentioned movement of *c*, carrying the point of a V-shaped knife *d*.

Claim.—I am aware that a triangular knife like mine has been used; but what I claim is the method of making the knife adjustable upon the frame *a*, by means of standard *c* and hinged standards *f* and *g*, as set forth.

No. 11,925.—Henry Bates.—*Improvement in Slide-Valves.*—Patented November 14, 1854.

The improvement consists in the employment, in combination with the usual slide-valve, of a supplemental exhaust slide-valve C, to be operated by separate mechanism to work over a separate series of ports, which are similarly arranged to, and communicate with, the same passages as the usual ports, for the purpose of giving a free exhaust till the termination of the stroke of the piston, and for enlarging the area of passage for the exhaust. In figure 1, the top view of the valves indicated by dotted lines.

No. 11,926.—William Beebe.—*Improvement in Double Cylinder Boilers.*—Patented November 14, 1854.

The pressure on the water flowing through the mains from public works for supplying cities, diminishes so rapidly towards the close of day that it is difficult, without a force-pump, to fill a reservoir located in the upper apartments of a house. The improvement in this case

applies a remedy and heats the water at the same time, when required for bathing and other household purposes.

Claim.—The combination of two boilers, one within the other, and two reservoirs, one above the other, arranged with one set of connections with a kitchen-range, so that the upper part of a house may be supplied with hot water by means of the upper reservoir, which will derive its supply of cold water either from the roof or from a force-pump; while the lower part of the house will be supplied by means of the lower reservoir, which will derive its supply from the public water-works.

No. 11,927.—Martin Bell and Edward B. Isett.—*Improvement in Apparatus for making Iron.*—Patented November 14, 1854.

This improvement consists of the series of inclined close deoxidizing tubes or vessels C, built of common fire-brick, and arranged so as to be parallel or nearly so with each other; and inclined at an angle of about fifty degrees from the horizon, so as to lie or rest their whole length securely upon a substantial inclined base; and also so as to be exposed only on the two opposite outer sides of each tube to the action of the escaping heat from the furnace, as it passes along through the intermediating flues E, the same being combined with the main flue B, through the openings F, and with the interior of the furnace, each one tube having an adjustable cut-off or sliding-gate N at its lower end, as described: and also combined with a separate horizontal way M, leading directly into and connecting the said tubes with the bottom of the reverberatory furnaces, as described.

No. 11,928.—William Bell.—*Improvement in Lamp-Caps.*—Patented November 14, 1854.

Claim.—The perforation in the lamp-cap, in combination with the short chamber of perforated tin, wire gauze, or other analogous contrivance, by which means the lamp may be filled without removing the cap, and the spirit within the lamp may be protected from igniting when the lamp is filled, without the use of the double cylinder of wire-gauze, or perforated sheet-metal, as heretofore employed.

No. 11,929.—Job Brown.—*Improvement in Cultivator.*—Patented November 14, 1854.

The invention in this cultivator consists in making the pieces *a a*^{1} serve as handles, beam, and tongue; the forward-ends being united, the standards *c c*^{1} are adjustable in relation to each other upon the beams *a a*^{1} and cross-bar *c*, so as to cultivate nearer or more distant from the rows of plants. This cultivator strides two hills, cultivating both sides of each, whilst short standards *h h*^{1} turn the leaning stalks into the rows.

Claim.—The combination of the angular-shaped frame *a a*^{1} (having the two pieces *a* and *a*^{1} united at their forward ends into a tongue,)

with the long standards *d d*^{1}, *e e*^{1}, and short standard *h h*^{1}, in the manner and for the purpose herein set forth.

No. 11,930.—Thomas M. Chapman.—*Device for Adjusting Mill-Saws in their Frames.*—Patented November 14, 1854.

This enables the operator to adjust or take out and replace the saw quickly and accurately, by means of two stocks D D, secured to the gate A, the one to the upper cross-bars C, (represented in the drawing,) and the other to the lower cross-bar, and four stops F on each side of each end of the saw.

Claim.—The combination of these stops and stocks with the saw and its frame.

No. 11,931.—Matthias P. Coons.—*Improved Multigrade Iron Fence.*—Patented November 14, 1854.

Claim.—The devices as represented in the drawing. Figures 1 and 2 represent a view of one of the posts, in which *a*^{1} indicates the pin by which the cap is secured; *y y* are pins on the coupling-plate B to secure it to the post; C represents the pickets; *m* the collar that fits against the post A, and also against the picket C; and E is the sleeve which is fitted between the collars and pickets. Figure 4 a vertical section of the picket marked P, showing in black lines the shape of the mortise, and in dotted lines the positions in which the bar B may be placed. The combination of the collar *m* and sleeve E with the peculiar form of mortise in the section P of the picket, constitutes the entire claim.

No. 11,932.—Horace I. Crandall.—*Mode of Holding Vessels by the Keel, in Sectional Dry and Floating Docks.*—Patented November 4, 1854.

This invention consists in the following arrangement: pins D are inserted into tubes A, which are pivoted at B on each side of the keel-block K; said tubes are kept in a horizontal position by the spring-catch J, till the vessel is floated over and rests upon the keel-block, when, by a pull of the cord J, said tubes, which have weights C attached to them, assume their perpendicular position on each side of the keel.

Claim.—The manner of arranging the materials for the purpose of holding vessels by the keel, &c.

No. 11,933.—George Compton.—*Improvement in Looms.*—Patented November 14, 1854.

Claim.—Arranging two or more patterns upon a single chain E, so that by bringing the rods of the chain in a certain order, one pattern is produced; and by operating them in a different order, another pattern is produced in the manner described. Also, placing two or more patterns upon the rods of the pattern-chains, side by side, and operating them in succession, by vibrating the chain laterally in the manner described. Also, pivoting the lifting and depressing rods G P at one end, the other end being adjustable, in the manner and for the purpose set forth.

No. 11,934.—Daniel Harris, assignor to John P. Bowker, Jr.—*Improvement in Sewing Machines.*—Patented November 14, 1854.

The nature of this invention consists in a simple and effective method of drawing up the slack of the needle-thread as the stitch is tightened up, and holding it until the eye of the needle enters the cloth, when it is left free and loose until the shuttle has passed through, and the needle-bar again rises to tighten up another stitch.

In the drawing, *a* is the tightener, or device which tightens the stitch and holds up the slack thread; *c* is a slot in the arm, in which moves a pin *d*, projecting from the needle-bar D. This slot is so formed that the arm *a* is held by the pin *d* during the upward motion of the needle, until the latter, on descending, has entered the cloth. The pin then strikes upon the inclined portion of the slot, and the arm is thrown into the position represented in figure 2.

Claim.—So arranging the bent arm *a*, that by its movement it shall perform the triple operation of slacking up the thread as the needle is about penetrating the cloth, and admit of the necessary pause whilst the shuttle passes through the loop, and then tighten the stitch in advance of the upward motion of the needle-bar, and draw from the spool the requisite amount of thread for the next stitch.

No. 11,935.—Jonathan Hibbs.—*Improvement in Ploughs.*—Patented November 14, 1854.

This invention consists in placing a toothed roller *a* on each side of the coulter; one of said rollers extending back beyond the standard of the plough, and being driven by a band which passes over a pulley upon driving-wheel *c*, also turns the other roller by means of cog-wheels *d d*, for the purpose of cleaning the coulter of grass or weeds. The inventor is aware that a rocking-shaft has been employed, its teeth being made to vibrate in front of the coulter by the hand of the ploughman.

Claim.—Combining with a plough the revolving weed-clearing rollers, armed with teeth or spikes, said rollers being operated automatically by a wheel attached to the back part of the plough, in the manner and for the purpose substantially as described herein.

No. 11,936.—George Hodgkinson.—*Machine for Paging Books.*—Patented November 14, 1854.

Claim.—1st. The construction and combination, substantially as described, of the pair of taking-up wheels *i*, weighted double-acting

tension-cord *m*, and type-bearer *f w x*, in combination with the square shaft and trigger, and actuating piston or equivalent devices for the proper tension and delivery of the type-bearer *f w x*, during the ultimate advancement and depression of the type.

2d. The series of type-blocks, constructed and arranged as described, and consisting each in succession of the consecutive odd number, coupled with the even number, three units higher in the scale; in combination with an extended platen *e*, and its accessories *b*, *y*, *z*, 1, or equivalent devices, substantially as described, so as to act at each stroke upon the further pages of two consecutive leaves of an unfolded or open book.

3d. The mode herein described and represented of clamping the type-blocks to the band by means of a sheet-metal sheath *x*, enclosing the rear side and edges of the type and type-holders.

No. 11,937.—George T. Leach.—*Improvement in the Method of Engaging and Disengaging Self-Acting Car-Brakes.*—Patented November 14, 1854.

The nature of this improvement consists in the arrangement of a longitudinal rock-shaft L, with arms *g g*, playing in slots of the pawl-arms M N, whereby the said arms may be engaged at pleasure on either side of the rack *a b* of the bumper or draught-bar K, and thus be made to operate the brake either by compression of the bumper or by the traction of the draught-bar, and whether the cars be moving forward or backward, as desired.

Claim.—I do not claim operating the brakes by means of the back movement of the bunter-slide; but what I do claim, is the combination of the two jointed pawl-levers M N, the rock-shaft L and its lever workers *e f*, and the two racks *a b*, as arranged and applied to the bunter-bar K and the brakes, and made to operate substantially as specified.

No. 11,938.—Francis Maton.—*Breech-Loading Gun.*—Patented November 14, 1854.

Claim.—The combination of a sliding breech-piece B, having a semi-spherical socket, and a partially rotating motion whilst closing on the end of the barrel, with a fixed barrel, having a corresponding semi-spherical end, the two forming a cup and ball joint, whereby the powder is brought nearer to the point at which the cap is exploded, a more certain ignition attained, and the joint between the breech-piece and the barrel more effectually closed, substantially as described.

Also, the employment, for the front sight A of a fire-arm, of a needle-wire, or its equivalent, having a bulge or enlargement at or near its middle, which is in a horizontal position when the arm is levelled for firing, as described. Figure 3 is a top view, the handle of the breech-piece being turned in a horizontal position, and the breech-piece itself being slid forward.

No. 11,939.—William Morris.—*Improvement in Omnibus Registers.*—Patented November 14, 1854.

A particular description of this machine would occupy more room than can be assigned it in this Report. The claim, in connexion with the figure, sufficiently shows the device patented.

Claim.—Having thus fully described my invention, and the manner of operating the same, I wish it to be understood that I do not claim the exclusive use of a spring-notched pawl, and gauging with the driving-wheel; but what I do claim as new is, forming a notch *s* near the end of the bell-hammer bar *c*, next the toothed-wheel K, so as to cause the same to act as a double-pawl or stop on the teeth of said wheel, and to prevent a recoil of the same, when the spring-bolt D and cog I have not been drawn sufficiently high to strike the bell and record a fare, and the consequent striking of the bell by the pawl-end of the bar *c* being allowed to move quickly upward upon said recoil, substantially as herein set forth.

No. 11,940.—Joseph Miller.—*Improvement in Railroad-Car Coupling.* Patented November 14, 1854.

Claim.—I do not claim the hooks, as they have been used before; but what I claim as new, and of my own invention, is the combination of the horizontally-acting hook C with the vertically-moving box B, constructed and operated as hereinbefore seth forth.

No. 11,941.—William Moore.—*Improvement in Grain Winnowers.*—Patented November 14, 1854.

The improvement and claim consist in the arrangement of riddles I I around a perpendicular fan *e*, so that grain can pass over each and be acted upon at every desired point by wind from said fans, as represented.

No. 11,942.—Alpheus Myers.—*Tape-worm Trap.*—Patented November 14, 1854.

This trap is made of gold, and is shown set at figure 1, the length being less than an inch, and the diameter ¼ inch. The separate parts, figure 2, are united by inserting spring *g* into cup *a*, and following the former by cup *d* and by cup *b*, which is held upon cup *a* by a bayonet-fastening. In setting the trap, stud *f* catches upon the top of cup *d*. Bait being placed in cup *b*, the trap is set and swallowed, after the patient has fasted several days, one end of cord *h* being returned from the mouth. The worm in reaching the bait through opening *c*, pushes cup *d* from stud *f*, when spring *g* forces upward cup *d*, whose teeth seize the worm, when both the trap and worm may be withdrawn together. In this manner the inventor asserts that he has operated successfully.

Claim.—A trap for the removal of tape-worms from the stomach and intestines, constructed and operating substantially as herein described.

No. 11,943.—Alpheus Myers.—*Operation for Removing Tape-worm from the Stomach.*—Patented November 14, 1854.

This operation consists in making the patient swallow a trap after two to six days fasting, and then leaving him at rest until the worm is caught, when both trap and worm are gently withdrawn. If the worm be not caught in twelve hours, the trap must be inspected and again baited. (See patent No. 11,942 of this report.)

Claim.—The process herein described of removing tape or other worms from the stomach or intestines, by means of a trap which is baited and swallowed by the patient, and is caused to capture them by the seizure of the bait. No illustration.

No. 11,944.—C. B. Normand.—*Method of Controlling Logs in Saw-Mills without a Carriage.*—Patented November 14, 1854. Patented in England October 27, 1852; in France November 5, 1852.

Claim.—The method of controlling and guiding logs in saw-mills by means of a longitudinal bar *f*, the lower edge of which is made sharp to induct the prominent parts of the log parallel to the sawing, the said bar being made movable vertically to admit any sized log beneath it.

Also, in combination with said bar, the employment of a like bar *d*, on which the log rests and moves.

No. 11,945.—C. B. Normand.—*Improved Method of Hanging Saws.*—Patented November 14, 1854.

The first part of this invention relates to the method of hanging the saw-gates, with the view to give to the saws a motion similar to that imparted by hand. The first clause of his claim explains this, viz:

"Connecting the saw-gate with the outer ends of two vibrating beams *e e*; but this I claim only when the said beams diverge from each other from their axes of vibration to their junction with the saw-gate.

"2d. Placing and running the saw-gate horizontally, in combination with placing the carriage with its transverse plane parallel with and below the saws, and passing through the saw-gate." The remaining clause covers supporting the rollers *i i*, composing the bed for the log, in bearings having heights so as to adapt the bed to logs of curvature.

No. 11,946.—C. B. Normand.—*Improved Method of Controlling the Log for Curved and Bevel Sawing.*—Patented November 14, 1854. Patented in England October 27, 1852, and in France November 5, 1852.

This invention is designed more especially for sawing ship-timber to the various bevels and curvatures required, and consists in mechanism

to support and direct the log to the saws in the line of the cut. This is accomplished by an operator during sawing, as follows:

Figure 1. The couplets of rollers $j\ j^1\ j^2\ j^3$ are hung in frames $h\ h^1\ h^2\ h^3$, which are attached to a beam $f\ f$, which turns about bearings $d\ d$ in journals $c\ c$. These rollers $j\ j^1\ j^2\ j^3$ have slight flanges around them at intervals, which take hold of the log. The log is fed over these rollers by two other serrated rollers, beneath the two rollers $j^1\ j^2$. A rod k connects these sets of rollers, so that, by moving the handle r, the axes of the rollers will converge to a common centre. It is plain that, if a log be forced over these rollers, its direction may be governed by moving the handle r at pleasure. This determines the *curve* required. To give the bevel, this entire arrangement is inclined at pleasure by the screw and its attachments, seen in figure 3.

Claim.—"The mode of operation, substantially as specified, for directing the log or timber to the saw or saws, in curvelinear sawing, by means of rollers or their equivalents, whose axes can be shifted at pleasure, as herein specified, to determine and vary the line of motion of the log or timber to the saw or saws, without the necessity of turning or moving the saw or saws laterally, substantially as described."

Also, "mounting the rollers which support the log or timber to be sawed in a swing or vibrating frame, or the equivalent therefor, substantially as specified, so that the plane, tangent to the upper edges of the rollers, can be placed at any desired angle with the plane of motion of the saw, and there retained, or gradually shifted in either direction during the sawing operation, whereby the log or timber can be sawed to any fixed and determined bevel, or to any bevel varying in any desired degree, as set forth."

No. 11,947.—Julius A. Pease.—*Improvement in Overshoes.*—Patented November 14, 1854.

The claim explains the character of this invention, by reference to the accompanying figure. A represents the ribs, and B the depressions between them.

Claim.—Making India rubber or gum shoes with the inner surface ribbed, corrugated, or otherwise made uneven, for the purpose of allowing a circulation of air between it and the boot or shoe over which it is worn; and this, whether it be effected in the precise manner stated, or by lining the shoe with a similar ribbed, corrugated, or otherwise raised and depressed surfaced fabric, as described.

No. 11,948.—Charles A. Robbins.—*Ditching-Plough and Excavator.* Patented November 14, 1854.

This invention consists in the application of a cutter to a ditching-plough, and is explained in the following claim:

Claim.—The employment or use of the vertical reciprocating cutter C, arranged substantially as shown, for the purpose of cutting the earth into sods, or pieces, for the purpose of rendering the earth easy of removal either by hand or by endless aprons.

No. 11,949.—George D. Stillson.—*Excavating Machine.*—Patented November 14, 1854.

The nature of this invention consists in controlling the cutting or scraping edges H of the excavator, so as to keep it always at or about the same relative position in regard to the earth to be removed, and yet be raised or lowered to ease said cutting-edge, when too powerfully resisted, and thus materially aid the scraper in entering and passing through the earth, which is to be raised up to it.

Also, in so hanging the scraper to the frame or axle which supports it, by means of pivoted radial arms E or braces, as that said scraper, with the earth thereon, may, by a hand-wheel or other equivalent device, be first raised up horizontally, or nearly so, a sufficient distance to suspend it on the wheels by which it is to be drawn away, and, by continuing to raise it by the same means, may be dumped and tilted.

Also, in attaching the scraper to the wheel-truck, or frame, by rigid arms D D, so as to employ the entire weight of the carriage and load upon it in holding the scraper to its work.

Also, in the use of a breaker J, placed at or near the front of the scraper, for the purpose of loosening up the earth and facilitating its progress to the rear of the scraper, and to prevent packing or clogging in front of the scraper.

Claim.—Substantially the same as above.

No. 11,950.—William Stoddard.—*Shingle Machine.*—Patented November 14, 1854.

Claim.—1st. The combination of the riving-knife F with its cap-piece *e*, arranged, etc., and operated as described. The cap-piece prevents the block from dropping down upon the bed, so that the back of the riving-knife, on its backward motion, would strike against it.

2d. The spring-stop *g h*.

3d. The clamp *k k*, which seizes the shingle when the driver cease to act, and draws it through, and throws it clear of the machine. This clamp is moved by the rocking-lever *l*. The remaining devices are common in other machines, and the drawings sufficiently explain their construction and connection.

No. 11,951.—Jacob Swartz.—*Improvement in Grain and Grass Harvesters.*—Patented November 14, 1854.

The improvements refer to the combination of devices for obtaining an accelerated motion of the cutter-bar, and to the hinging of the guard-tooth bar U to the frame in such manner as that it may be adjusted vertically when cutting grain, and follow by i s own weight the undulations of the ground when cutting grass, and be self-adjusting independently of the supporting or carrying wheel as it passes along; also, to the manner of supporting the frame of the machine upon the axle of the main carrying and driving wheel, so that it may at pleasure be held in or out of gear with the pinion, as the machine may be

working or being moved from place to place preparatory to its being put in operation.

Claim.—1st. The application to the driving or vibrating of the cutter-bar of crank E, pitman *m*, toggle-levers *j j*, hinged lever P^1, and rod N, for the purpose of giving four reciprocating motions to the cutter-bar U for every revolution of the crank-shaft *c*, substantially as described.

2d. So bringing the cutter-bar U to the machine, by means of the hinged pieces O^1 and Q, as that it may rise and fall in parallel lines, whether used for cutting grain or grass, substantially as described.

No. 11,952.—Benjamin James Tayman.—*Improvement in Machinery for Stretching and Drying Cloth.*—Patented November 14, 1854.

Claim.—The means of stretching the cloth while wet, and carrying the same parallel while being dried, consisting of the endless belts of tenter-hooks D, travelling on adjustable guides or ways H, to accommodate different widths of cloth; which ways are parallel to each other except at the ends, where they converge to allow the cloth to be hooked on and stretched as it is moved forward.

Also, the application of sponge-rollers P P and fan-brushes K, in combination with the drying-cylinder A, to hasten the process of drying.

No. 11,953.—Orson Westgate.—*Saw-Gauge.*—Patented November 14, 1854.

The gauge-plate L is moved parallel to itself, and to any required position, by means of the pinioned-rod C, attached to the gauge and racks F F. The spring R R operates two levers fulcrumed at *o o*, or a brake upon two wheels H H, on the ends of pinion-rod, thus retaining the gauge in any position to which it may be moved.

Claim.—The combination of this brake with the above-mentioned devices.

No. 11,954.—Leon Jarosson.—*Improvements in Method of Constructing Printing-blocks.*—Patented November 14, 1854.

The invention here claimed is cutting several parts of the design of the printing-block, or the design and ground, the one out of the other, from a plate or sheet of prepared felt, wood, or other suitable substance, of the thickness of the required relief; and then securing the parts to the surface of blocks by means of ceme. t, glue, or other suitable means, whereby the cost is reduced, as by the one act of cutting, two printing surfaces are produced, to print with different colors, and an exact fit of the several blocks is insured.

No. 11,955.—George Bruce.—*Improvements in Casting Type.*—Patented November 14, 1854.

This invention consists in applying a blast to cool the type-mould H, by means of the tube E, in the operation of casting.

No. 11,956.—George Crompton and Merrill A. Furbush.—*Improvement in the Rollers of Pattern Chains for Looms.*—Patented November 14, 1854.

This invention consists in arranging the rollers upon a previously-formed wrought-iron tube, which is made of the exact length necessary to bring the rollers, when strung upon the rods, into the required positions.

Claims.—The improvement in pattern-chain rollers, a wrought-iron tube *a* being used for the bearing of the roller, the body of the roller C being secured thereto by casting, in the manner set forth; whereby the rollers, when strung upon the chain, are caused to fall in the exact positions required to operate the hooked jacks, without the necessity of gauging and turning down the roller, as has heretofore been done.

No. 11,957.—Jonathan W. Cadwell.—*Improvement in Draw-Irons for Tow-Lines of Boats.*—Patented November 14, 1854.

The object of this invention is to provide means of instantaneously disengaging tow-lines when required. Figure 1 represents the apparatus when locked. A pawl upon cord *d* moves the end of the lever *c* out of the notch in the tumblers B, which will then fly open and release the tow-line. A ring *n* is cast upon lever *c*, where it passes beneath the deck of the boat, to prevent the trickling of water down the lever into the hold. Spring *s* causes the lever to resume or retain its original position.

Claim.—The arrangement of the frame A, the tumbler B, the lever *c*, with the ring *n*, and spring *s*, the whole operating for the purpose and in the manner substantially as described.

No. 11,958.—John Amsterdam.—*Improvement in the Mode of Lubricating the Cylinders and Bearings of Steam-Engines.*—Patented November 29, 1854.

Claim.—The claim allowed is to placing the lubricating reservoir remote from the boiler, and interposing between the oil and the boiler, water, air, or other substances; which will communicate the pressure from the boiler to the oil, and thus keep the oil from being heated, and yet feeding it to the surface to be lubricated by the pressure from the boiler.

No. 11,959.—Clark Alvord.—*Improvement in Brick-Moulds.*—Patented November 21, 1854.

Fig. 1 is a view of the mould in a position to receive the clay. Fig. 2 presents a view of the back boards and followers detached from the mould. Fig. 3 is a view with the side of the mould removed.

Claim.—The application of the discharging-piston to the hand-mould, substantially in the manner and as above set forth and described.

No. 11,960.—Henry F. Baker.—*Machine for Papering Walls.*—Patented November 21, 1854.

This invention consists in combining within a frame A, the cylinder G, for holding the roll of paper; the paste cylinder H, with its slide K to govern the delivery of the paste on to the roller D; the roller D covered with some spongy material to receive and convey the paste to the paper N; and the roller F, covered with elastic cloth, for the purpose of pressing the paper close to the wall, notwithstanding any inequalities which may be found on its surface, and thus expelling all the air from between it and the paper.

No. 11,961.—Henry F. David.—*Improvement in Sauce-Pans.*—Patented November 21, 1854.

Claim.—My improved manner of opening and closing the cover of a sauce-pan, or stew-pan, and of retaining the same in an open position, viz: by means of the combination of said cover with the rod *d*, which passes through the hollow handle of the pan, and is supplied with a spring-catch, substantially as herein set forth.

No. 11,962.—Charles G. Everitt.—*Improvement in Machines for Closing Sheet-Metal Boxes.*—Patented November 21, 1854.

Claim.—1st. The arrangement of the driving-shaft J and upper roller-shaft F, with the adjustable sliding-boxes D, springs H, treadle I, in relation to the lower-shaft B and frame of the machine, for the ready adjustment and adaptation of other roller-heads, and for the putting in and taking out of the articles being made.

2d. The arrangement of the adjustable spring-frame O, with its adjustable friction-roller *m*, and in relation to the rollers C G, for the purpose of guiding and sustaining the metal pieces of various shapes and different widths.

Fig. 2 represents the apparatus when a metal piece *r* is operated upon.

No. 11,963.—James Freeland.—*Improvement in Valve-Gear.*—Patented November 21, 1854.

Claim.—The employment for the purpose of transmitting motion from the eccentric, or its equivalent, to the slide-valve, of a rock-shaft

A, carrying the eccentric arm B, which is connected with the valve-arm D on the usual valve-shaft C, by means of a connecting lever G, an arc-formed slot I, a rocker F, and links J K, all arranged as described, to give the valve the whole or the greater part of its movement during a comparatively small portion of the revolution of the eccentric or its equivalent.

No. 11,964.—Samuel Greene.—*Improvement in Carding Machines.*—Patented November 21, 1854.

Claim.—The application of the clearer cylinder C and wiper W, as described, by which the impurities of the cotton are taken out and formed into a bat.

No. 11,965.—A. Kendall.—*Shingle Machine.*—Patented November 21, 1854.

This invention consists in certain arrangements of mechanism usually found in such machines, to carry the rived-piece from the hopper through the knives and jointers, and from the machine. Figure 1 illustrates the essential parts. The pieces are placed in hopper G, and being dropped, one at a time, by suitable arrangements, before the drivers G^2, are forced through the knives L L, which dress the sides. The piece is then driven by a clamp-driver Q between two knives (not seen in drawing) situated at *c*, and jointed. These knives approach or recede to suit the width of the shingle. The finished shingle is thence conveyed clear of the machine by an ordinarily operated endless apron.

Claim.—1st. The combination of the hopper G, slide-catch G^1, slide-rests G^2, spiral-spring I, elliptical-spring K, and driver F^2.

2d. The combination of sliding-key *a*, strap *o*, cross-piece *b*, and spring, to hold the shingle while being squared by fingers V^1.

3d. The levers W W^1, tumblers u^1, fingers V^1, slide X, and spring X^1, for squaring the shingle.

The 4th and 5th clauses are levers, cams, etc., for producing certain automatic movements of minor importance, and refer to various drawings which cannot be given here.

No. 11,966.—Jerome B. King.—*Improvement in Kettles for Calcining Plaster of Paris.*—Patented November 21, 1854.

The bottom of the kettle fits loosely its body, as shown in the sketch, giving room for expansion and contraction without injury to the whole apparatus, and admitting of easy removal for repairs or other purposes, while the arched form of said bottom admits of a greater pressure, and therefore of a greater quantity of plaster to be calcined at once.

Claim.—The method herein described of fitting a conical or arched bottom to kettles for calcining plaster, so that the same shall be allowed to slide on its bearings as it expands and contracts, for the purposes as specified.

No. 11,967.—George W. Lee.—*Improvement in Seed-Planters.*—Patented November 21, 1854.

This machine on wheels and an axle, which last carries a cam to work seed-disks M, by means of lever S; G is the hopper, from which the seed is fed by holes *c* in disk M. Bar *a* forms a bottom to holes *c* in disk M. Bar *a* forms a bottom to holes *c* as the latter are filling, and scores *n n* are designed to prevent the seed from rolling from bar *a* (even if the latter be inclined to some extent) until disk M moves forward to sweep off the whole charge of seed at once.

No claim is made to disks having holes, the peculiar form only of holes being novel.

Claim.—The scores *o o*, or their equivalents, at the extremities of the holes *c c* in the disks M, in combination with the gradual narrowing of the holes towards their extremities, so as to save the grain from being cut between the ends of the hole *c* and the edges of the hole *b*, substantially as described.

No. 11,968.—Daniel B. Martin.—*Improvement in Slide-Valves.*—Patented November 21, 1854.

Claim.—The mode of packing balanced slide-valves; the same consisting in the attachment of the packing to the bonnet of the steam-chest; whereby I am enabled to adjust the packing while the engine is in motion.

No. 11,969.—Richard L. Nelson.—*Improvement in the mode of Attaching Life-Preservers to Vests.*—Patented November 21, 1854.

The drawing represents an ordinary vest, with an opening C in the lining, for inserting the life-preserver B (see dotted lines in figure). D is the tube for inflating the life-preserver.

Claim.—The method herein described of arranging a removable life-preserver in a vest or other garment, so that it may be worn with or without it, and so that the fastening of the garment shall serve to secure the life-preserver perfectly to the person, substantially as described.

No. 11,970.—Mighill Nutting.—*Improved Arrangement of Pencils for Drawing Machines.*—Patented November 21, 1854.

Claim.—The arrangement claimed consists in supporting a pencil A by a tube B, so that spiral springs D may be made to operate in pressing the pencil downwards, upwards, or both upwards and downwards, when desirable. The apparatus thus arranged may be supported in a movable frame.

No. 11,971.—Charles Parham.—*Improvement in Sewing Machines.*—Patented November 21, 1854.

Claim.—The shutter carrier and driver A, forming the bearing or seat for the shuttle B during its travel, as well as the guide for it on that

side, coming in contact with the thread loop formed by the needle and freely admitting of the passage of the shuttle through the loop, when the said carrier is arranged and combined for operation, together with the needle and the guide plate C, or its equivalent, on the needle-side of the shuttle, whereby the shuttle is relieved from all friction or rubbing bearing on its thread side of the loop, the thread is prevented from being soiled by lubricating material, and increased freedom of action is given to the shuttle.

No. 11,972.—William Perry.—*Improvement in Spinning Machines.*—Patented November 21, 1854.

Claim.—A movable band or bands, whether made endless or otherwise, of cloth or other material, so constructed that it or they may be traversed upon the bobbin rail M, under the bobbins G G each side, or between the spindles, to graduate the friction under the bobbins, and adjust the drag of the bobbin to suit the yarn being spun upon the frame, as described.

No. 11,973.—John A. Roebling.—*Improvement in the Manufacture of Wire Rope.*—Patented November 21, 1854.

A description of the nature and construction of this invention would occupy too much space in the report.

Claim.—Operating the top wagon by the same driving-rope which operates the twisting machines, for the purpose of regulating the advance of the top in proportion to the twist.

Also, the propulsion and operation of the centre-strand counter-twist machine by the same driving-rope which actuates the main-twist machine, for the purpose of insuring a perfect correspondence between the motion of the two machines, and at the same time to insure the proper tension of the centre-strand by keeping it exposed to the action of a freely-suspended weight.

Also, the combination of the two sheaves with the hollow shaft for operating the endless rope, and to operate the main counter-twist machine.

Also, the whole arrangement, as above described, for operating the main counter-twist by means of an endless driving-rope, which is kept under a great tension by a suspension weight, and being at liberty to rise, allows the machine to advance as the strands shorten, and at the same time insures a constant and uniform tension.

Also, the peculiar arrangement for lowering the weight-box without slackening the driving-rope, by the application of a brake, friction-wheel, and check-wire, in connexion with a windlass and spur-gearing, or the mechanical equivalent therefor, and in combination with the sled and transfer sheave P.

No. 11,974.—Elliot Savage.—*Improvement in Machinery for Threading Screw-Blanks.*—Patented November 21, 1854.

Claim.—The manner in which the screw-blank rest or carriage is moved, in order to form a conical, or approximately conical, or tapering end to the tail part of the screw-blank, in connexion with a cylindrical body and a helix or screw-thread thereon; such movement consisting in turning the screw-blank with respect to the chaser, and subsequently causing it to descend in a vertical line, as set forth.

No. 11,975.—John Lee Stevens.—*Improvement in Furnaces.*—Patented November 21, 1854. Date of English patent, October 1, 1852.

This improvement of double fire-bars and the fire-bridge, faced with a plate F, for dividing the current of enflamed gases, is intended to accomplish a greatly increased combustion of fuel, and to a great extent consume the large quantity of smoke arising from the use of bituminous coal, thereby preventing the waste of fuel.

Claim.—1st. Supplying the lower fire-bars C with ignited fuel from the upper bars D, in the manner and for the purpose described.

2d. The combination of the double fire-bars with the plate F, for dividing first, and then uniting, the gases of each, when said fire-bars are fed with fuel through one door, and have a fire-bridge which is common to both, substantially as described.

No. 11,976.—Samuel H. T. Tilghman.—*Improvement in Inhaling Apparatus.*—Patented November 21, 1854.

This invention consists in an arrangement of a bellows F, in connexion with decoction vessel C and cooler D, for furnishing medicated air to mouth-piece M, in order, by the force of the bellows, to avoid the necessity on the part of a patient of making strong and injurious inspirations. The air escapes from the tube *f*, near the bottom of the vessel C, and, rising through the medical decoction, carries off medicated vapor, which is partially cooled in passing worm *a a a*, in cooler D, and reaches the mouth through C. The separate parts of the apparatus are disclaimed.

Claim.—The combination of worm *a*, tubes *c* and *f*, mouth-piece M, bellows F, and distilling-vessel C, constructed and arranged substantially as set forth, for furnishing medicated air in a comparatively dry state, and assisting the respiration of the patient inhaling it, as hereinbefore specified.

No. 11,977.—William H. Towers.—*Improvement in Clothes-Clamps.*—Patented November 21, 1854.

Claim.—"Securing clothes or other articles on lines by impinging or pressing them between the line and the grooved end of the clamp or

button, having a block at its centre, through which the line passes out of its usual line, in the manner herein described." It will be perceived that the tension of the line holds the clothes between the line and the ends of the clamp.

No. 11,978.—Thomas W. Trussell.—*Dressing Mill-Stones.*—Patented November 21, 1854.

The effect of the surface of this mill-stone dress, which differs from that commonly adopted in being quite smooth and with rounded angles, is to crush and grind rather than cut the grain, and more perfectly separates the farinaceous portion from its husk—rendering only one bolting operation necessary, and yielding more flour for the same quantity of grain than by other methods.

Claim.—Rounding off and polishing the feather-edge or sharp cutting ridge-lines of mill-stones, and reducing the burr or granulated face to a smooth surface, in the manner and for the purpose herein set forth.

No. 11,979.—Isaac Van Bunschoten.—*Improvement in Rosin-Oil Lamps.*—Patented November 21, 1854.

By reference to the annexed figure, the claim explains the characters of this improvement.

Claim.—The means herein described of confining a thick solar or argand wick to the metallic wick-holder, by a finely wove wick or covering, for the purposes substantially as specified.

Also, the cone *d*, in combination with the cone *e* and circular-plate 13, around the wick-tube, to check any sudden draught and prevent the same passing to the flame, in the manner and substantially as specified.

No. 11,980.—Milan Waterbury.—*Improvement in Seed-Planters.*—Patented November 21, 1854.

The accompanying drawings show the hopper B and seeding-wheel C supported on frame A. As wheel C revolves, the cavities 1, 2, 3, and 4, successively rise through the grain in hopper B, said cavities thus having their shallow part filled with seed as at *i*. When the cavity reaches the position of 2, the seed falls into the deeper part, and is afterward kept from falling out by means of scroll D, (as at 3.) until the cavity reaches the position of 4, when the seed falls to the ground.

Claim.—In combination with the cap or scroll D, the peculiar form of the cells; that is to say, the receiving of the grain into the shallow part of the cell, from whence it gradually shifts into the deeper part thereof, and is kept from falling out of the cells by the cap or scroll, by which means the packing or choking of the grain in the cells is entirely avoided, substantially as described.

No. 11,981.—William Watt.—*Improved Process of Rotting Hemp, &c.* Patented November 21, 1854. Patented in England May 22, 1852.

The flax, hemp, or other straw, immediately after being seeded, is exposed in a proper vessel, as exemplified in the drawing, to the action of steam or hot water, of about 150° Fah., from below, and of cold water from above, just sufficient to percolate it with steam, and to cause the condensed vapor to drop down from metal points provided in the covering of the vessel, and through the fibrous material under treatment. The steam draws off, first, the volatile substance; and when this is accomplished, which can be ascertained by the ceasing of a particular odor, the escape-pipe of the steam is closed, when the removal of the extractive matters commences, which are drawn off with the condensing steam, and used for feed for cattle, or in any other way. The fibre, still swollen under the treatment described, is passed through rollers, to accelerate the drying, to displace the epidermis, to crush and flatten the pith or boon, and to split it longitudinally. The whole operation may be completed in 24 hours.

Claim.—The application to flax, straw, and similar vegetable fibrous substances, of a current of steam and hot water, or hot water alone, at a temperature of not less than 150° Fah., substantially as herein described, for the purpose of carrying off the volatile matters of such substances, and dissolving and removing their nitrogenous and other extractive matters in manner hereinbefore described, without the aid of fermentation, acids, or alkalies.

No. 11,982.—Joseph G. Loomis, assignor to W. A. Gardiner.—*Improvement in Surgical Forceps.*—Patented November 21, 1854.

This forcep is so constructed that one blade can make a partial rotation in relation to the other blade, for the purpose of bringing the convexity of the spoon of one blade into the concavity of the spoon of the other, to facilitate the introduction of the forceps, in operating. At the joint of the forceps-blade, A has a slot, which receives two washers *a a*, held by screws *b b*. In each of the washers *a a* is a semi-cylindrical groove, to embrace the contracted central portion of blade B; and one of the washers has two holes *c c*, to receive corresponding studs upon the others. The stud *d*, upon the blade B, fits the two notches *f f* of the washers, and arrests the rotation of one blade in respect to the other.

Claim.—The improved rotary joint, by means of which the instrument may be introduced with one scoop and blade resting within the others, and the instrument then rotated and opened for operation.

No. 11,983.—Thomas C. Ball, assignor to Nathaniel Lamson.—*Improvement in Scythe-Fastenings.*—Patented November 21, 1854.

In the scythe-fastening the band upon the lower end of the snath has upon its flattened side a curved recess E, into which, by a dove-tailed joint, is fitted an adjustable slide D, having the projections or

fulcra F F. The shank K, being placed between the fulcra, has its upper end pressed backward by eccentric or cam G. This action makes the slide D impinge upon the sides of recess E, and keeps the slide, and consequently the scythe, firmly in place.

Claim.—I do not claim the using of a cam or eccentric for confining a scythe, nor the band and extension-plate attached; but what I do claim as my invention is the slide D, with its fulcrums F F, and its corresponding recess E, in connexion with the leverage of the shank K, substantially as set forth.

No. 11,984.—H. Snow, assignor to Jas. A. Woodbury.—*Planing Machine.*—Patented November 21, 1854.

Claim.—Combining the presser-bar H with the rotary cutters, so as to secure the same relative position of the inner (or pressing) edge of the bar and the path of the cutting-edge, in holding and cutting the surface of a board throughout its varying thickness; it may be seen that the bar H is confined, by radial arms F F, at an invariable distance from the shaft of the cutters.

No. 11,985.—Stephen Woodward, assignor to Stephen Woodward, Joseph P. Nelson, and Alonzo C. Carroll.—*Improvement in Apparatus for Drying Clothes.*—Patented November 21, 1854.

This apparatus is provided with a rack G and pinion H, by means of which the radial arms D D are elevated or depressed upon the cylindrical post A; the slide C, in which the arms are placed, being arranged so as to rotate upon the post, whether the slide is elevated or depressed.

I am aware that a clothes-dryer has been made with a series of radial arms, applied to and made to turn on the top of a post; I therefore do not claim such; but what I do claim is my improved clothes-dryer, constructed substantially as described, or so as to enable the series of arms not only to rotate on the top of the post, but be elevated and depressed as described, and so as to remove the clothes out of the way of a person, and to carry them into higher atmospheric currents, as explained.

No. 11,986.—Alden Adams.—*Improvement in Hay and Cotton Presses.* Patented November 21, 1854.

This improvement consists in mounting the rails *h* (upon which the box *d*, containing the material to be pressed, is rolled under the pressing-screw B, and afterwards withdrawn) upon India rubber *s*, and at the same time placing a block X under the position occupied by the box *d*, so that the pressure, instead of being borne by the axles and wheels *i i*, will first depress the rails until the box comes in contact with the block, and then be resisted by the block itself; when the pressure is relieved the India rubber lifts the wheels, and with them the box, from the block, so that it is at liberty to be rolled away.

Claim.—I do not claim the general device of mounting the pressing-box upon a frame-work and rollers, in order that it may be run under the follower and be withdrawn upon rails; but what I do claim is, the combination of the rails *h*, mounted upon India rubber *s*, or its equivalent, with the block X; and during the rise of the follower, the rails will also rise and lift the frame and pressing-box up from the block, ready to be wheeled away.

No. 11,987.—Gotlieb Backstein.—*Fire-Engine.*—Patented November 28, 1854.

The nature of this invention relates to an arrangement of pulling-levers, chains, cross-heads, piston, and cylinder, for the purpose of applying power horizontally to fire-engines. The drawings are so extended, and the claim being only to arrangement of parts above named, that no further description is deemed necessary here.

No. 11,988.—J. N. Cochran.—*Improvement in Quartz-Crushers.*—Patented November 28, 1854. Patented in England November 21, 1853.

These improvements cover devices which enable machinery of this class to be repaired or have its parts restored; also, several adjustments found necessary in working with very heavy balls to avoid breaking various parts, if constructed with too much rigidity.

Claim.—1st. I claim the movable dies or bushings, either with or without the India rubber or other elastic intervening or cushion, in combination with the revolving disk or plate, and balls or shells, substantially as described.

2d. I claim the manner of arranging and stretching the wire-gauze or screen in panels, and securing them to the standards, so as to give a uniform surface to the inner surface of the screen.

3d. I claim the connecting shaft for coupling the driving-shaft with the revolving plate or disk, admitting the revolving plate or disk to vibrate laterally or vertically without affecting the driving-shaft or its bearings, combined and operating substantially as described.

No. 11,989.—John Cram.——*Improvement in Towel-Stand, or Clothes-Horse.*—Patented November 28, 1854.

The drawing and claim sufficiently illustrate this invention.

Claim.—My specified mode of making a clothes-horse, or, in other words, the combination of hanging-frames A B C C^1 with their jointed connecting-bars D E, and one or more tension-racks G, or tension racks and the upright frames F, or their mechanical equivalents, all jointed together, and made to fold up or to unfold, and be used substantially as hereinbefore specified.

No. 11,990.—A. B. Crawford.—*Improvement in Clover-Hullers.*—Patented November 28, 1854.

The invention is confined to the vibrating shovels d^1 *y*, arranged in the throat of the feeding-hopper, to aid in feeding in the crude seed and chaff, by pressing alternately upon said seed as it passes through the hopper.

Claim.—The feeding apparatus, substantially as set forth.

No. 11,991.—Augustus Eliaers.—*Improvement in Seats for Public Buildings.*—Patented November 28, 1854.

This improvement consists in bringing the back of the chair into a vertical or upright position, as the occupant rises from the seat, by the falling of the tilting-seat *c*, which is pivoted at *d*, and sufficiently weighted in rear of such pivot to cause the downward motion of the seat, and which, while dropping, travels against curved arms *z*, attached to the frame-work of the back.

Claim.—I shall not, and do not, claim to have invented the device of tilting the seat by means of weights, or other mechanical equivalents, because, by recent investigations, I have found this to be quite an old device. It is found in the mechanical arrangement for operating the tilting-leaf of the French writing-desk; which, when not in use, is in a vertical position, making a part of the entire plane front of the desk or secretary, and when in use, is in a horizontal position, for the support of the writing materials and the arms of the writer; its inner edge abutting against a rail in the vertical part of the secretary, in the same manner as the seat rests against the under side of the back of my chair; and this desk-leaf is balanced or hung with weights, and tilted by them in a manner which is very generally understood. For this reason, I especially disclaim the tilting of the seat by means of weights, &c. But what I claim as my invention, is actuating the back by the dropping of the tilting-seat, so as to bring it into an upright position by means of the curved arms attached to, or forming a part of, the frame-work of the back, and acted upon by the rear-edge of the seat, or a shoulder in the same, as above set forth.

No. 11,992.—Fletcher Felter.—*Paddle-Wheel.*—Patented November 28, 1854.

Claim.—The combination of the cranked shafts *e* with the vibrating rods *f*, and cam-shaped tracks *g*, in the wheel-house *a a*, for the purpose of turning the edges of the paddles in the direction of the motion of the wheel during their passage through the air.

No. 11,993.—C. B. Gallagher.—*Improvement in Converting Reciprocating into Rotary Motion.*—Patented November 28, 1854.

Claim.—I am aware of the prior invention of Charles A. Watson, for improvements in rotary motion, patented August 1, 1838; and that the impracticability of the same consists in the great friction caused, and necessary power required to disengage the teeth of his racks from the wheel, which in mine is obviated, and the great weight of the frame and two racks, which would be too heavy a strain on the piston at the end of each stroke. In my mode, I only have the one rack attached to the piston-rod, the frame standing still. Finally, I do not claim his invention, or any other of similar character which have been invented prior to my own, but simply my mode of combining the different parts of machinery to effect the desired purpose, as above explained.

What I claim as my invention is the above mode of applying steam-power, caloric, or any other motive-power that may use the straight cylinder, to machinery, in place of the crank, as above explained, reserving the right to vary the construction of the same to suit the different kinds of engines, without changing the principles of invention, as above explained. No illustration.

No. 11,994.—Elias A. Hibbard.—*Improvement in Rotary Cooking-Stoves.*—Patented November 28, 1854.

Claim.—The combining or arranging the reverse manner of draught, the elevating and receding grate, the return flue, the diving and descending flue, the angular plates for burning coal, and the rotary top, in manner, form, and continuity with each other, as set forth.

No. 11,995.—Joseph Hollen.—*Improvement in Knitting Machines.*—Patented November 28, 1854.

Claim.—The combination of the series of projecting teeth *t t*, &c., with the series of needles d^1, arranged and operating as set forth, for the purpose of regulating the stitches and making them even.

Also, the separator *v*, arranged and operated as described, for holding the thread back out of the way of the stitch.

Also, the thread depressor *d*, arranged and operating as described, in combination with the thrust of the needle.

Also, the vibrating feeder i^1, (fig. 2,) arranged and operating as set forth.

No. 11,996.—Whitten E. Kidd.—*Improvement in Dies for Pressing Bonnet Fronts.*—Patented November 28, 1854.

This improvement consists in making the upper of two dies *e c* (between which the strips out of which bonnet-fronts are formed are pressed) with a curved opening *g*, whereby the operator is enabled to grasp the ends of said strip and draw it into the proper curve, whatever be its size.

Claim.—The method, herein described, of constructing the die *e* with the curved opening *g* in its side, for the purpose of enabling the workman to guide and steady the material of which the front is composed, whatever the size of the front may be, substantially as described.

No. 11,997.—Daniel B. Martin.—*Improvements in Steam-Boilers.*—Patented November 28, 1854.

Claim.—The arrangement of the series of tubes E, placed vertically, or nearly so, between an upper D and a lower C, and connecting vertical F, water-space, when the said lower water-space C is made directly over the fire-chamber, and the draught is returned over said lower space, and among the vertical tubes.

No. 11,998.—A. W. McDonald.—*Method of Supplying Tanks of Locomotives with Water.*—Patented November 28, 1854.

The inventor proposes a plan to furnish water to locomotives without stopping the train. The tank is to be air-tight; and being once full, a partial vacuum will remain within it when its water is exhausted. From the side or bottom of the tank *b*, a pipe or hose *a*, supplied with a valve, may be put in connection with a cistern of water *c*, under or on the road, and, as the cars pass, the engineer drops this hose, and the water rises into the tank. He also proposes to lower an inclined trough or plane, at a suitable angle to dip into the pool of water; the velocity of the train will cause the water to ascend thus into the tank.

The claim covers this plan.

No. 11,999.—Jordan L. Mott.—*Improvement in Stoves.*—Patented November 28, 1854.

This improvement consists in placing around the bulging part of an oval stove a fender, consisting of a flat ring or rim, which projects horizontally outwards to a sufficient extent to prevent contact with the heated surface.

Claim —The extended rim, or clothes protector, as described, located or combined with the larger diameters of the fire-chamber, that it may serve as a protection to prevent burning clothes when carelessly passing, as set forth.

No. 12,000.—James Newman.—*Improvement in Manufacture of Metal Rods and Tubes.*—Patented November 28, 1854.

Claim.—The claim allowed is, to producing metallic rods, rails, and bars, having the appearance of solid metal, with a core or centre of sand, sandy, earthy, or other arenaceous material, and of metal tubes, by afterwards boring or drilling out the core or centre, as herein set forth.

No. 12,001.—A. D. Perry.—*Breech-Loading Fire-arm.*—Patented November 28, 1854.

This invention consists in the peculiar and effectual mode of closing the breech of the gun after the cartridge has been inserted, providing most effectually against the escape of gas, and the recoil of the breech-piece under the effect of the discharge.

Claim.—The employment of the revolving segmental breech *a*, having its centre of motion below, and in the line of the face of the breech of the barrel, and a central plug *d* to fit the bore of the barrel, so that when the breech-piece and the breech of the barrel are brought together, they shall fit, in the manner and for the purposes set forth.

Also, I claim, in combination with said breech-piece, the levers *g h i*, arranged and operating as set forth.

Also, in combination with said arrangement or system of levers *g h i*, the recess *k* in the stock of the arm, in the manner and for the purposes set forth.

No. 12,002.—E. K. Root.—*Machine for Boring the Chambers in the Revolving Cylinders of Fire-arms.*—Patented November 28, 1854.

Claim.—The claim is based on the construction of the chuck *i* with a circular eccentric plate *j*, having a recess to receive the block of metal to be drilled, and radial sliding-gripes *r*, operated by the conical surface of a screw-ring *s* to hold the metal in proper centre, while being bored by the instruments arranged in a corresponding tool-carrier *c*, advanced or withdrawn by the levers i^1.

Figure 2 represents detached parts of the machine on an enlarged scale.

No. 12,003.—Daniel W. Shirley.—*Improved Piano-Forte Action.*—Patented November 28, 1854.

In this invention, the back-catch rail *i* turns on a pivot *k*, and carries on its shorter arm, over the pivot, a butt *l*; the block *h* rests loosely on the butt *l*. This invention, as described in the claim, is, "giving the blow to the hammer, and keeping it always in readiness for a blow, by means of the vertical arm *e* and diagonal arm *f*, actuated by the butt *l*, as herein above described."

Also, I claim so arranging the back-catch *m* as to actuate it by the return of the block *h* on the end of the diagonal arm *f*, after each blow, as above set forth.

No. 12,004.—Nathaniel Spence.—*Improvement in Machine for Pressing Bonnet Frames.*—Patented November 28, 1854; antedated November 10, 1854.

In this bonnet-pressing machine, instead of heating the moulds themselves, which often involves the necessity of removing the bonnet that they may be reheated, the lower mould or die E is heated by a heating-iron D, which is placed between it and the table B upon which it is placed, and the upper mould or die F is heated by the heating-irons C C, which are supported upon it by the ledge *b*.

Claim.—The arrangement of the metallic die E and counter die F, with their respective heaters D and *c c*, whereby the dies can be re-

moved without disturbing the heaters, or the heaters removed or changed without opening the dies; the whole being arranged and operating substantially as set forth, for pressing and dyeing bonnet-frames, as described.

No. 12,005.—William Talbot.—*Improvement in Looms for Weaving Bags.*—Patented November 28, 1854.

A description of the nature and operation of this invention would occupy too much space in the Report.

Claim.—In combination with the Jacquard apparatus or series of lifters, their lifting mechanism and the rotary regulator pin-wheel, or its equivalent, the secondary regulator pin-wheel or cylinder, or its equivalent, and a mechanism, substantially as described, (or the equivalent thereof,) for imparting to the secondary pin-wheel, or regulator, its proper motions and intervals of rest, whereby, by the combined action of both regulators, the wearings of the body of the bag and the bottoming of it are carried on as described; the machinery being adapted to the weaving of plain, twilled, or fancy work, as occasion may require.

No. 12,006.—William Tinsly.—*Improved Mitre-Box.*—Patented November 28, 1854.

The novel feature of this invention is an open cylinder, standing in the centre and at the opposite side of the box. Said cylinder is grooved to carry a guide-plate, and turns about a pivot in the socket of a fulcrum. The figure illustrates this.

Claim.—The hollow grooved cylinder adapted to carry saw-guides, combined with a joint, in a hanging adjustable fulcrum, combined with the box, whose back and bed may be adjusted to different angles, the whole being combined with the heel-guides.

No. 12,007.—E. H. Tracy.—*Inclined Sliding-Valves.*—Patented November 28, 1854.

This valve is adapted particularly to horizontal pipes, etc., and its novelty lies in its shoe C, adjustable to the disk A, and sliding in a groove D D in its casing.

Claim.—The claim covers shoeing a valve in the above manner.

No. 12,008.—George Tugnot.—*Improved Rotary Lathe.*—Patented November 28, 1854.

This invention is chiefly designed for turning steamship cranks, and other bulky work. The object to be turned, A, is passed through the centre of a cylinder *c*, and is firmly fixed to the frame B B^1, by means of the side-frames G G^1 and screws g g^1, as shown in figure 2. The sliding rest D is constructed in the usual manner, and receives lateral

movement by a screw not shown. The sliding rest is secured to the inner surface of the cylinder C^1, and upon the periphery of the cylinder C^1 are teeth, into which the driving pinion J gears.

Claim.—Arranging one or more slide-rests within a rotary cylinder in the manner described.

No. 12,009.—D. Van Fleet.—*Planing Machine.*—Patented November 28, 1854.

Claim.—Giving to the throat of the planes the ogee form, the more readily to clear the mouth of shavings.

Also, the combination of the radial arms *b*, b^1, b^2, in pairs, carrying the feed-rollers and planing-knives.

No. 12,010.—William Wakely.—*Improvements in Self-Feeding Metal Drill.*—Patented November 28, 1854.

Claim.—1st. Providing the crank with a sliding handle, and arranging the pinion F on the same, so that it may be thrown into gear with one or both of the wheels C H, (see figures 1 and 2,) as occasion may require.

2d. The arrangement and combination of the pinion F, spur-wheels C H, and drill-stock B, when provided with a screw B^2, substantially as set forth.

3d. I claim, also, the making the wheel H in sections *h h*, and the substitution of a section having a greater number of teeth for one having a lesser number.

No. 12,011.—Theodore E. Weed.—*Improvement in Sewing Machines.*—Patented November 28, 1854.

Claim.—The vibrating spring-fly *a*, whether adjustable or not, for taking up the slack of the thread during the descent of the needle, and releasing the thread as the needle enters the cloth, substantially as set forth.

No. 12,012.—William Wheeler.—*Improvement in Washing Machines.*—Patented November 28, 1854.

This machine is of that class in which a dasher or beater is caused to vibrate between two corrugated surfaces, and thus beat and press the clothes while they are immersed in the washing liquid. The upper part of the dasher is constructed in the form of a box—which is seen in the figure—within which works the eccentric C, which is attached to the shaft D. This shaft revolves in the upright B, and is operated by a crank. The ends F of the box in which the eccentric C revolves are composed of flat springs of wood, or other suitable material. These springs are secured to the top and bottom only, by screws or otherwise; and thus, as the eccentric revolves, should the dasher be ob-

structed before it reaches the end of its path, the spring-plates yield, the eccentric is allowed to pass, and the machine is not stopped.

Claim.—The within-described method of giving motion to the dasher of a washing-machine by means of the eccentric C operating against the elastic plates F, for the purposes set forth.

No. 12,013.—Richards and Winsor.—*Improvement in Ships' Windlasses.*—Patented November 28, 1854.

Claim.—The screw D, detached from the windlass and encircling it, by which the cable is caused to feed itself by the turning of the windlass in heaving in, as herein set forth.

No. 12,014.—Osgood G. Boynton, assignor to Nehemiah Hunt.—*Improvement in Binding Guides for Sewing Machines.*—Patented November 28, 1854; antedated June 1, 1854.

Claim.—So combining the guide I with, or fixing it on, the presser H, that it (the said guide) may be lifted with and by the presser, and rise and fall with it, so as to accommodate the guide to the varying thickness of the material while the sewing of the binding on such material is being effected; and also to support such guide, so that it may offer no such obstruction to turning of the cloth on the base-plate as it would present, were it supported directly on the base-plate.

No. 12,015.—Thomas J. W. Robertson, assignor to T. J. W. Robertson and A. E. Beach.—*Improvement in Sewing-Machines.*—Patented November 28, 1854.

Claim.—Making the interlocked stitch by causing the needle to pass its thread over a stationary thread cast *t*, in which the other thread is contained, in the manner described.

Also, the combination of the sliding-frame *f*, needle-bar *g*, and movable cam *m*, in the manner described.

Also, the combination of the feeding-bar *p*, having a plate *r*, and feed-roller r^1, with the sliding-frame *f*, as described.

No. 12,016.—Arad Woodworth 3d, and George Chamberlain.—*Improvement in Machinery for Making Rope and Cordage.*—Patented November 28, 1854.

Claim.—The arrangement of the bevel gears R S U V W X, or their equivalents, with their guiding holes, for conducting each thread, arranged outside of the centre of the said gears, as set forth, whereby a draught is created upon each thread separately, and the threads in the several spool-frames are prevented from being twisted into strands until they are all brought together, and drawn out of the last spool-frame.

Also, giving the strands, after they are formed, a revolution at the same time and in the same direction that the laying-up machinery

revolves, by means substantially as described, for the purpose of preventing the twist first given from being partially lost or taken out by the process of laying them up; by which each strand retains the same amount of twist that was imparted to it by the twisting-machinery, thus forming an even and hard-twisted rope.

No. 12,017.—Aaron H. Allen.—*Improvement in Seats for Public Buildings.*—Patented December 5, 1854.

These seats may be constructed singly, or several within a continuous frame. The seat itself is hung on a shaft extending from one standard to the other, as represented in the figure, and marked C, by means of metal straps bent around the shaft and secured at the ends to the seat by bolts or screws, as shown in the drawings. The seat is thus allowed to rise and fall around this shaft as a centre; the seat is connected with the shaft at about one-third of the distance from the back end. There is another shaft F extending from one standard to the other, and far enough above and back of the one just described to admit of the back end of the seat resting and pressing upwards against it when the seat is in a horizontal position, by means of which the seat receives and sustains the weight of the body when in use, thus dispensing with a support or standard at the other end. There is attached to the back end of the seat a weight *e*, so that when the seat is relieved of the pressure upon it, it will rise from the horizontal to the vertical position. This end may be accomplished by springs instead of weights, in which case the spring may be formed around or upon the shaft, spiral or otherwise. Instead of the spring and weight, and to accomplish the same result, the back of the seat may be weighted, and allowed to move upwards and downwards in a groove formed in the standard by a pin projecting from each side of it into this groove, and the lower end of the back attached to the back end of the seat by hinges or analogous devices, so that the back, being heavier than that part of the seat extending beyond the shaft *c*, will, when the seat is relieved of the pressure upon it, fall until the pin before mentioned rests upon the lower end of the groove, and thus cause the seat to rise, as before set forth.

Claim.—The seat, constructed, hung, and adjusted substantially as hereinbefore described, so as to assume and retain the vertical position when not in use, whether by means of the weight or spring, or sliding-back, connected and supported by means of the shaft *f*, in figures 1 and 2, or by pins, or other analogous devices, for the connexion and support of the seats.

No. 12,018.—G. S. Blodgett and P. T. Sweet.—*Oven for Baking.* Patented December 5, 1854.

Claim.—The principal point claimed as new consists in the adaptation of the reflecting power of galvanization for heating more effectually the interior spaces of baking-ovens, producing thereby economy in the use of fuel.

Also, the little susceptibility of this material to oxidation, which renders the oven more durable; the whole combined with a particular form of furnace.

No. 12,019.—Patrick Clark.—*Improvement in Steam-Boiler Alarms.* Patented December 5, 1854.

Claim.—1st. The arrangement of the wheel R, turning on the screw of the tube C, with its rod S S and cap O, or any equivalent device, when actuated by the spring Y, or its equivalent, in relation to the valve-stem F and the tube C, by means of which the arrangement adjusts itself to the varying length of the tube C, as it contracts in cooling, after having given an alarm, or after having been used as an ordinary gauge.

2d. The arrangement of the bell H and disk G, on the valve-stem of the valve of the whistle, when, and only when, such arrangement is used in combination with the arrangement of the first claim.

No. 12,020.—Horace J. Crandall.—*Improved Method of Reefing Sails from the Deck.*—Patented December 5, 1854.

Claim.—The arrangement of the rod A with the leaders B, on the under side of the yard, and the manner of reeving the reef-lines C and the pennants D, attached to the close-reef, through the leaders B, connected with the other reefs; and the connecting the reef-points with the leaders on the after side of the sail, and the peculiar arrangement together of the aforementioned parts.

No. 12,021.—Joseph D. Crowell.—*Improved Steering Apparatus.*—Patented December 5, 1854.

Claim.—The manner of combining or arranging the operative parts of the steering apparatus, the rubber-head A and the tiller C, the bearings D of the steering-wheel G being supported directly on the upper end of the rudder and that of the tiller, while the curved rack I is elevated above the deck, about to the level of the top of the rudder-head and the tiller.

No. 12,022.—Joshua Gray.—*Rotary Pump.*—Patented December 5, 1854.

Within a spherical case L two hemispheres B revolve on oblique axes F; these hemispheres are terminated, or capped, by flat or very oblique conical surfaces, whose apices are in contact. A highly elastic diaphragm, passing through these apices, divides the space between these conical surfaces into two parts.

From this construction, it will be seen that, by revolving the axles or shafts E F, a partial vacuum will be formed within the space between the conical surfaces, and, by the usual induction and eduction-

pipes, water may be elevated within known limits. Pins I I on one surface, and corresponding holes on the other, render it only necessary to apply the power to one shaft.

Claim.—The combination of an elastic diaphragm with two conical surfaces, arranged as shown and described.

No. 12,023.—John T. Hammet.—*Improvement in Railroad-Car Seats.* Patented December 5, 1854.

In this improvement upon car-seats, the main device consists in placing the pivot C, on which the seat D revolves, so far one side of or from the centre, that, as the seat is turned, the legs F, or wheels G in the legs of the seat, shall not run into or across any sockets J^1 J^2 J^3 J^4, except those in which it is intended they shall stop; the said sockets being arranged in a plate I, upon the floor of the car, under the end of the seat which adjoins the side of the car. The seat should always be turned in such a direction as to bring its front towards the side of the car, as it is turned from one position to the opposite. The peculiar mode of hanging the seat upon a pivot near its front edge, from its greater length of seat, avoids contact with the side of the car in turning, and reduction of the width of the avenue or space between the ends of the seat, in a car of a given width.

Claim.—1st. Placing the legs or wheels, or the wheels in the legs, in such a position, in relation to the pivot on which the seat revolves, that, as the seat is turned, they (the legs or wheels) shall not run into or across any sockets except those in which it is intended they shall stop, substantially as described.

2d. Placing the pivot near the front edge of the seat, so that it may be made longer, and turned without coming in contact with the side of the car, substantially as described, thereby permitting the seats to be made longer, and arranged to turn in a car of a given width, without reducing the width of the avenue or space between the ends of the seats.

No. 12,024.—Samuel P. Kittle.—*Improvement in Railroad Switches.* Patented December 5, 1854.

Claim.—I am aware that many devices have been essayed for moving railroad switches by means of the locomotive or cars in passing over the track; but I do not claim any of these independent of the effect which I attain by my special means.

But what I do claim as new is the moving of the switch by a passing train, through the intervention of a slotted cam, which will move and then hold or lock the switch to either rail, against the lateral pressure, without the use of any other device than the slot, pin, and pivot, these being arranged substantially in the manner described. The drawings represent the two positions of the slotted cam.

No. 12,025.—John Lilley.—*Improvement in Machinery for Separating the Fibre from the Woody Portion of Tropical Plants.*—Patented December 5, 1854. Patented in England July 21, 1853.

Claim.—The combination of the yielding-knives or scrapers K with the rollers C, when said knives or scrapers are hung on a toggle-joint, and operated by the cams *a*, and thrown out of or into action with said cams by the weighted levers M, first to receive the material, and then to divest it of the refuse matter, substantially as described.

No. 12,026.—Leonard F. Markham.—*Machine for Rounding the Backs of Books.*—Patented December 5, 1854.

Claim.—The combination of a pressure-bar *f*, hung upon proper journals, with a yielding table *b b*, upon which the book is placed; the back of the book being shaped by the action of the said pressure-bar and table, as set forth.

Also, a pressure-bar *f*, hung upon sliding journals *g*, and actuated by the friction-rollers *h* and curved guides *i*, so as to give a forward motion to the said pressure-bar, and thereby adapt the machine to rounding the backs of thick books, as herein above stated.

No. 12,027.—Obadiah Marland.—*Improvement in Paper-Making Machines.*—Patented December 5, 1854. Patented in England September 28, 1854.

The nature of this invention consists in vibrating the revolving cylinder-mould while it is immersed in the pulp, by which motion the fibres of the pulp, as they are successively laid on the cylinder-mould, are caused to overlie each other at angles dependent upon the relative velocities of the two motions of the cylinder, viz: its vibrating and revolving motion.

Claim.—In cylinder paper machines, (where the cylinder-mould revolves within the vat, and is partially immersed in the pulp,) the vibrating the revolving cylinder-mould C, and the part immediately connected therewith, as set forth, and for the purpose described.

No. 12,028.—Obadiah Marland.—*Improvement in Paper-Making Machinery.*—Patented December 5, 1854; in England September 28, 1854.

Claim.—Producing within the vat A of a cylinder paper-making machine, currents and counter-currents of the pulp, parallel, or nearly so, to the axis of the cylinder, by the use of spiral conveyors *m* operating within the partition shell H, or by means of their mechanical equivalents, as described.

No. 12,029.—William H. Miller.—*Improvement in Wash-Stands.*—Patented December 5, 1854

The nature of this invention consists in dividing the wash-stand into several distinct parts, some of which are suitable for water-vessels, in such a manner, that while the wash-stand is made ornamental as an article of furniture, it is also rendered convenient for household purposes. E is a pedestal, upon which is placed a clean water-holder B, provided with a faucet. The top of the water-holder receives upon it a bucket A, for containing the waste-water. In the top of this bucket a wash-basin rim C is placed, into which a wash-basin H is situated, the lower part of which extends into the bucket for holding the waste-water. The flaring wash-basin rim C catches any water which may be spattered out of the basin H, and carries it down through the perforations *d*, into the bucket A. When not in use for the purpose of a wash-stand, a cover or top G is placed upon the wash-basin rim, and it is thus converted into a table for ordinary purposes.

Claim.—A wash-stand made in sections, having its parts constructed so as to form a clean-water reservoir, a waste-water reservoir to receive the waste-water from the basin-rim, basin, and table-top, substantially in the manner and for the purpose set forth.

No. 12,030.—Henry R. Miller.—*Improved Mill for Shelling and Grinding Corn.*—Patented December 5, 1854.

The difference between this invention and that most resembling it consists in the construction of the feeding orifice, in the upper stone, and of the peculiar shaped receptacle below it, in the lower stone; the one rendering it easy to shell a much larger amount of corn than by previous machines, and the other delivering each ear upon the rubbing and grinding surface in a horizontal position.

Claim.—The construction and arrangement, herein shown and described, of the circumscribed or enclosed concaves N, having their shoulders *s* of equal depth or thereabouts, and made with an abrupt stop at their outer corner, by the junction of the outer boundary-line of the concave with the shoulder *s*, when combined and operating together with the adjusting bosom M in the other stone, and extending, as specified, to cover or act over the whole surface of the concave, whereby the ears of corn fed into between the stones promiscuously, and several at a time, are prevented from passing out of the concave otherwise than over the draught shoulder *s*, and are gradually turned, borne, or pressed by the bosom M against the draught shoulder, an equal extent of contact therewith throughout their length, for the better adjustment of the several ears into a proper cross-wise position for shelling, and travel between the inner furrowed surface of the stones, as herein set forth.

No. 12,031.—Wm. Henry Plumb.—*Improved Machine for Crushing Ores.*—Patented December 5, 1854.

The nature of this invention consists in arranging a series of crushing-rollers E F at the extremities of the radial arms A A of a revolving crank-shaft B, this shaft being geared by two links *c c* to a fixed point D, securing thus a revolving, and at the same time a crushing and sliding motion upon the material to be ground.

No. 12,032.—John Roebling.—*Improvement in Steam-Boilers.*—Patented December 5, 1854.

Claim.—The arrangement of the extended grate surface, elaborating or central combustion-chamber *c c*, the tube-sheets *v* and *t*, and the tubular water-surface between the said wheels.

No. 12,033.—Michael Shimer.—*Improvement in Railroad-Car Brakes.*—Patented December 5, 1854.

Claim.—I am aware that the use of a shoe, made of iron or other materials, and pressed down upon the rail by the weight of the car, is a well-known device for checking the speed of a train of cars. I make no claim to such shoe, in or of itself; but I believe this species of brake has thus far proved unsatisfactory, on account of the violent concussions which have resulted in consequence of the defective mode in which they were constructed. I profess to have discovered the remedy for this difficulty, and now ask a patent only for the special contrivances by which this is effected.

What I claim is, the inclined curved bar G and elliptical spring C, in combination with the elastic chain *g* and the slotted bar B, for the purpose of preventing the shoe A from being broken.

No. 12,034.—James E. Simpson.—*Dry-Docks.*—Patented December 5, 1854.

This invention consists in making use of the natural clay foundation for the floor of the dock, the sides and back end being formed of piles, the puddling between the inner and outer piling resting upon the clay floor, and forming a continuation of it, after the manner in which coffer-dams are puddled; the front end of the dock, through which the vessels are admitted, being occupied by the gates.

Claim.—The claims are substantially the same as above.

No. 12,035.—Thomas J. Sloan.—*Method of Casting Window-Sashes.*—Patented December 5, 1854.

Claim.—Moulding and casting metallic window-sashes, with auxiliary bars *e e*, *f f*, as shown, to keep the rails straight during the contraction of the metal in cooling, and then to be cut or broken out.

No. 12,036.—David G. Smith.—*Improvement in the Running-Gear of Railroad-Cars.*—Patented December 5, 1854.

Claim.—What I claim as new, is a six-wheel truck, having on that end of it next the end of the car a pair of wheels C^1 with semi-conical threads and no flanges, and united to the truck-frame, which is also supported on two other pairs of wheels of the ordinary construction, by the supporting-plate D, king-bolt F F^1, and connecting-rods I I, so that said pair of wheels C^1 may have a lateral motion on the rails, independent of the other pairs, and yet support their due proportion of the weight of the car, substantially in the manner and for the purpose herein described. The figure represents only one-half of the truck, the other half being exactly alike.

No. 12,037.—Matthew Stewart.—*Improvement in the Manufacture of Brushes.*—Patented December 5, 1854.

A, in the figure, are circular or bell-shaped tubes; B, short cylindroid or elliptical tubes, with which the circular and bell-shaped tubes are united, so as to form one tube, adapted at its outer or elliptical end to compress and give to the bunches of bristle a flattened shape, and within its inner or bell-shaped part to allow the root-ends of the bristles to expand over the tie-wire C, and also to hold the cement.

Claim.—I do not claim the use of conical or bell-shaped tubes for binding the knots of bristles, and leaving room for the expansion of the roots of the bristles in the enlarged end of the tubes, such conical or enlarged tubes so used not being new; but what I do claim is, the use, in combination therewith, of a wire for binding the knot of bristles before their insertion, the said wire being supported or held by coming in contact with the sides of the tubes, or suitable projections thereon, as described.

No. 12,038.—Amasa Stone.—*Method of Extinguishing Fires in Inaccessible Places.*—Patented December 5, 1854.

Mr. Stone suspends a reservoir C in the room, so that it may vibrate freely. Several eduction-pipes J J are so attached to this reservoir, that when water is forced (by an engine) into it, the reaction of the jets issuing from said eduction-pipes will cause the reservoir to swing to and fro, and thus scatter the water over the entire space.

Claim.—1st. The oscillating reservoir, in connexion with exterior water-pipes or hose.

2d. The combination of reacting arms, valves, and reservoir, by which the desired movement of the reservoir is effected. It may be remarked that the jets are alternately shut off and let on by means of what is known as the trunnion-valve arrangement.

No. 12,039.—Thomas T. Tasker.—*Regulating Furnaces of Hot-Water Apparatus.*—Patented December 5, 1854.

A quantity of water in the vessel F rises and falls, by expansion and contraction of its volume, from the head of the furnace. The floats H H, resting upon the surface of the water, move in correspondence with it, and actuate the rods K K and I, which are linked to the valves and dampers giving admission of air to the furnace. The water expanding from excess of heat, closes the dampers, and vice versa.

Claim.—The arrangement of the two sets of floats operating the valves M O, and dampers P, and the open vessel F, in combination with a circulating hot-water apparatus, as set forth.

No. 12,040.—James Taylor.—*Improvement in Covering Cotton Thread with Wool.*—Patented December 5, 1854.

Claim.—The employment of the rubbing rollers *q r s t*, in combination with the arrangement of mechanism herein described and shown, for uniting the bands of wool around the cotton thread, substantially as set forth.

No. 12,041.—William D. Titus.—*Improvement in Lanterns.*—Patented December 5, 1854.

A slotted sliding cone moving in lateral grooves over an orifice, and dropping down over a tubulated match-holder, protects the lighted match from sudden currents of air, and operates as a safeguard against the communication of fire from sparks.

Claim.—The combination with the lantern-case of the slotted cone D, which is so arranged as to fall by its own weight and fit upon the match-holder during the operation of lighting the lamp, in the manner and for the purposes set forth.

No. 12,042.—Ellis Webb.—*Hydraulic Ram.*—Patented December 5, 1854.

1st. The inventor avoids lifting the column of water resting on the valve in the air-chamber, by substituting a long conic valve G, which extends above the surface of the water.

2d. A check-valve *f* is introduced into the eduction-pipe, after the water has left the air-chamber, to check the reaction of the water already passed off.

3d. He introduces air to prevent the rapid absorption of air in the chamber.

Claim.—The claims cover these three essentials to the effectiveness of his ram.

No. 11,043.—Eldridge Webber.—*Improvement in Churns.*—Patented December 5, 1854.

This invention consists in constructing the body A of the churn in the shape of an inverted cone, and with a dasher D of the same form, having a projecting flange *b* around the base of the cone; which combination causes the forcing of the entire body of cream from the bottom of the churn at each stroke of the dasher, while the projecting flange creates a friction and agitation of the cream.

Claim.—The combination of the flanged inverted conical dasher D, with the inverted conical cream-chamber A, arranged and operating as described, for the purpose set forth.

No. 12,044.—Cyrenus Wheeler, Jr.—*Improvement in Grain and Grass Harvesters.*—Patented December 5, 1854.

Claim.—Having the cutter-bar *h*, provided for the purpose, with a socket *z* to one extremity of the arched-bar *w*, by means of joints *a a* and segments *b c*, said arched-bar being in its turn pivoted in *x* to the main frame A, all for the purpose of giving the cutter-bar *h*, by means of levers *y d f g*, a motion independent of the frame, and both rotating longitudinally parallel to the ground, and oscillating radially from the joints *a a* in order to adapt the same to the inequalities of the ground, or to stop its action at pleasure.

No. 12,045.—Franklin Darracott, assignor to George Darracott. *Improvement in Gas-Meters.*—Patented December 5, 1854.

The improvement consists in the arrangement of two pairs of bellows vibrating between three vertical stationary partitions, and combined with a (common to each pair of bellows) four-way vibrating-cock or valve-piece, through which all the gas measured passes, in going into and coming out of the measuring chambers. The measuring is performed entirely within the measuring-bellows. The method employed of giving motion to the valve, and the system of arms or levers by which it is rotated, is disclaimed, and the claims are restricted to—

1st. The use of measuring chambers (Q, R, S, T.) arranged in pairs as described, and similarly enclosed, by means of the flexible leather, secured to the stationary and movable diaphragms (*b b*, C C,) the latter (C C,) being placed between the chambers and forming one side of each of them, and connected to the parts which they are to actuate, by means of attachments to their peripheries (E E¹, H H, *c c*,) as set forth.

2d. In combination with the measuring-chambers of a dry gas-meter, the within described rotating valve, (fig. 2,) with its inlet and outlet passages, constructed and operating in the manner herein set forth.

3d. Opening a communication between the space (A) which surrounds the measuring chambers and the inlet-pipe, when the registering

takes place only from the gas within the chambers, whereby an equal and uniform pressure exists at all times, upon both sides of the leather which unites the diaphragms.

No. 12,046.—JOHN PEPPER, JR., assignor to the FRANKLIN MILLS.—*Improvement in Knitting-Machines.*—Patented December 5, 1854.

Claim.—Combining an annular series of hooked needles and a series of radial and sliding hooked needles, so as to operate together and with a rotary toothed-wheel or sinker K and two rotary presser-wheels, and produce ribbed work, substantially as specified.

Also, the improvement of making a part of the cam or lip of the cam-plate adjustable, substantially in the manner and for the purpose of removing a needle of the second series from the rest, when necessary.

Also, the arrangement of the second series of needles, with respect to the other or first series; that is, the so arranging them that their plane shall cut that of the upper ends of the needles of the first set, and dip below and rise above the same; such arrangement causing the stitches of the first set of needles to be elevated and cast off, or over the loops or yarn of the second set, by the lifting power or action of the second series, during its rotary motion, as specified.

No. 12,047.—J. REGESTER, assignor to CAMPITT & REGESTER.—*Lubricating Apparatus.*—Patented December 5, 1854.

The nature of this invention consists in combining the reservoir with a central conical spindle or stem, by means of two sockets or bearings—one at the upper, the other at the lower part.

Claim.—The combination of the reservoir K with the central conical stem C, by means of two sockets or bearings *f d*, in which sockets there are vents *w r*, corresponding with the vents or passages of the central stem, which are alternately opened and closed by partially revolving the reservoir about the stem.

No. 12,048.—NATHAN AMES.—*Improvement in Polygraphs.*—Patented December 12, 1854.

Claim.—The horizontal parallel wires B B¹ and D D¹, and the connecting wire C, arranged as shown in the drawing, so that by means of them the pen-holder E E may be supported and guided with as little friction and weight as possible, and the elasticity of the wire D D¹ supporting the pens at an equal distance from the paper, when not pressed down by means of the handle H.

No. 12,049.—NATHAN AMES.—*Improved Polygraph.*—Patented December 12, 1854.

This invention consists in arranging two or more tables, one above the other, for the purpose of uniting on two or more sheets of paper,

which are fastened to the tables A and A¹. The sheet is fastened to the table A, by the strip B, hinges to A by the hinges *v v*, and to the table A by the piece W¹. And also in arranging two or more pens O, one above the other, in the ends of a forked pen-holder, consisting of as many prongs as there are tables, and being moved by means of the wires G G¹, H, I, I¹, and cylinder K, and braces M M¹, and tubes J J¹, and wires L L¹, in the same direction simultaneously. And also in arranging two or more inkstands D D¹, one above another one for each pen, as shown.

No. 12,050.—GAETEN BONELLI.—*Improvement in Operating Looms by Electricity.*—Patented December 12, 1854. Patented in France August 15, 1853.

Claim.—The application of electricity, or of electro-magnets, to power-looms, in order to raise or to keep in an elevated state the hooks and headles, in the required order to form the design or pattern of fashioned stuff, such as shawls, carpets, ribbons, etc., as described.

Also, the various means of making such designs on metallic surfaces, by means of an insulating material, and the use, for this purpose, of varnish, of weavings, or paper, painted or colored with metallic substances, of paper cut out, or pinked, or pierced.

No. 12,051.—B. F. BROWN.—*Improved Mode of Hanging Carriage Bodies.* Patented December 12, 1854.

Claim.—1st. The combination of the C springs and perches *e*, arranged substantially as above described, for sustaining the weight of the carriage body, and for relieving the said carriage body from sudden jolts; the combined action being such as to give an easy and elastic motive to the carriage body; and, secondly, the combination of the C springs, perches *e*, and thorough braces *g g*, the said thorough-braces operating to give an easy motion to the carriage body, and preventing the swaying of said body from twisting or bending the C springs.

No. 12,052.—MATTHEW CRIDGE and SAMUEL WADSWORTH.—*Improvement in Oscillating Engines.*—Patented December 12, 1854.

Claim.—The arrangement of adjusting the side-pipe L of an oscillating engine by means of set-screws M M, to act directly on the places where the steam reacts, viz: opposite the steam and escape openings in the surfaces *c d* of the side-pipe, and of resisting at the same time the reacting power of the steam against the side of the cylinder, by means of a counter-set screw N; the set-screws M and counter set-screw N forming a complete system of regulation, for the purpose of keeping the surfaces between the cylinder and side-pipe steam-tight, and adjusting the position of the cylinder, as herein set forth.

No. 12,053.—William H. Cumberland.—*Improvement in Machine for Bending Metal.*—Patented December 12, 1854.

(*Note.*—This improved machine is too complex to be understood without the specification and all the drawings, which are too extensive to be given here.)

Claim.—What I claim as my invention is—

1st. The arrangement and connexion, in any manner substantially as herein described, of the parts A B and C, termed, respectively, the bed, the down-hold, and the die-piece, and employing the two former for holding the slat or piece of metal to be operated upon, and the latter for holding the die, or dies, whereby the resistance of the slat or piece operated upon, to the bending or forming operation, causes it to transmit the power necessary to produce the pressure for holding it, as herein fully set forth.

2d. Furnishing the down-hold, or movable holding-part B, with a catch W, which is so formed and arranged that it may be brought to a suitable position to catch on the die-piece, or on an arm attached thereto, when the die-piece has moved back to a certain distance after the die has done its work, and thereby attaching the down-hold to the die-piece, so that the former is raised by the movement of the latter, and thus caused to liberate the slat or other article which it has held in place.

3d. Controlling the operation of the catch W, so that it shall only catch the die-piece during every second return movement, or after it has made as many movements as may be necessary to produce the required form on the slat, or other article, by means of the lifter-wheel Z, ratchet Z^1, and click-piece Z^1, all arranged and operating as herein described.

4th. Constructing the back part of the face of the down-hold with a series of projections and recesses, and the front *r* of the die-piece, above the die, with similar projections and recesses, fitting to the projections and recesses on the down-hold, as described, for the purpose of affording support to the upper side of the slat or piece on the side opposite the bend, during the bending operation, and allowing the die to work up as close as is necessary to the edge of the bed and down-hold.

5th. The employment of two or more dies e^1 e^2, of different depths, or of different form, arranged in or upon a roll E, which has such movements on its axis, as described, as to bring the said dies successively into operation upon the slat, or other article, whereby a form, requiring two or more distinct operations of the die to produce it, is produced on the slat or article without releasing it.

6th. Attaching the back-hold plate D, which regulates the position of the slats on the bed to the bed, by springs K K, of any suitable description, for the purpose of allowing it to yield to the movement which the slat is caused to receive upon the bed by the tightening of the down-hold, and for allowing the movement which is given to it for the purpose of throwing out the slat.

7th. Furnishing the back-hold plate D with a flat piece D^1 hinged to it, so as to be thrown down on the bed at pleasure, for the purpose

of regulating the position of the slat when the second scroll is to be formed, and compensating for the reduced width of the slat, caused by the bending of the first scroll, as herein fully described.

8th. Giving to the back-hold plates D and D^1 the necessary movement to expel the slat or piece, after the scroll or other form is produced on either edge thereof, and suddenly leaving it free to be returned, by the action of the springs K K, to the proper position, to adjust a new slat or piece upon the bed, by connecting it with a lever F F^1, which is furnished with a spring-piece I, which is operated upon, as described, by pieces I^1 I^1 attached to the down-hold, every time the latter moves to liberate a slat or piece.

9th. The arrangement of the dies relatively to the arc described by the axis of the die-roll, as herein described, and represented in figure 8*, whereby the resistance of the metal to the bending or forming operations of the two dies is made to act in such a direction as to cause the die to have a tendency to turn on its axis in the proper direction, to bring the projecting-piece 17 into contact with the stop 18 or 19, as may be required.

10th. The method, herein described, of turning the die-roll E back and forth, to change the position of the dies e^1 e^2 by means of catches *x x*, which are attached to the bed, and stand in such positions that, when the die-piece swings back, they catch on studs Y Y^1 attached to the die-roll at a distance from its axis.

11th. Attaching the studs Y Y^1 to a pair of levers O O^1, which are attached to the die-roll, and so formed and arranged, and controlled by a spring 33, that, when the studs are caught by catches *x* x^1, which turn the die-roll on its axis, the levers are caused to act upon a double pawl J, which is so arranged to fall behind either of two projecting pieces 17 32 on the die-roll, for the purpose of holding it against one of two fixed stops 18 19, and to move the said pawl, so as to release one of the projecting pieces and fall behind the other, and thus release the die-roll from the position in which one die is operative, and secure it after it has been moved to the position in which the other die is operative, as herein fully described.

12th. The arrangement of the preparatory dies P P^1 relatively to the bed, the down-hold, and the die-piece, which carries the bending dies, as described, whereby the attendant is enabled to conduct the operations of the preparatory dies upon one slat, and the bending dies upon another slat, at the same time.

No. 12,054.—T. O. Cutler.—*Machine for Crushing and Grinding Minerals, and other Substances.*—Patented December 12, 1854.

Claim.—Combining with the rotary pan or shell, having a rim, against which the substance to be crushed or ground is distributed and held by centrifugal force, substantially as herein described, one or more wheels, with rounded or bevelled treads, and turning on axes radiating, or nearly so, from the axis of the pan or shell, and whose planes of motion are tangent to a circle of less diameter than the view of the pan, substantially as, and for the purpose, specified.

No. 12,055.—Charles Danforth.—*Improvement in Throstles for Spinning Cotton.*—Patented December 12, 1854.

Claim.—Connecting together the spindle-rails D D and E E, from side to side of the frame, in two or more sections, connecting the guards *j j* and guide-wire-boards *f f* with the spindle-rails, so that they will traverse with them, and constructing and arranging the traverse movements so that the different sections will counterbalance each other, as described.

No. 12,056.—G. W. French and William Wagstaff.—*Improved Method of Destroying Vermin.*—Patented December 12, 1854.

The figures represent one method of applying this invention, which consists in destroying vermin by means of a mixture of heated air and steam, in a somewhat confined space. Steam-boiler A is heated by lamp *g*, and covered by hood *f*. As the steam issues from tube *k*, it mixes with heated air coming from the hood by tube *h*, and the mixture is forced forward in flexible tube *m*, and brought in contact with the furniture or fabrics, for the purpose of heating them, without injury from excess of moisture or dryness. The tube *m* may be passed in the backs of stuffed sofas or chairs, or into a close chamber, into which articles have been placed for the purpose of destroying insects, larva, and eggs, by heat. The inventors disclaim the use of heated air or steam, either separately or when the latter simply issues in a jet from a boiler under pressure.

Claim.—The use of a current of steam, issuing from a boiler under high pressure, in such a manner as to mix with a current of heated air, and to drive the mixture forcibly forward, in a somewhat confined state, until it comes in contact with furniture, fabrics, &c., in order rapidly to heat the surfaces and crevices, for the purpose of destroying vermin, without injury to the cabinet-ware, woolen or other fabrics, substantially as set forth.

No. 12,057.—Moses Gates.—*Improved Method of Constructing Hoes.* Patented December 12, 1854.

This invention consists in cutting through the plate of the hoe a round hole with notches, as seen at E, and inserting into this hole the end of tube A up to shoulder B, and then heading down the end of the tube as shown at F. Whilst the shoulder B presses one side of the plate, the heading presses the other. The joint is also strengthened by brazing. The applicant pretends to no new process of working metals, but only the application to making a hoe.

Claim.—The construction of the tube or socket with a shoulder on the end, to be attached to the blade or plate; the attachment of the same to the plate, by drawing it through the plate, and hammering down the end of the tube, so as to form a burr or rivet-head on the outside of the plate, and the more firm attachment of the tube or socket to the plate by soldering or brazing, as described in the foregoing specifications.

No. 12,058.—John Good.—*Improvement in Coffins.*—Patented December 12, 1854.

This coffin is made with double walls. The bottom is designed to receive a quantity of ice, upon which rests a false bottom D. The space A receives the corpse, above which is placed an ice-tray C, with a glazed window F. This tray has a collar, which fits over rim *m* into a gutter, which is to be filled with water, forming a water-joint to exclude the air when cover B is removed for replenishing the ice in tray C. As the ice in tray C melts, the water thus formed flows through tube I, which with cap G forms a water-valve, which may overflow through tube H. Tube K receives the water from tube H, and also from the melting ice in the lower part of the coffin, and forms a water-valve with cup L, which discharges the excess of water over its top. The inventor is aware that water-valves are in common use.

Claim.—The collar over rim *m*, reservoirs G and L, in connection with pipes H, I, and K; the various parts being arranged and connected as set forth in the specifications and drawings, and acting in manner and for the purpose herein specified.

No. 12,059.—E. L. Hagar.—*Harrows: improvement in Securing Adjustable Teeth.*—Patented December 12, 1854.

This invention is seen in figure 2, where tooth H is shown upright, and also (in dotted lines) in an oblique position. The plate E E fits into a recess in the beam A, and both it and the tooth are held in place by a bolt I J, having a nut *f*. By means of notches *e e*, and corresponding tongues, the teeth can be set of any length, and when worn dull or broken at the point, be readily removed, resharpened and used again.

Claim.—The manner herein shown and described of securing the harrow-teeth to the frame A, in combination with the means employed for making said teeth capable of being adjusted from a vertical to an oblique position, and of being set to any depth desired, for the purposes set forth.

No. 12,060.—J. W. Hoard.—*Fishing-line, Sinkers, and Floats.*—Patented December 12, 1854.

This invention is described as consisting in making the sinker A hollow, and providing one end thereof with an aperture through which the interior may be loaded and unloaded with shot, whereby it may be made available for use, both as a float and as a sinker.

No. 12,061.—Enoch Jackman.—*Improvement in Securing Carpets to Floors.*—Patented December 12, 1854.

A catch A, formed as seen in the figure, made in one piece of any suitable metal, is secured to the floor close to the bare board. A loop B, provided with hooks *a*, as seen in the figure, made of any suitable

material, is passed over the part *c* of the catch, the hooks having first been inserted in the edge of the carpet C.

Claim.—The hook, hooks, or claws, on the loop, by which said apparatus, as set forth, may be attached to when fastening carpets to floors, or detached from when taking them up, at pleasure.

No. 12,062.—J. Jenkins and J. R. Cooke.—*Improved Hub-bands for Carriages.*—Patented December 12, 1854.

The nature of this invention consists in attaching the cap to the band by means of inclined planes *a a* on the inner part of the band, and serrated projections *b b* on the inner part of the cap, which projections working on the inclined planes serve to tighten the cap, and press its flange air-tight against the absorber, so that no oil can escape, or dust penetrate; together with the use of one or two spring clicks or dogs *e e*, which work in the notches in the projecting pieces on the inner edge of the cap, to hold it firmly in place against jars or accidents, while the cap may be readily removed by a wrench.

Claim.—The combination of above parts.

No. 12,063.—Edward C. Johnson.— *Improvement in Flyers.*—Patented December 12, 1854.

Claim.—The arrangement and combination of the pins G, (fastened in the end of the arm C of the flyer by the set-screw H,) in connection with the spiral spring F, in such a manner as to render the presser easily adjustable, and so that both the spring and pin shall be contained within the barrel of the presser E, substantially as described.

No. 12,064.—H. A. Luttens.—*Improvement in Cut-off Regulators for Steam Engines.*—Patented December 12, 1854.

Claim.—Operating the cut-off eccentric, which is fitted to turn freely on its shaft, by means of friction produced by the eccentric strap E, and the friction produced by a break-strap upon break-pulley K, in connection with the gearing J H M and segment N, the spindle connecting pinion M and spur-wheel H revolving freely in a bearing, stationary upon and parallel to the crank-shaft, the mechanism receiving its impulse from the revolutions of the latter; the whole operating to the effect, that any friction produced by the brake-strap upon the brake-pulley, greater or less than necessary to counterbalance the friction of the eccentric strap, will cause the eccentric to turn upon the shaft, and alter its angular position in relation to the crank, the break-strap being operated upon by a steam-engine governor of the common construction.

No. 12,065.—J. F. Lovecraft.—*Feed-Motion for Re-sawing, &c.*—Patented December 12, 1854.

Claim.—The feed-motion described, consisting of two or more smaller saws D^{I} D^{II}, so united together that the teeth of one come opposite to spaces of the other, adjustable, so that they may enter the board to a greater or less depth, or to be entirely clear of the board, effected by the shaft E moving up or down by suitable mechanism.

No. 12,066.—William Lyon, assignor to F. and B. Dodd and C. B. Merriman.—*Improvement in Sewing Machines.*—Patented December 12, 1854.

Claim.—The arrangement of the feeding-pieces—that is to say, the rod H, suspended at one end by a universal joint, so that the unattached end may be permitted to play vertically, and also to rock or vibrate as an axis, and having on said attached end a feeding-finger *i* and arm K, in combination with the governing-studs *m n*, upon the wheel E, as set forth.

Also, the clamp G, in combination with the needle-bar F, and working in connection with the feeding-finger *i*, as described.

No. 12,067.—Henry H. Olds.—*Improvement in Propellers.*—Patented December 12, 1854.

Claim.—1st. The combination of the extension guide-bars E E with the frame C, propellers B B, shifting-bars H H, and cross-heads G G, in the manner and for the purposes set forth.

2d. The combination of the shifting-bars H H, the catch I, and shifting-float K, with the frame C, as herein set forth.

No. 12,068.—Eldridge H. Penfield.—*Improvement in Dock-Holders.*—Patented December 12, 1854.

This apparatus consists of a pad A, upon which is situated bar B, having at its rear end a joint F, which may be fixed by a spring ratchet *b*, worked by a button *c*. There is also another joint, having a lateral motion, and capable of being fixed by thumb-screw H. The pad is kept in place upon the horse by surcingle and crupper, and the tail of the horse, being held to a bar by means of straps, may be raised and turned to the right or left at pleasure by this machine.

Claim.—The apparatus herein set forth, when constructed, arranged, and made to operate substantially as herein described.

No. 12,069.—James Perry.—*Improvement in Gold-Collectors.*—Patented December 12, 1854.

Claim.—1st. Collecting the matter containing gold in the beds of rivers, by placing in the bed of the stream a box with a perforated

plate at the top, and an inclined bottom, discharging into a receiving-trunk.

2d. Making the hole in the top plate of such apparatus larger towards the rear end, in combination with the compartments formed by the inclined partition.

3d. The employment of a top screen, composed of bars, to protect the perforated plate.

4th. The pocket at the lower end of the apparatus, when this is combined with the perforated plate, and compartments, and trunk.

5th. The vertical trunk, with or without an elevation, in combination with the horizontal trunk, so that the matter collected can be easily withdrawn.

No. 12,070.—Henry A. Roe.—*Improvement in Cheese-Vat.*—Patented December 12, 1854.

In this apparatus A is the vat, placed in trough C, and supported by frame B. The boiler I is a hollow cylinder, heated from the fire-place J. By means of the funnel H, water is supplied to trough C, and through pipe P to the boiler, whilst the steam, rising direct from the boiler, heats the whole water and the vat A. The whey flows off through perforations in pipe E. The separate devices and the use of steam are not claimed

Claim.—The combination of the boiler I, pipes O and P, with the chamber C, funnel H, with the vat A, connected with the frame B, arranged in the manner substantially as described, and applied to the purpose set forth.

No. 12,071.—Joel H. Ross.—*Hygrometric Regulator for Hot-Water Apparatus.*—Patented December 12, 1854.

A sheet of hygrometric substance is balanced on a pivot, (moving an index over a graduated disk.) and is made to actuate valves in tubes, admitting the vapor of water to an apartment in which the regulator is placed. The water absorbed by the sheet H causes it to preponderate, and thus close the valve; and when the air, on the contrary, becomes desiccated, the sheet H loses its moisture, and gradually opens the valves to admit a supply of vapor.

Claim.—Regulating the hygrometric condition of the air in apartments, by opening and closing the valves E E in the pipes C D by the balance-lever, its action being self-adjusting through the excess or diminution of vapor imparted to the equipoise H, irrespective of the material of which said equipoise is constructed.

No. 12,072.—George Roth.—*Improvement in the Jacquard Machine.*—Patented December 11, 1854.

The object of this invention consists in suspending the griff frame and the neck-board from, or attaching them in such a way as to be

capable of a free movement to, opposite arms of levers on a rock-shaft.

Claim.—Suspending the griff-frame A, and the neck-board B, wholly or in part, from opposite arms of levers *h h*, on a rock-shaft E, or, what is equivalent, on cams or rotary-shafts, in such a manner that the weight or tension of those cords of the harness which are caught by the griff-frame shall be balanced, or nearly so, by the weight or tension of those which are missed by the frame and rest on the neck-board.

No. 12,073.—Sylvanus Sawyer.—*Improved Ratan Machine.*—Patented December 12, 1854.

This is a machine for reducing and dressing strands of ratan to a proper thickness and width, the strands having been previously cut by other machinery. In the drawing, F represents a movable bed, the entire periphery of which is grooved, in order to receive the enamelled side of the strand, and retain it in place while passing under the rollers K, N, and O, and between the cutters *a*, *i*, *k*, and P Q.

Claim.—The combination of a mechanism for dressing the enamelled side of a strand of ratan, and a mechanism for reducing a strand to its proper thickness.

Also, the combination of a mechanism for reducing the strand to a proper thickness, and a mechanism for reducing it to its proper width.

Also, the combination of a movable grooved bed or roller, pressure-roller or rollers, and knives, for reducing a strip to the width required.

Also, the combination and arrangement of a mechanism for reducing the enamelled surface or side of the strand, or removing the joints or other protuberances therefrom, a mechanism for reducing a strand to its proper thickness, and a mechanism for reducing it to its proper width, the same being made to act together automatically, each as specified.

No. 12,074.—George W. Stedman.—*Improvement in Sewing Machines.*—Patented December 12, 1854.

Claim.—The tube J, receiving thread and acting in combination with the needle, so that each forms a series of loops, each of which loops receives one, and is received by the next one of the other series, as set forth.

No. 12,075.—D. W. Shares.—*Improvement in Cultivators.*—Patented December 12, 1854.

This invention consists in the arrangement of the expanding shares *a a*, so that they can be rotated upon the longitudinal axes, in order to set them to cut with varied obliquity; and in putting a levelling-plate *l* under their posterior ends.

Claim.—Connecting the wings or shares *a* to each other, and to the frame of the machine, in such manner that they are made capable of universal adjustment, by hanging them so that they may be turned on extension-bars or rods *e*, projecting horizontally from the rear hinge *c*,

and uniting them together, or otherwise equivalently hanging and connecting them, so that the wings or shoes may not only be expanded or contracted, to vary their width apart, but may also have their depth of entry into the ground, and angular set in direction of their depth, varied to suit various widths of the wings apart, and various conditions of the soil, or other controlling circumstances, substantially as specified.

2d. The arrangement of the levelling or furnishing-plate *l*, operating in rear of the covering portion of the wings, to slightly flatten the tops of the rows, and give a neat and substantial finish to them, as set forth.

No. 12,076.—JEREMIAH STEVEN.—*Improvement in Metal-Scraping Machine.*—Patented December 12, 1854.

Claim.—The arrangement of the driving-shaft, the connecting rod F, the slotted lever G, and its fulcrum-lever I, in connection with the rod O and its rocker-shaft C, as hereinbefore described.

No. 12,077.—EDWARD STIEREN.—*Improvement of the Process of Treating the Mother-Water of Salines.*—Patented December 12, 1854.

This is a mode of treating the bittern of salt-works containing chloride of magnesium, iodines and bromides. The magnesia salt is first converted into hydrate by cream of lime, and then neutralized by sulphuric acid for Epsom salt. The liquid chloride, iodide, and bromide of calcium are treated as follows: A concentrated solution of sulphate of soda, added with stirring, precipitates the sulphate of lime, and leaves in the solution chloride of sodium, iodide of sodium, and bromide of sodium. The chloride of sodium is crystallized out by concentration, and saved as the second product. The mother-water still contains iodide of sodium and bromide of sodium. The iodide of sodium is decomposed and precipitated by the sulphate of copper and protosulphate of iron mixed, in the state of subjodide of copper, washed and dried on the fitter, and sublimed from a mixture of one and a half times its weight of the oxide of manganese. The bromide of sodium remaining in the mother-liquor, together with the washings of the iodine-precipitate, mixed with chloride of sodium, is transferred to a cast-iron kettle, with carbonate or caustic soda, and strongly heated till concentrated to 36° Baumé, when the materials are transferred to a stone retort, and heated by steam and chlorine, passed through it to expel the bromine, which equally as the iodine at the moment of its liberation is condensed in glass receivers, and purified by redistillation over chloride of calcium.

Claim.—The process for treating the bitter water of such of the salines of the United States for the purpose of obtaining Epsom salts, (or sulphate of magnesia,) iodine, bromine, and a portion of refined table-salt, using for the purpose the apparatus referred to, or any other which may be found to answer the purpose.

No. 12,078.—B. F. TAFT.—*Boring Machine.*—Patented December 12, 1854.

This machine may be set to bore a given depth; and having done so, the auger is brought to its normal position, by a simple arrangement. The stop *e* is set as required on rod V; the auger is then put in operation, and when the part d^1 of axle J comes in contact (or the auger described) with *e*, the rod V, by displacing the two catches *a b*, allows the pins *o o* (actuated by springs) to throw the rack P into gear with pinion I; the revolution of which elevates, of course, the auger. The semi-cuniform of the teeth of the pinion I allows of no engagement with rack P until the rack springs to its place, as mentioned above.

Claim.—The method of arresting and reversing the longitudinal motions of the boring-tool, automatically, so as to bore the holes accurately to the required depth, and then withdraw the boring-tool.

Also, the peculiar construction of the teeth of the rack and wheel, whereby they can be suddenly engaged at any point during the descent of the tool, to arrest the boring at the instant required; and so that, in reversing the motion of the cranks, (to turn the screw-point out of the wood,) the rack will yield, to let the teeth of the pinion slip, until the screw-point is withdrawn, when, by reversing the motion of the cranks, the auger will be raised out of its hole.

Also, the combination of the projection d^1 (on the carriage) with the adjustable arm *e* and the bolts *a* and *b*, whereby the rack is released and left free to engage with the wheel, when the boring-tool has descended to the required depth.

Also, the combination of the projection *s* (on the carriage) with the spring-lever *h* and the thumb-lever *g*, whereby the carriage is held up when the boring-tool is withdrawn from the wood, and the boring suspended. And when it is required to resume the boring, the rack is disengaged from the wheel, and the end of the lever withdrawn from beneath the projection to leave the carriage free to descend.

No. 12,079.—H. WATERMAN.—*Improvement in the Joints of the Tubing of Surface Condensers.*—Patented December 12, 1854.

Claim.—The mode of forming and placing the tubes of a condenser by the employment of collars, as described, with or without the conical pierced tube-sheet, and made at the joints air-tight, by means of India rubber packing, or its equivalent.

No. 12,080.—DANIEL A. WEEKS.—*Improvement in Hot-Air Furnaces.*—Patented December 12, 1854.

Claim.—The combination and arrangement of the extended flame-chamber G, (leading out of the fire-pot,) the two sets of lateral horizontal radiator pipes H I, the connecting pipes O P, the radiator pipe Q, and the flue or pipe R, connected with the fire-chamber and pipe Q, as specified.

No. 12,081.—Jacob Weimar.—*Improvement in Locks.*—Patented December 12, 1854.

Claim.—The employment or use of the two sets of slotted circular tumblers n^1 h^1, toothed wheels *e*, disk *d*, and pawls *k m*, arranged as herein shown, viz: One set, h^1, being placed upon a shaft attached to the bolt *b*, and the other set, n^1, placed upon a shaft attached to sliding plate *a*, so that when the bolt is thrown forward, both sets will be thrown in gear with the toothed wheels *e*, and thereby allowing the slots in the tumblers to be moved so as to be out of line with the projections a^5 c^2, the pawls *k* and *m* preventing the wheels *e* from being moved until the disk *d* is also turned or moved the proper distance.

No. 12,082.—C. W. Wyatt.—*Machine for Dressing Spokes.*—Patented December 12, 1854.

The nature of this improvement consists in providing a frame which rests upon a suitable bed-plate, and rotates horizontally about an adjustable axis, the felloe being secured within the frame, and operated upon by vertical knives, as it passes by them, in such a manner as to give the required curvature.

The 1st clause of the claim covers this feature; and the second is, "the combination of the cutters M^1 M^1 with cutters M M and stocks L L, for the purpose set forth;" and the

3d is, "the combination of spring Q with the lever S and standard T, for the purpose set forth.

No. 12,083.—Daniel L. Winsor.—*Improvement in Windlasses.*—Patented December 12, 1854.

Claim.—1st. Forming on the surface of a barrel of a windlass a series of spiral scores or grooves which operate to fleet the chain.

2d. Placing friction-rollers in the larger and inclined portion of the windlass-barrel.

No. 12,084.—John Andrews, assignor to Andrews, Richardson and Symmes.—*Seed-Planter.*—Patented December 12, 1854.

This planter has a scatterer D pivoted at *c*. By means of a zig-zag cam (upon the axles of the travelling wheels,) which engages with stud *b*, the hind-part of the scatterer D has a lateral vibrating motion, whilst a roller under D travels over a corrugated way P, giving a vertical vibration. The seed is fed from hopper F into D, and, falling upon screen H, is scattered through the latter by the double vibration. In the lower part of D is the box *r*, over which is a fine screen *x*, to remove the seed of weeds from the grain. The scatterer is made to swing higher or lower at pleasure, to suit the wind, etc., by means of a crank and screen *t*. The hopper has means to regulate the rapidity of feeding.

Claim.—1st. The swinging-scatterer or seed-sower D, operated in the manner substantially as described.

2d. The box *r* and sieve *x*, as applied to the scatterer, for the purpose of separating the seeds of weeds from the grain, as set forth.

3d. The method herein set forth, of raising and lowering the scatterer by means of the screw *b*, or its equivalent, for the purpose as set forth.

No. 12,085.—M. Jacob Liberman, assignor to G. A. Sol, H. and Jno. E. Hanford.—*Improvement in Water-Proofing Cloths, &c.*—Patented December 12, 1854.

The fabrics are immersed, or otherwise treated, with a mixture of equal parts of linseed or animal oil, and four ounces of sugar of lead to every gallon of oil, squeezed out, and dried during about twelve hours, in a chamber heated to from 90° to 120° Fahrenheit, employing occasionally a draught or blast of air for the purpose. This operation is then repeated, and the goods, which have obtained thereby a glossy surface, are treated with a solution of sal ammoniac, in the proportion of 3 to 10 of water, by weight. Such goods, it is alleged, are cheaper, more saleable; produced in ten times less time, with a smaller capital; suit better the current fashions; may be produced at any season of the year; are saturated and not simply coated, and therefore do not peel off; are not sticky, and not subject to self-combustion.

Claim.—The process of preparing oiled muslin, or other similar fabrics, by means of oils, sugar of lead, and a stove-room or drying-oven, substantially in the manner and for the purposes set forth.

No illustration.

No. 12,086.—Tiebe and Muhle.—*Improvement in Making Teapot Spouts.*—Patented December 12, 1854.

Claim.—Confining the congelation of the metal or stock, in casting, to an exact joining edge or margin, by applying a part of the mould at a heat above the fusing-point of the stock.

No. 12,087.—Joseph Perkins.—*Improvement in Trussing Yards to Masts.*—Patented December 12, 1854.

Claim.—Placing the centre of the fore and aft movements of vessel-yards nearer to the yards than the masts, when such placing is combined with the extension of the rocker-bolt or spindle, through projection or gallows-brace D, into a fixed bearing upon the mast.

No. 12,088.—Charles P. Bailey.—*Feeding Apparatus to a Machine for Cutting Irregular Forms.*—Patented December 19, 1854.

The invention consists in combining a pattern M, having the outline of the thing to be cut upon it, which moves past and is guided by the head C of the cutting-cylinder B; a mandrel J, united to a long helically or spirally grooved shaft I, so that the material to be cut may

have the outline of the pattern formed helically or spirally around it, instead of in right lines.

Claim.—The making of bilge-supporters with standards C E and braces D, with rocker movable joints H, with the sheaves or rollers J and sails J, for the bilge-supporters, to rest or move upon

have the outline of the pattern formed helically or spirally around it, instead of in right lines.

No. 12,089.—Samuel W. Brown.—*Improvement in Condensers.*—Patented December 19, 1854.

Claim.—The claims allowed are:

1st. To the lever-valve C, in combination with the inclined plane on the top of the movable lever F, for the purpose of opening the valve with an increased power when the condenser descends, by the yielding of the tube to which it is attached, this yielding being caused by the weight of the water of condensation.

2d. Suspending the condenser by a tube of metal, so remote from the bearing on which this tube rests, that it will yield or spring downwards by the weight of the water of condensation, sufficiently to open the valve to permit the escape of water.

No. 12,090.—Thomas J. Chubb.—*Improvement in Gold-Separators.*—Patented December 19, 1854.

Claim.—The arrangement of a series of guide-plates or compartments B, a series of tubes or plates T below the sieve, the bellows C for supplying the blast, and the guide-plates or scrapers *g*.

No. 12,091.—Mayer B. Clark.—*Improvement for Cleaning Seed-Cotton and Feeding it to the Gin.* Patented December 19, 1854.

Claim.—The combination of a series of parallel bands *j*, operating as a feeding-apron, with the toothed-roller *m*, the teeth being so arranged on the roller as to pass between the feeding-bands *j*, whilst the arms *n* of a beater are so arranged as to pass between the teeth of said roller, and strip them of the cotton as it is carried forwards, substantially in the manner and for the purpose described.

No. 12,092.—Clark and Gray.—*Double-Acting Force-Pump.*—Patented December 19, 1854.

The figure illustrates this invention so well that the claim is sufficient.

Claim.—The combination of two pistons D C, working in one barrel, with two piston-rods, one c^1 within or through the other, when attached to the same brake, I G, in connection with the other visible arrangement.

No. 12,093.—Horace J. Crandell.—*Bilge-Supporter.*—Patented December 19, 1854.

This invention consists in a contrivance for holding vessels in an upright position by having a supporter hauled under the bilge of the vessels in dry, sectional, or railway docks.

Claim.—The making of bilge-supporters with standards C E and braces D, with rocker movable joints H, with the sheaves or rollers J and sails J, for the bilge-supporters to rest or move upon when not loaded, and for the use of dry, sectional, or railway docks, substantially as herein set forth.

No. 12,094.—Daniel Fitzgerald, Thomas Rogers, and William C. Walker.—*Ferry-Boat Guards.*—Patented December 19, 1854.

The nature of this invention consists in so arranging a fence E, in combination with levers B C and spring D, that when the boat is not in contact with the wharf, the fence is up, thereby preventing passengers from attempting to jump on or off the boat; and when the boat has reached the landing, the cat-head A is pressed in, and forces the gate or fence to drop down out of the way.

Claim.—The use of the cat-head A, and connected apparatus, to effect at the arrival of the boat the removal of the guard, in the manner substantially as described.

Also, the removal of the guard by the action of the boat against the apparatus, substantially as described.

No. 12,095.—John S. Gage.—*Improvement in Clover Harvesters.*—Patented December 19, 1854.

Claim.—Gathering clover and other seeds from the standing stalks by means of a hollow cylinder D provided with a series of toothed bars E, arranged as herein shown or otherwise, so that the teeth of said bars will, as the cylinder rotates, be forced outward through holes *b b b*, in front of the cylinder, and comb the seed and chaff from the stalk; the teeth being drawn within the cylinder when at its top, and the seed and chaff stripped from them, so that it may pass into the box A, as herein described.

No. 12,096.—George W. Grader and Benjamin F. Cowan.—*Improvement in Grain Mills.*—Patented December 19, 1854.

In this arrangement for governing the feed, a sliding table is moved in keepers or guides, back and forth, by a tangent screw, enlarging or restricting the opening on one side, the other being occupied by the curved spring, which, from time to time, is moved by the stud affixed to one side of the spindle to prevent choking of the said opening.

Claim.—Regulating the feed by the combination of the spring A and the eccentric jet E, in the manner herein set forth.

No. 12,097.—S. Hadley, Jr.—*Impact Water-Wheel.*—Patented December 19, 1854.

The inventor places spiral buckets upon a conical hub, and conducts the water through a scroll flume, so as to impinge normally against these buckets.

Claim.—The form and construction of his wheel as follows: Making the surface to which the buckets are affixed concave or butt-shaped,

No. 12,100.—Charles Merrill.—*Improvement in Sash-Fastener.*—Patented December 19, 1854.

Claim.—The form and construction of his wheel as follows: Making the surface to which the buckets are affixed concave or butt-shaped, in combination with special-formed buckets, so curved as to receive the water perpendicularly, and gradually diminishing their capacity from the centre to the periphery. Also, the adjustable collar *m*, bevel wheels, and gear wheels, combined to tram and sustain the wheel, and to adjust it to stationary parts. Also, the scroll-flume, constructed and combined with the other parts as described.

No. 12,098.—Isaac B. Howe.—*Improvement in Machines for Straightening Metal Bars.*—Patented December 19, 1854.

Claim.—The combination of a lever beam B, sliding fulcrum F, operating screw A, and sliding yoke or hold-fast G, as herein shown.

No. 12,099.—Wm. B. Leonard.—*Improvement in Registering Dynamometers.*—Patented December 19, 1854.

This is a mechanism which continually multiplies the force exerted by a rotary prime-mover into its velocity, and adds the products and indicates their sum, so as, at any time, to show on inspection the whole amount of power that has been given out. The main shaft *b* is connected with the driving-shaft *a*, through the medium of springs b^2, and upon the shaft *b* is a grooved collar c^2, which traverses along the shaft *b*, according to the greater or less yielding of the springs b^2 to the force applied, as in the common indicating dynamometer for rotary motion. This traverse motion of c^2 is produced by projection a^3 from the shaft *a*, acting upon cams c^3, connected to c^2 by rods *c c*, and in the groove of c^3 plays the end of a crutch lever c^5, by which its traverse motion is communicated through a second crutch and grooved collar to a circular disk *g*, the edge of which rests upon the face of another circular disk f^5. The form of the cams c^3 is so adjusted that, for equal increments of force, equal degrees of motion are produced in the disk *g*; and when no force is exerted by the shaft *a*, the disk *g* rests upon the centre of the disk f^5. Thus the distance from the centre of f^5 to the point of contact, where *g* rests upon it, is made a measure of the force transmitted from the shaft *a* to the shaft *b*. On the other hand, the velocity of *b* is measured by the velocity of rotation of the disk f^5, the latter being directly connected with *b* by suitable gearing. The product of the force and velocity is therefore measured by the velocity of rotation which *g* receives from f^5, and that rotation being communicated through a feather and groove to the axis g^1, and from that to an ordinary counting apparatus, the latter will exhibit the progressive accumulation of the sum of all the products, or the total amount of power that has been given out.

No. 12,100.—Charles Merrill.—*Improvement in Sash-Fastener.*—Patented December 19, 1854.

Claim.—The arrangement of a wedge L and its mortised plate D, with a spring-bolt E and its catch-plate G, for the purpose of drawing sashes A B together.

No. 12,101.—James Myers, Jr.—*Improvement in Making Sugar Moulds.* Patented December 19, 1854.

The nature of the improvement consists in arming the bottom of the mould A on its exterior with a ring D of cast-iron, which is united to the mould case, and the base band C of the same, by being poured in between the two when the cast-iron is in a molten state, thus forming a protection to the base of the mould against the several blows firmer than the heretofore-used flange turned round the base of the mould.

Claim.—Filling the space between the base band and the mould case with molten iron, or other suitable metal, in such manner that the metal, by uniting with the base of the mould case, will, when cooled, form a complete and durable armor for the same, substantially as herein set forth.

No. 12,102.—George Reynolds.—*Improvement in Composition for Tanning.*—Patented December 19, 1854.

Twenty hides with the hair on are steeped for six weeks in the following solution, viz: 1 bushel of muriate of soda, 1 bushel of alum, and 6 pounds of sulphuric acid, diluted with 3 hogsheads of water. The hides are to be beamed, and when steeped as stated, they are removed and dried, and then stuffed, or rubbed with tallow or oil, according to circumstances. But the hides are not steeped in tanning-liquor till finished. They are calculated to be used for moccasins, &c., with the hair next the person.

Claim.—The claim is confined to the composition stated.

No. 12,103.—John P. Sherwood.—*Improvement in Nail-Feeding Machines.*—Patented December 19, 1854.

Claim.—1st. Connecting the tube J to a vibrating carriage, and combining said tube and carriage with the sliding-plate F, the lever E, the hook *m*, the cam-wheel B, and the shaft A, in such a manner that the forward end of the tube will be elevated during the first half of its semi-rotary movement, and be depressed during the latter half; and then be firmly held a sufficient length of time for a nail to be cut from the plate.

2d. Also, the combination of the flaring jaws I I with the end of the tube J, in such a manner that they can be adjusted to guide a nail-plate of any width.

3d. Also, combining the nail-plate holder *e* with the arm L, the rack-bar K, the spring *f*, the pinion H, the lever D, the cam-wheel C,

and the shaft A, in such a manner that the nail-plate holder will be withdrawn at the moment its semi-rotary movement commences, and be pressed forward at the moment it ceases.

No. 12,104.—Jonathan Smith.—*Method of Holding Vessels by the Keels in Docks.*—Patented December 19, 1854.

The invention is thus described:

The keel-block B rests on and is confined to the bearer A; the pawls *c d* slide in straps D and E, and are hauled up and down by the ropes or chains F G. When hauling a vessel on the dock the pawl on the opposite side is raised, and the vessel hauled against it; and then the opposite pawl is raised, thus confining the vessel on the centre of the keel-blocks between the pawls.

Claim.—The arrangement of the keel-pawl as herein described.

No. 12,105.—John Speed, Jr., & J. A. Bailey.—*Shingle Machine.* Patented December 19, 1854.

This machine planes and joints the rifted shingle by means of reciprocating beds and knives. The piece is placed against the catch *r*, and (the machine being put in motion) is carried beneath and in front of the next catch J; then to catch *i*; then to *g*. As it is necessarily forwarded by said dogs, it is first jointed by side-knives J, which adapt themselves (by means of springs and arms *q*, *k*, *l*, *n*, etc.,) to its varying width. It is then similarly carried to the reciprocating knives *h*, *h*, *h*, and *u*, *u*, *u*, and planed on both sides.

Claim.—"Combination of the reciprocating frames B C and feeding-bar on catch L; these frames having cutters *h*, *h*, *h*, *u*, *u*, *u*, and *j*, *j*, and the feeding-bar or catch giving the shingle respectively intermittent motion, for purposes set forth."

No. 12,106.—Louis Stein.—*Improvement in Revolving Fans for Apartments.*—Patented December 19, 1854.

In this fan the wings are hinged along one edge to horizontal arms *i*, projecting from a hollow shaft *b*, hung on a pendant stud *a*, attached to and sustained from the ceiling of an apartment, the said wings being provided at their inner ends with crank-arms K, which, as the shaft rotates, strike against cam-formed projections or tappets *b*, which cause the wings to vibrate on the arms to which they are hinged, and thus agitate the air in the apartment by a revolving and flapping motion. The rotary motion is imparted by electro-magnets, connected with a suitable galvanic battery.

Claim.—Giving the combined revolving and flapping motion to the wings of a fan, for cooling apartments, by having the wings hinged by one edge to arms projecting from a rotating shaft and provided with crank-arms, which, as the arms revolve, strike against fixed tappets, or cams, to give the flapping motion, substantially as specified.

No. 12,107.—Samuel Taggart.—*Improved Machine for Packing Flour.*—Patented December 19, 1854.

By reference to the figure, the claims explain this improvement.

The employment or use of the clutch G^1, formed of a cylinder or thimble G^1, provided with a collar K, and having studs or ribs *f f* on its inner periphery, which studs or ribs act against spiral flanches or ribs *e e* on the packing-shaft C, said cylinder or thimble having a constant rotary motion given it; the other parts of the clutch being otherwise constructed, arranged, and operating in the manner as shown in the figure. Fig. 2 represents a section of the thimble G^1 on a larger scale.

No. 12,108.—Nathan Thompson, Jr.—*Improvement in Life-Preserving Seats.*—Patented December 19, 1854.

Claim.—The combination of the adjustable buoyant bottoms, acting and secured as shown, with a buoyant top.

No. 12,109.—Grey Utley.—*Improvement in Boot-Crimping Machines.*—Patented December 19, 1854.

This is an improvement upon a description of crimping machines, in which the two jaws through which the leather is forced down are provided, each, with a series of ridges, between each pair of which the leather passes in succession, but which are objectionable from the fact that when the leather is pressed between the first pair of ridges and opens them, all the others are necessarily separated at the same time, and cannot act with equal force upon the leather, when it reaches them. The improvement consists in making each ridge on the edge of a rubber B, whose motion is independent of that of the others, and each of which is pressed up to the crimping board C, over the edge of which the leather is stretched by its own spring *c*.

Claim.—The double row or series of independent and disconnected angular-shaped rubbers B, placed opposite each other, and movable in horizontal guides *b*, to and from the centre; a spring *c*, behind each rubber, effecting a gentle pressure upon the leather as it is pressed down between the rubbers by a crimping board C, and each pair of rubbers retaining their pressure towards the centre and from the edge of the crimping board upward, stretching the material until it shall have passed successfully through the entire series, substantially as hereinbefore set forth.

No. 12,110.—Daniel P. Weeks.—*Oven Cooking-Range.*—Patented December 19, 1854.

The invention alleged in this case consists entirely in the peculiarity of the route or course through which the ignited gases, smoke, &c., are conveyed.

No. 12,111.—Wendell Wright.—*Improvement in Spring-Bed Bottoms.* Patented December 19, 1854.

This invention consists in making the bottom upon which the bed or mattress rests, of wood, and in a great number of separate and independent sections D, (as seen in the figure,) and arranging each and all o said sections upon ordinary spiral springs G, placed around central guide-rods F, secured to the centre of said section and playing freely up and down, in holes cut through the slats or bars of the bedstead; and also providing each and all of said sections with two other guide and bracing rods E E, which also play up and down, in holes cut through the bars of the bedstead, and keep said sections from having lateral play while the weight is upon the bed or mattress.

Claim.—The manner herein described of making the elastic bottom of bedsteads of wood, and in a great number of separate and independent square or other suitable sections, in combination with the manner, herein shown and described, of arranging said sections for the purposes set forth.

No. 12,112.—Robert Griffiths & George Shield.—*Improved Machine for Making Horse-Shoes.*—Patented December 19, 1854.

Claim.—The arrangement of the sliding-former I I and rising griper O, operated so as to gripe the bar both edgewise and flatwise, at its mid-length.

2d. The spring projecting plates or checks 5, on the one side of the dies of the bending jaws e e^1, acting in connection with the face-plate of the sliding shearing apparatus I I, n, and q, on their other side, for the purpose of preventing the metal from bending laterally whilst being turned around the former.

3d. The channeled bending jaws e e^1 for the purpose of confining the outer margin of the shoe during the process of grooving and punching, the side of the shoe being supported by the convex shoulders of the male former u.

4th. The arrangement of the bending jaws e e^1, and swaging die i i, for the purpose of imparting the desired relative width and thickness at every part, and of clamping it when thus formed, whilst it is grooved and punched by a separate die w x, working around the swaging die, and attached to the sliding box n, and secured by bosses y.

5th. Retaining the shoe in the gripe of the bending jaws e e^1, by means of the cams j j, which operate them, having a portion of their periphery the arc of a circle described from the centre of motion until the grooving and punching bits w x, attached to the sliding box n, and male former u, are withdrawn, in order that the shoe may drop freely the moment it is released from the jaws.

No. 12,113.—Wm. F. Ketchum, assignor to Rufus L. Howard.—*Improvement in Grain and Grass Harvester.*—Patented December 19, 1854.

The improvement consists in making a reaper fit for mowing, by providing a driving-wheel admitting of the reduction of its periphery,

whereby the cutter-bar can be made to ride close to the ground, and the velocity of the stroke of the sickle is increased when the machine is desired to be used for mowing.

Claim.—Enlarging the driving-wheel, for the purpose of changing the mower into a reaper, and vice versa.

No. 12,114.—Elisha Pratt, assignor to Elisha Pratt and H. P. Upton.—*Improvement in Leather-Splitting Machines.*—Patented December 19, 1854.

This improvement is designed for the purpose of keeping the leather more uniformly and evenly pressed up to the gauge-roll, however variable its thickness; and consists, first, in the use of a roll composed of a number of metallic sections or rings q arranged upon a shaft F, and connected therewith by means of feathers p and grooves r, and operated upon by spring t, as shown in the drawing. Secondly, in the use of a feed-apron N, composed of a thickness of India rubber or other similar material, cemented between two thicknesses of canvass, so that it may be elastic in the direction of its thickness only; and therefore, while forming, for a portion of its length, a cover for the sections q, is not liable (like common India rubber covered rolls) to be torn off or forced back into knots or bulges by an advancing protuberance in the leather.

Claim.—I do not claim the use of rolls composed of sections of rings strung upon a shaft, when the sections and shaft are allowed to revolve independently of each other; but I only claim the same in combination with the springs t, or their equivalent, and when they are so united with the shaft F, which carries them, that while they are permitted to rise and fall to accommodate themselves to the ranging thickness of the leather, they are at the same time forced to revolve with the shaft, and feed the leather into the machine, as described.

2d. I claim the feed-apron N, non-elastic in the direction of its length, and elastic in the direction of its thickness, constructed in the manner substantially as described, for the purpose set forth.

No. 12,115.—Milton Roberts, assignor to Roberts and Pierce.—*Machine for Turning Prismatic Forms.*—Patented December 19, 1854.

Operation.—By means of a shipping lever A^2 the pulley N is unclutched from the shaft O, and the carriage remains stationary while a block is centred in the lathe. The pulley N is again clutched, and the carriage advanced towards the material with a regulated movement. The cylinder having finished its cut, the carriage commences to recede, and the latch E^2 strikes against the spindle H, and withdraws the catch b from the hole in the dial-plate G; the pin m then strikes the arm B^2, and the dial-plate is revolved until the catch b falls into the next hole a, and a new portion of the block is presented to the cutters, which advance again as before. The number of holes in the groove c correspond with the sides to be given to the finished article.

No. 12,116.—W. P. N. Fitzgerald, assignee of Allen B. Wilson.—*Improvement in Sewing Machines*,—Patented December 19, 1854.

Claim.—The device in the sewing machine for feeding the cloth along, consisting of a bar K furnished with points or notches, having a vertical or up-and-down motion for fastening the cloth upon, and releasing it from said bar by striking it against a plate or spring *f*, and a lateral motion, or motion forward and back, for feeding the cloth along after each stitch, substantially as set forth.

LIST OF RE-ISSUES AND CLAIMS FOR 1854.

No. 258.—*Improved Process of Manufacturing Variegated Roving.*

We claim, as our invention, the mode of manufacturing the variegated roving, or that composed of separate masses of fibrous material of different colors, laid together as described. Our said mode being a combination of processes, which consists in feeding or disposing the fibrous material upon the main card-cylinder, in strands, bands, layers, or masses, of different colors, and so that they shall be disposed side by side of each other, and around such cylinder, essentially as specified, and removing such fibrous material from the said main cylinder by a doffer or doffers, when constructed and made to operate therewith, substantially as hereinbefore specified.

Jonas Holmes.
Ephraim French.

No. 259.—*Improvement in Grass-Harvesters.*

What I claim as my invention is:

1st. Sustaining the outer end of the rack-piece D, in the manner set forth.

2d. The shield-plate G, in combination with the shoe and cutter-bar, for the purposes aforesaid.

Wm. F. Ketchum.

No. 260.—*Improved Shingle Machine.*

I claim riving, and carrying forward of the riven shingle, by the intermittingly reciprocating movement of the riving-knife stock, or frame, so as to be operated upon successively by the shaving and edging knives, said motion being imparted by the movement of the riving-knife stock, through the intervention of the spring hooks, stops, or dogs, or their equivalents, substantially as described.

Enoch R. Morrison.

No. 261.—*Improvements in Sub-strata for Pavements.*

I claim: 1st. Leaving seams or other openings in the concrete foundation, substantially in the manner described, that the direct escape of the water, gas, &c., may indicate the point or points at which repairs in the pipes are required.

2d. The constructing of panels, or sections, in the concrete foundation B, to give access to pipes and conduits below by the application and combination therewith of frames *d d*, formed of any suitable material, with the thinner edge upwards, to allow the concrete mass to be lifted out when necessary, substantially as described, when this is combined with a paved roadway of any kind laid thereon, as described.

Horace P. Russ.

No. 262.—*Improvement in the Cotton Gin.*

I claim the combination of a stripping-plate, breast-plate, and drawing-roll, substantially as herein set forth.

Jones McCarthy.

No. 263.—*Improvement in Fire and Burglar Proof Safes.*

I claim the use of glass or slag, in a vitrified state, in the filling of safes or vault-doors, either poured molten into the spaces, or inserted in plates, substantially as described.

F. C. Goffin.

No. 264.—*Improvement in Cutting Boots.*

What I claim as new in this mode is, the tongue *i*, which gives the vamp a more exact crimped curve, covers the seam *m n* from being seen, and secures it from ripping, and keeps the seams *l m* and *p n* permanent, by receiving the strain which comes on them when drawing on the boot, which improvements may be applied to any material whatever of which boots may be made.

Daniel Lynahon.

No. 265.—*Improvement in Harvesters.*

What is claimed, is:

1st. The combination of a series of removable cutters with the links of an endless revolving-chain, which carries them successively into contact with the grain or grass to be cut, substantially as herein described, whether the cutters be contiguous, or placed at intervals upon the chain.

2d. Making one end of each cutter sharp, in order that, by pressing against the adjacent end of the next cutter, straw, grass, or other intervening obstructions, may be cut in two and allowed to pass out, the cutters thus freeing themselves from obstructions which otherwise might either choke or break them.

3d. Making the cutter narrower at one end than the other, so that, as they are carried forward by the chain in a straight line, they may present a series of inclined cutting-edges, against which the stalks of grain or grass are pressed by the reel or the progress of the machine, until severed, by which arrangement of the cutting-edges their efficiency is greatly increased.

4th. I claim the employment of a sweep or turning-rake, for the purpose of sweeping the grain off the platform in such manner as to deposite it upon the ground, with its stalks at right angles, or thereabouts, to the path of the machine.

5th. The method of vibrating a sweep-rake H, and turning its teeth, as herein set forth, so as to pass over the grain, and to seize and sweep it off the platform, whether the devices employed to effect these movements be such as described, or others equivalent thereto.

6th. The method of holding a sweep-rake firmly, with its teeth at the proper distance above the platform, by a latch or the equivalent thereof, which, operating with a greater certainty than a weight, spring, or other fastening not rigid, more effectually prevents the rake-teeth from rising so as to override the grain, and at the same time avoids the necessity of moving a heavy weight, or overcoming the tension of a strong spring in elevating the rake preparatory to its retrograde stroke.

7th. The construction and arrangement of a sweep-rake, and the mechanism for operating it, in such a manner that it is carried back and forth, and raised and lowered, without support at the outer end, and thereby rendering it less liable to become entangled with the grain and clogged or broken.

8th. The method of changing the frequency of the alternations of the rake, or other device, for discharging the grain, by means of the wheels 3, 4, 5, and pinions 3^1, 4^1, 5^1, or other equivalent devices for producing a different movement, for the purpose of varying the size of the sheaves, as may be required, substantially as set forth.

WILLIAM H. SEYMOUR.
DAYTON S. MORGAN.

No. 266.—*Improved Mill-Stone Dress.*

I claim the described mode of dressing mill-stones; that is to say, in ridges and furrows, and also in furrows and lands tangential to the eye, each furrow and land gradually increasing in width, and the furrows in depth, from the eye to the circumference, being of a triangular shape in their vertical cross-section, and every alternate ridge or land being omitted from the eye to the circle A, forming large triangular cavities S for the admission of the grain to be broken preparatory to its passing to the long furrows to be ground into flour.

I claim, furthermore, the above-described form of dress for mill-stones, either for the ridges or the lands, or the furrows separately, or as combined, as above described, in ridges and furrows, or in lands and furrows.

I claim the tangent form or shape given to the ridges and lands, and furrows.

ELISHA S. SNYDER.

No. 267.—*Improvement in Drying Grain.*

I claim the method of seasoning or kiln-drying substances by using steam in a vessel which has an opening communicating with the atmosphere, to limit the pressure, for the purpose of transmitting caloric to the substances to be seasoned or kiln-dried, or the vessel or vessels containing them, substantially as specified.

HENRY G. BULKLEY.

No. 268.—*Improvements in Sewing Machines.*

We claim the combination of a needle *a* and a hook t^1, as constructed and made to operate together, substantially in the manner and for the purpose of sewing cloth, (or any other material, or materials, capable of being sewed,) as specified.

We claim the spring or curved arm a^4, for the purpose of holding the cloth to the surface of the feeding apparatus by a yielding pressure, in the manner set forth.

ISAAC M. SINGER.
EDWARD CLARK.

No. 269.—*Improvement in Machines for Pegging Boots and Shoes.*

I claim the automatic combination constituting my improved pegging machine, and composed of the following elements, or their mechanical equivalents, enumerated in the succeeding claims, and comprising the peg-cutter, peg-driver, centre-guide, shoe-movement, &c.

I also claim the cutting of the peg from the peg-blank by a lateral motion of the cutter against the side of the blank, the cutter assisting to hold the blank in position while it is driven, substantially as herein described.

I also claim the combination of parts composing the "universal movement carriage," consisting of a disk supported upon the arm of a horizontal lever, so that it can be raised or lowered, surmounted by the device for holding the work, having a free motion in all directions, substantially in the manner and for the purpose described.

I also claim the centre-guide for directing the movement of the shoe, or other article, in the course indicated by the pattern of the sole, for the purpose of keeping the line of the pattern as herein specified, so as

to keep the line of the pattern coincident with that of the awl and peg-driver.

I also claim so constructing, arranging, and operating the shoe-carriage, that each point of the sole, which is to receive a peg, shall be brought successively to the same point under the stationary pegging standard, so that the pegging shall be effected, without interruption, entirely around the shoe, or other article, substantially as herein described.

I also claim, in combination with the movable carriage, the stationary pegging standard, made adjustable, or the equivalent of that adjustment, so that the pegs can be driven at any distance from the edge of the sole or centre of motion of the carriage holding the material to be pegged, as above set forth, so that a new pattern will not be required to drive a second row of pegs with the first row.

J. J. GREENOUGH.

No. 270.—*Improvement in Gun-Locks.*

I claim giving such a shape to the tumbler or to the sear, or their equivalents, that the sear will not catch and safely hold back the cock in a cocked position except when it is acted upon by a perfectly rigid force.

And, in connexion with the said peculiar arrangement of the tumbler and the sear, I also claim the combination of the jointed levers *f* and *k* with the sear *c*, in such a manner that said levers will rigidly act upon the seat and cause it to safely hold the cock when it is thrown into a cocked position, substantially as herein set forth.

I also claim the set-screw *j*, arranged in such a manner, in relation to the jointed levers *f* and *k*, the sear *c*, and the tumbler *d*, that its adjustment, to a greater or less extent, will render it necessary to exert a great or a less degree of power upon the trigger to detach the sear from its hold upon the tumbler when the cock is in a cocked position, substantially as herein set forth.

JAMES HULTS.

No. 271.—*Improved Sawing Machines.*

I claim the combination of the notched-plate *u*, pawl *v*, rack *r*, pinion *t*, lever R T, and sectional-pawl *q*, arranged and operating substantially as and for the purposes hereinbefore set forth.

Also, the construction of the boxes C^1, with the opposite inclined inner faces $f^1 f^2$, for giving the requisite set-off to the carriage when gigging back, and again setting up when moving forward for the cut, substantially as herein fully set forth.

CHAS. R. FOX.

No. 272.—*Improvement in Seed-Planter.*

I claim the revolving cylindrical hopper, composed of two hollow buckets or disks *c c*, arranged a suitable distance apart to form a central discharge-passage on a horizontal revolving shaft, for the purpose of holding and agitating the seed, and discharging it in the centre of the furrow in a straight line, substantially as and for the purpose herein described.

CHAS. RANDALL.

No. 273.—*Cut-Nail from Muntz's Metal.*

I claim the new article of manufacture herein described, viz: A yellow-metal nail or spike, made by cutting and heading it in a nail or spike machine; meaning by the term yellow metal, a metal composed of copper and zinc, in the proportions in which they are usually combined in the manufacture of the well known Muntz's sheathing metal.

SAMUEL L. CROKER.

No. 274.—*Gold Amalgamator.*

I claim the combination of the partition S (dipping below the surface of the water) with the lower distributor, provided at the centre with a discharge aperture for the water and light particles, and at the periphery with apertures for the discharge of the water and heavier particles, for the purpose of preventing the escape of gold over the central or waste-pipe.

I also claim the arrangement of the sliding-tube ferule or waste-gate directly upon the hollow axle of the lower distributor T, the same being for the purpose of regulating the head of water within the said distributor.

I also claim arranging the secondary mercury bath concentric with and below the primary one, in such a manner that the current of water, etc., will return towards the centre of the apparatus, thereby saving room and causing said currents to pass more slowly.

I also claim rubbing the pulverized ore into the mercury, in the manner and for the purpose substantially as described.

WM. BALL.

No. 275.—*Improvements in Bank Locks.*

We claim connecting the series of male tumblers R, &c., with the vibrating portion B of the bolt, in such a manner that all of said tumblers must vibrate with said portion of the bolt; and said portion of the bolt must vibrate with said series of tumblers, whilst any one of said tumblers may be removed endwise, independently of said vibrating portion of the bolt, and vice versa, by which they are enabled to be

operated in connection with a series of entirely independent stationary female tumblers that can be adjusted in different positions, substantially as herein set forth.

2. We also claim the series of female tumblers *s*, &c., when they are secured in such a manner to the lock-case, that, while they admit of unlimited adjustment to suit the different positions into which any key can be made to throw the series of male tumblers R, &c., they are so arranged as to be independent of the longitudinal movements of said male tumblers, or the bolt which is combined with them, and consequently are perfectly protected from injury or disarrangement by said movements, and also from any violence that may be exerted upon the bolt.

3. In connection with the said series of male tumblers R, &c., and the vibrating portion B of the bolt, arranged and combined in such a manner that they *must* vibrate with each other, and can be moved lengthwise independently of each other, we also claim the fixed and strongly-secured studs *b b*, arranged in such positions that the bolt cannot be shot back until the vibrating portion thereof is brought up to the highest point allowed by the matching of the series of male tumblers, with which it is combined, with the series of female tumblers that are combined with the lock-case, by which, when the bolt is shot out, both series of tumblers are perfectly protected from injury by any violence exerted upon the bolt, substantially as herein set forth.

4. We also claim the self-adjusting guard *l*, arranged and operating in the "usher" C, in such a manner that the introduction of powder or picking instruments into the lock, through the key-hole, is effectually prevented, substantially as herein set forth.

5. We also claim the within-described arrangement of the inclined notch *i* on the "usher" C, with the dog G, and the bolt-moving cam E, by which the act of turning the usher, to enable the key which it carries to operate the tumblers, will throw the dog G into such a position as to prevent the said cam E from being brought in contact with the vibrating portion of the bolt during the time said "usher" is being moved; by which the possibility of laterally "feeling" the positions of the tumblers, whilst the key (or a substitute therefor) is in *moving contact* with them, is entirely prevented, substantially as herein set forth.

AUGUSTUS C. HARIG.
DAVID C. STOY.

No. 276.—*Rotary Pump.*

I claim the improvement by which the waste auriferous or earthy matter, that leaks out of the shaft-hole of the case A, is saved and returned into the body of the case, and the wear of the shaft-hole of the chamber *q* prevented; the said improvement consisting in the chamber *q*, the collar *r*, and the passage *t*, as combined together, connected with the case A and the shaft of the fan-wheel, and made to operate substantially as specified.

2d. I claim the rings *k l*, as constructed and applied to the interior of the pump, for the purpose set forth.

WM. BALL.

No. 277.—*Method of Applying Water to Compound Buckets of Flutter-Wheels.*

I claim the so arranging of cuneiform buckets upon the radial arms of flutter-wheels, as that, in passing through an eccentrically-formed water-way, three buckets shall receive the volume of water in about the proportions herein described and represented.

DAVID RANKEN.

No. 278.—*Improvement in Sewing Machines.*

What I claim is, giving to the shuttle an additional forward movement after it has been stopped to close the loop, as described, for the purpose of drawing the stitch tight, when such an additional movement is given at and in combination with the feed-motion of the cloth in the reverse direction; and the final upward motion of the needle, as described, so that the two threads shall be drawn tight at the same time, as described.

I also claim controlling the thread, by what I have termed the friction-pad, between the seam and the bobbin, or any equivalent therefor, substantially as described, and for any or all of the purposes specified.

I also claim placing the bobbin from which the needle is supplied with thread, on an adjustable arm attached to the frame, substantially as described; when this is combined with the carrying of the said thread through an eye or guide, attached to and moving with the needle-carrier, as described, or the equivalent therefor, whereby any desired length of thread can be given for the formation of the loop, without varying the range of motion of the needle, as described.

And I also claim, in a sewing machine, feeding the cloth or other substance, to determine the space between the stitches, by the friction of the surface of the periphery of the feed-wheel, or any equivalent feeding surface, substantially as specified, in combination with a spring pressure plate or pad, which gripes the cloth or other substance, against such feeding surface, substantially as specified and for the purpose set forth.

ISAAC M. SINGER.

No. 279.—*Improvement in Fire-Arms.*

We claim combining the percussion hammer, the piston-slide, and the barrel, so that the said piston-slide shall not only serve as a breech to the barrels, but at the same time as a means of conveying (by concussion) to the priming of the cartridge at one end of the slide, the force of the blow of the hammer upon the opposite end of the slide, as specified.

We also claim the improvement in the carrier, whereby it is not only enabled to be moved downwards while the breech-slide is forward against the barrel or cartridge therein, but is caused to expel from the chamber E, in which it moves, the remainder of the cartridge after such remainder has been retracted by the piston-slide, and while the carrier is being elevated with another cartridge; the said improvement consisting in making the carrier with an opening or passage leading out of the cartridge chamber thereof, and of a width sufficient for the movement of the piston-slide out of the carrier during the descent of the latter, and providing said carrier with one or more projections a^2 or the equivalent thereof, which, when the carrier is elevated, shall be moved against the remainder of the cartridge and elevate and expel it from the fire-arms as stated; the breech-slide or piston-slide being formed substantially as specified.

We also claim the arrangement and application of the percussion hammer, with respect to the breech-slide H and the trigger-guard lever, so that the hammer may be moved and set to full cock by the pressure or back-action of the slide induced by the action of the trigger-guard lever, as specified.

We also claim the improvement of making the front end of piston-slide with a dovetail recess a^1 (or its equivalent) for the purpose of enabling the slide to seize the metal or remainder of the cartridge and withdraw it from the barrel, when it (the piston-slide) is next retracted, the said remainder being discharged from the slide by the upward movement of the carrier, all substantially as specified.

HORACE SMITH.
D. B. WESSON.

No. 280.—*Improvement in Calorifiers.*

I claim the combination of the water-supply reservoir, the chamber or bed of sand, and a furnace or chamber of combustion, the whole being made to operate substantially as specified.

SAMUEL WHITMARSH.

No. 281.—*Improvement in Smut Machines.*

I claim the manner herein described of scouring and freeing wheat of smut and other impurities, by throwing the mass *out of the concave* at each revolution of the beaters, and *against the inclined or curved face of a chimney*, fitted to an opening at or near the top of the concave, for the purpose of permitting the dust, smut, &c., to pass out, whilst the wheat is returned back into the machine for a second operation, substantially as described.

I also claim in combination with the concave, the adjustable inclined aprons for conveying the grain through the concave as it is successively returned back into the machine, substantially as described.

JOHN HOLLINGSWORTH.

No. 282.—*Improvement in Rakes to Grain Harvesters.*

I claim the means herein described of transmitting motion from the driving-wheel to the raking apparatus, substantially as set forth.

I also claim, secondly, the collecting, grasping and depositing of the cut product by means of a rake and palm, substantially such as described herein.

JEARUM ATKINS.

No. 283.—*Improvement in Winnowing Machines.*

I claim the automatic graduation of the fan-blast by means of a piston k in a passage communicating with the fan-case, balanced by weight to support the atmospheric pressure due to the rarefaction produced by a given velocity of the fan, but movable when said velocity varies, and by connexion, substantially as set forth, with valves regulating air-passages $h\ h^1$, so operating them as to diminish the capacity of said passages when the velocity of the fan is too great, and produce the contrary effect if the blast be weakened by a diminished velocity of the fan, as hereinbefore specified.

SAMUEL CANBY.

No. 284.—*Improved Rake to Harvesting Machines.*

I claim the guide $p\ q\ r\ s$, arranged as described, in connexion with the tilting-roller u, for the guidance of the rake in a path similar to that which it would receive from the human hand, by which it removes periodically the grain or grass from the bed, and frees itself by the retraction of the teeth endwise.

I also claim the application of a thin tight roof to the rakes for harvesters, for the purpose of effecting the separation of the gravel from the falling grain.

SYLVANUS MILLER.

No. 285.—*Improvement in Seed-Planters.*

We claim the connexion of the seed-drill with the hopper when both are worked or raised and lowered independently of the body of the machine, so that both may be thrown into and out of operation at the proper time by one and the same movement or mechanical means, as above set forth.

MOSES PENNOCK.
SAMUEL PENNOCK.

LIST OF DESIGNS AND CLAIMS FOR 1854.

No. 626.—*Design for Cooking-Stoves.*

I claim the combination of the several ornaments and mouldings as arranged together, the whole forming an ornamental design for a cooking-stove.

SAMUEL D. VOSE.

No. 627.—*Design for Cooking-Stoves.*

I claim the combination of the several ornaments and mouldings as arranged together, the whole forming an ornamental design for a cooking-stove.

SAMUEL D. VOSE.

No. 628.—*Design for Cooking-Stoves.*

I claim the combination of the several ornaments and mouldings as arranged together, the whole forming an ornamental design for a cooking-stove.

SAMUEL D. VOSE.

No. 629.—*Design for Parlor Stoves.*

I claim the combination of the several ornaments and mouldings as arranged together, the whole forming an ornamental design for a parlor stove.

SAMUEL D. VOSE.

No. 630.—*Design for Parlor Stoves.*

I claim the ornamental design and configuration of parlor stove plates, as described.

N. S. VEDDER.

No. 631.—*Design for Coal Stoves.*

We claim the combination and arrangement of the ornamental figures, forms, and foliage, as represented, making an ornamental design for coal-heating stoves, known and called the *International*.

CONRAD HARRIS.
PAUL W. ZOINER.

No. 632.—*Ornamental Design for Guitars.*

I claim the plate P, placed within the rosette or opening in the sound-board, and slightly below the interior surface of said board, said plate hiding the interior of the instrument from view, and adding to the ornamental appearance of the guitar, constituting a new and original design for such instruments.

WM. B. TILTON.

No. 633.—*Design for Cast-Iron Legs for Piano Fortes.*

I claim the ornamental design of a cast-iron piano forte leg, as described.

FREDK. STARR.

No. 634.—*Design for Cast-Iron Pedal-Lyre for Piano Fortes.*

I claim the ornamental design of a cast-iron pedal-lyre for a pino forte, as described.

FREDK. STARR.

No. 635.—*Design for Panel Ornament for Stoves, &c.*

I claim the ornamental configuration and arrangement of the parts described, constituting a panel ornament.

ISSAC DE ZOUCHE.

No. 636.—*Design for Stoves.*

We claim the design and configuration of the ornaments and mouldings described, forming an ornamental design for stoves.

JOHN F. ALLAN.
JOSEPH STEWART.

No. 637.—*Design for Cooking-Stoves.*

I claim the arrangement of the several figures and mouldings combined together, the whole forming a design for an ornamental cooking-stove, as described.

SAML. D. VOSE.

No. 638.—*Design for Coal-Stoves.*

I claim the combination and arrangement of the several figures and mouldings, the whole forming an ornamental design for a stove, as described.

SAML. D. VOSE.

No. 639.—*Design for Cooking-Stoves.*

I claim the ornamental design for the side and end plates, the feet and the doors, as represented.

WM. T. COGGESHALL.

No. 640.—*Design for Door and Panel of Cooking-Stoves.*

I claim the arrangement and combination of the central ornament *a b c d* and *e*, with the rays B, and mouldings *f g*, substantially as described, for the purpose of forming a new ornamental design for a cooking-stove.

M. C. BURLEIGH.

No. 641.—*Designs for Fronts of Clock-Cases.*

I claim the design and configuration of the plate, as described, forming the front of a clock-case.

WM. B. LORTON.

No. 642.—*Design for Air-Tight Stoves.*

We claim the design, configuration and arrangement of the several ornaments, in bas-relief, as described, forming a new and original design for an air-tight cannon stove.

GARETTSON SMITH.
HENRY BROWN.

No. 643.—*Design for Store Plates.*

I claim the ornamental design and configuration of stove plates, as described.

JOHN BURGESS.

No. 644.—*Design for Cooking Stove or Summer Range.*

I claim the combination of mouldings and ornaments as arranged on the summer range, the whole forming an ornamental design.

JOHN ABENDROTH.

No. 645.—*Designs for the Frames and Handles of Hair-Brushes.*

I claim the ornamental design, substantially as described.

HUGH ROCK.

No. 646.—*Design for Cooking-Stoves.*

I claim the general ornamental design of the stove, shown in the side and front plates, including the legs; and particularly I claim that of each of the oven doors E and F, that of the panel M, that of each of the front doors A B, and that of each leg I.

N. P. RICHARDSON.

No. 647.—*Design for Doors of Gas Ovens of Summer Ranges.*

I claim the ornamental panel *a*, and the ornamental moulding *v*, forming a design for gas ovens or summer ranges.

S. W. GIBBS

No. 648.—*Design for Clock-Case Fronts.*

I claim the design and configuration of the plate, described, forming the front for a clock-case.

CHAS. CHINNOCK.

No. 649.—*Design for Portable Cooking-Ranges.*

We claim the design, configuration and arrangement of the ornaments in bas-relief on the front and ends of the stove, as described, forming a new and original design for stove called Portable Range.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 650.—*Design for Cast-Metal Clock-Case Fronts.*

I claim the design and configuration of the clock-case front, as described, denominated the "Pillar" pattern.

CHAS. CHINNOCK.

No. 651.—*Design for the Fronts of Cast-Metal Clock-Cases.*

I claim the design and configuration of the clock-case front as described.

CHAS. CHINNOCK.

No. 652.—*Design for Cooking-Stoves.*

We claim the design for Golden Star cook-stoves, as set forth.

JACOB BEESLEY.
EDWARD J. DELANEY.

No. 653.—*Design for Parlor Stoves.*

We claim the design for the Gothic Queen parlor stove, as set forth.

JACOB BEESLEY.
EDWARD J. DELANEY.

No. 654.—*Design for Portable Ranges.*

We claim the design for portable range, as set forth.

JOHN F. ALLAN.
JOSEPH STEWART.

No. 655.—*Design for Oven-Doors.*

We claim the design for the oven-door, as set forth.

JOHN F. ALLAN.
JOSEPH STEWART.

No. 656.—*Design for Cooking-Stoves.*

I claim the new design, consisting of the music-staff, raised figures, and ornamental configurations, as described, for the side and front plates of a cooking-stove.

APOLLOS RICHMOND.

No. 657.—*Design for Tea or Coffee Pot.*

We claim the design and configuration of the ornamental work, as described, forming a new and original design for a tea or coffee pot.

WILLIAM HATTERSLEY.
CHAS. DICKINSON.

No. 658.—*Design for a Cooking-Stove.*

I claim the design, configuration, and arrangement of the several ornaments in bas-relief, and mouldings, as described, forming the design of stove "Great Republic."

JNO. C. SMITH.

No. 659.—*Design for a Radiator Stove.*

We claim the design, configuration, and arrangement of ornaments in bas-relief, on the body, foot, and urn of the stove "Lady Washington Radiator," as described.

S. H. SAILOR.
JOHN. C. SMITH.

No. 660.—*Design for a Cooking-Stove.*

I claim the ornamental design for the side-plate, and its feet, and that of each door.

HARRISON EATON.

No. 661.—*Design for Well-Curbs.*

We claim the design displayed by a combination of the form and ornaments.

WM. DOUGLAS.
BENJ. DOUGLAS.

No. 662.—*Design for Cooking-Stoves.*

I claim the new design described, for the side-plate of a cooking-stove.

WM. M. SNOW.

No. 663.—*Design for Cooking-Stoves.*

I claim the design, configuration, and arrangement of the ornam e in bas-relief, and mouldings, on the several plates, as described, for stove called "Champion Cook."

S. H. SAILOR.

No. 664.—*Design for Franklin Stoves.*

We claim the design, configuration and arrangement of the several ornaments in bas-relief, and mouldings, on the plates and foot of the stove, as set forth.

JNO. F. ALLAN.
JOSEPH STEWART.

No. 665.—*Design for Cooking-Stoves.*

We claim the general form and proportions combined with the mouldings, figures, and ornaments, substantially as described, the said figures, ornaments, and panels being in alto, in mezzo, or in bas-relief.

HELLER & YOUNG.

No. 666.—*Design for the Fronts of Clock-Cases.*

I claim the composition of ornamental work, described, for the front of a clock-case.

NICHOLAS MULLER.

No. 667.—*Design for Cooking-Stoves.*

I claim the new design, consisting of the ornamental configurations described, for the side and front plates of a cooking-stove.

AMOS PAUL.

No. 668.—*Design for Mole-Traps.*

I claim the ornamental design for a mole-trap, as described.

HENRY FRY.

No. 669.—*Design for Franklin Stoves.*

I claim the ornamental design and configuration of stove-plate, substantially as described.

WM. RESOR.

No. 670.—*Design for Clock-Case Fronts.*

I claim the design and configuration of the clock-case front, as described, and termed the "Three Bells" pattern.

CHAS. CHINNOCK.

No. 671.—*Design for Clock-Case Fronts.*

I claim the design and configuration of the clock-case front described, and termed the "Harlem Gothic" pattern.

CHAS. CHINNOCK.

No. 672.—*Design for Clock-Case Fronts.*

I claim the design and configuration of the base A, pilasters B B B^1 B^1, buttresses E E, cornice C, crown-piece D, and ornaments *a b c*, combined to form a new ornamented design for the front of a clock-case.

CHAS. CHINNOCK.

No. 673.—*Design for Franklin Stoves.*

I claim the ornamental design and configuration of stove-plates, as described.

WM. RESOR.

No. 674.—*Design for Cooking-Stoves.*

I claim the design, configuration, and arrangement of the several ornaments in bas-relief, and mouldings on the front sides and feet of the stove "Atlantic," as set forth.

W. P. GRAY.

No. 675.—*Design for Brackets.*

I claim the ornamental configuration and design of brackets, as described.

ISAAC DE ZOUCHE.

No. 676.—*Design for Franklin Fire-Places.*

What is claimed by me is, the ornamental design of the front of the fire-place; also, that of the folding-blower, that of the top-plate, and that of the side.

NATHANIEL S. PRINCE.

No. 677.—*Design for Bar-Room Stoves.*

I claim the design for bar-room stoves, as set forth.

JACOB BEESLEY.

No. 678.—*Design for Stoves—"Egg Stove."*

I claim the design of the "Egg Stove."

DAVID STUART.

No. 679.—*Design for Wire Fences.*

I claim the combination and arrangement of the horizontal twists A above and below the rosettes B, as described, forming together (with the wire and rails) an ornamental design for a wire fence, characterized by a horizontal row of rosettes, combined with the wires so as to be intermediate or between every two horizontal parallel rows of the horizontal twists.

M. LACHENMAIR.

No. 680.—*Design for Stoves.*

I claim the configuration of the radials *a a a a a a a a*, in combination with the foliated formations *b b b b b b b b*, together with the drops *c c c c c c c c* and the staminated cornice *d d d d d d d d*.

HORACE W. ROBBINS.

No. 681.—*Design for Box-Stoves.*

I claim the design for box-stoves, as set forth.

JOSEPH STEWART.

No. 682.—*Design for Cooking-Stoves.*

I claim the ornamental design of each of the doors, and the side and front plates.

N. P. RICHARDSON.

ADDITIONAL IMPROVEMENTS.

No. 107, to original Letters Patent No. 9,796.—*For Improvement in Bog-Cutting Cultivators.*

The nature of the improvement consists in having the shank of the tooth provided with two shoulders *b b* on the back side, one above and the other below the timber, and a piece of cast-iron, of the length of the thickness of the timber, having flanges on the top, and a groove in the back side to exactly match and surround the front part of the tooth, so that, by driving in the key *a* in front of the shank, a common oblong square mortise in the timber will be exactly filled out, and the shank thus fastened more permanently than heretofore.

Claim.—Fastening of the teeth by matching the shank with another iron, having a head or flanges on it, whereby the action upon the wood is divided forward and downward, by means of which the key and mortise are saved from wear and injury.

EDMUND L. FREEMAN.

No. 108, to original Letters Patent No. 5,289.—*Improvement in Smut Machines.*

This invention consists in surrounding the original machine with a close case of metal or wood.

JACOB BENNER.

No, 109, to original Letters Patent No. 9,061.—*Improvement in Ploughs.*

Claim.—Attaching the rake or harrow, to be combined with the plough, to the rear-end of the mould-board, by means of a crooked cam-lever, or bar and swivel *g*, in combination with the hand-lever *i*, whereby said rake can be conveniently raised or lowered by rotating it upon its axis of connexion, to overcome obstructions, or to intercept its action.

DAVID SWARTZ.

No. 110, to original Letters Patent No. 10,105.—*For Apparatus for Opening and Closing Gates.*

This improvement consists in having a pendulous lever I hung to the frame H at *o*, and provided with a notch *n*, by which the weight of the gate is caused to be the means of holding the bottom to the point to which it is drawn, and at the same time holding down the vertical lever *f* until the vehicle has passed over it; thus preventing any appendages of the vehicle from catching the said lever; *s h* are arms, against the ends of which the pendulous lever I rests when the vertical lever *f* is pressed down to a horizontal position.

Claim—The application of a pendulous lever provided with a notch, or its equivalent, in the manner and for the purpose as above set forth.

SAMUEL G. DUGDALE.

No. 111, to original Letters Patent No. 9,330.—*For Improvement in Grinding-Mills.*

The improvement secured is in making the frontal projections of the teeth on the cylinder more serrated and finer, so as to operate on smaller grain.

Claim.—1st. The shortening of frontal projection of each tooth in such a manner as to form a notch in their tops.

2d. The corrugated ribs and concave in combination with the teeth and corrugated cylinder; these teeth having their frontal projections shortened or notched on their tops, or with teeth without their frontal projections being shortened or notched on their tops, either or both, substantially for the purposes set forth.

OLDIN NICHOLS.

No. 112, to original Letters Patent No. 9,168.—*Improvement in Looms for Weaving Figured Fabrics.*

Claim.—The bell-crank lever V^2 when kept in connexion with the grooved collar U^2 by a spring, or its equivalent, in combination with the lever F^2 and its connecting-rod H^2, or any mechanical equivalent therefor, when the lever F^2 is operated upon by a filling-thread stop-motion, when the filling-thread breaks or becomes expended.

Also, the pattern chain s^2, composed of lags having projections or segment-flanges on the top, and blank lags having no projections on the top, for the purpose of operating rise and fall shuttle-boxes therewith in power-looms, for weaving figured fabrics.

SAMUEL ECCLES.
JAMES ECCLES.

No. 113, to original Letters Patent No. 9,328.—*For Harness Saddle-Trees.*

This is an improvement additional to the subject-matter of a patent granted to the same October 12, 1852, and consists in constructing the tree with a loose cantle-plate C, kept in place against the rim *b*, and upon the projections *c*, by the shoulder *e* of the crupper-loop B on the shank D, which itself is retained by the passage of the pad-hook through the openings *a*. By this means the saddler is enabled to draw the covering over the tree-seat, and, thrusting the ends into the space *s*, bind them close by the cantle-plate C.

Claim.—The construction of harness saddle-trees with the loose cantle C, in combination with the crupper-loop B, or its equivalent, constructed, arranged, and operating substantially as hereinbefore set forth, for the purposes specified.

THOMAS MARDOCK.
WILLIAM C. KELLER.

No. 114, to original Letters Patent No. 7,373.—*Improvement in Machines for Polishing Raw-Hide Whips.*

In the figure, A represents the frame, B B the rollers, and C the polishing-belt. To one side of the frame A is hinged a flat board E, extending across the frame, so that when the whip is laid on the belt C, pressure on this board by hand or counterpoise weight will regulate the cutting of the polishing-belt.

Claim.—The combination of the endless-belt C with the bearer E, as described, for smoothing and polishing raw-hide whips, the operation being as hereinbefore set forth; said bearer furnishing the facility for examining the progress of the operation.

CHARLES BEADER.

No. 115, to original Letters Patent No. 10,551.—*Improvement in Whiffle-Tree Hooks.*

This additional improvement consists in substituting for the spring-bar a rolling-latch D pivoted at *a*, and falling into the lip *c*, where it is retained by the flat-spring F.

M. NEWMAN 2d.
N. C. WHITCOMB.
G. C. COLE.

No. 116, to original Letters Patent No. 11,705.—*Improved Safety Washer for Securing Wheels to Axles.*

This improvement consists in making a safety washer without that portion of the flange standing at right angles with the linch-pin slot.

WM. THORNLEY.

No. 117, to original Letters Patent No. 11,121.—*For improvement in the Construction of Reed Musical Instruments.*

The improvement consists in connecting the hammers with the keys in such a manner as to insure a prompt and certain action. The hammer E has a thin metallic spring *a* fastened to the bottom, and terminating in an angular bend at the top, and so bent as to spring outward. The valve-pin F, which opens the valve G, has an angular point at *c*; the key being pressed downward, carries with it the key lever, which also carries down the valve-pin opening the valve, and by the same motion the point *c* coming upon the spring *a*, carries the hammer with it, until, by turning upon its axis, it is released and falls back as before; the valve-pin, in returning, passes the spring *a* by forcing it outward.

F. A. GLEASON.

DISCLAIMERS.

Improvement in the Figure Power-Loom.

Your petitioners, therefore, hereby enter their disclaimer to that part of the aforementioned specification which commences, "The modes of elevating and depressing the lifter," and ends, "True and essential principle of my invention is preserved," being the fourth paragraph from the end of said specification; and also enter their disclaimer to the *first*, *second*, and *fourth* claims of said patent; which disclaimer is to operate to the extent of the interest in said letters patent vested in your petitioners.

M. A. FURBUSH.
GEORGE CROMPTON

Improvement in Sewing Machines.

Your petitioner, therefore, hereby enters his disclaimer to that part of the claims in the aforenamed specification which is in, or substantially in the following words, to wit: "Also, the use of a cap without a spindle or spooler, in combination with a shuttle, or its equivalent, when the thread is drawn from the inside of the cap, by which means I retain a uniform draught on the cap-thread as it is drawn or paid out from the shuttle, as described."

F. C. THOMPSON.

Improvement in the Manufacture of Starch.

Your petitioner, therefore, hereby enters his disclaimer to so much of the said first claim as may be construed as claiming, as the invention of the said Jones, the treatment of the whole matter of the grain in caustic alkaline solutions, as a means of disinterrating and decomposing the silicious and albuminous matters of the coaling of the grain, inasmuch as said treatment for that purpose alone was known prior to the invention of said Jones; and such treatment alone, irrespective of the treatment of the farinaceous matter in caustic alkaline solutions, to effect the separation of the starch from the other constituents of such matter, made no part of the invention of said Jones; the object of this disclaimer being to limit the said first specification of claim of the said Jones to the process of separating the starch from the albumen and gluten of the farinaceous matter of the grain, by treatment in caustic alkaline solutions, and this, also, in combination with the treatment of the grain in caustic alkaline solutions as a means of saporrifying the oils, and decomposing the silicious and albuminous matters of the coating of the grain.

SAMUEL BLATCHFOD, *Administrator of*
ORLANDO JONES, *deceased.*

Improvement in the Mode of Communicating Information by Signals, by the Application of Electro-Magnetism.

TO THE COMMISSIONER OF PATENTS:

The petition of the Maine Telegraph Company, a corporation chartered by the legislature of the State of Maine, in the year 1848, respectfully represents:

That said corporation has, by assignment and conveyance duly recorded in the Patent Office, become the owner of the exclusive right, through said State of Maine, to use the electro-magnetic telegraph instruments invented by Samuel F. B. Morse, now of Poughkeepsie, in the State of New York, for which letters patent of the United States were issued to said Morse in the year 1848; that said company has reason to believe that, through inadvertence and mistake, the claim made in the

specification of said letters patent—that is to say, that denominated the eighth claim—is too broad, including that of which the said patentee was not an inventor.

Your petitioners, therefore, hereby enter disclaimer to such part of said eighth claim in the aforenamed specification as has been decided by the Supreme Court of the United States, at its recent sitting at Washington, to be too broad. Said eighth claim is in the following words, to wit:

"Eighth. I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims, the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed, for making or printing intelligible characters, signs, or letters, at any distances, being a new application of that power of which I claim to be the first inventor, or discoverer."

Which disclaimer is to operate to the interest in said letters patent vested in your petitioners, who have paid ten dollars into the treasury of the United States, agreeably to the requirements of the act of Congress in that case made and provided.

HIRAM O. ALDEN, *President of Maine Telegraph Co.*
JAMES EDDY, *Secretary of Maine Telegraph Co.*

Improvement in the Mode of Communicating Information by Signals, by the Application of Electro-Magnetism.

Your petitioner, therefore, hereby enters his disclaimer to so much of said claim as includes the use of the motive power of electro-magnetism for marking or printing intelligible characters, signs, or letters, at any distances, except when such motive power is developed by the combination of a long galvanic circuit, a contrivance for closing and breaking the circuit, an electro-magnet, armature, and spring, or their equivalents, substantially as set forth in said specification.

SAMUEL F. B. MORSE.

Improvement in the Mode of Communicating Information by Signals, by the Application of Electro-Magnetism.

Your petitioners, therefore, hereby enter their disclaimer to so much of said claim as includes the use of the motive power of electro-magnetism for marking or printing intelligible characters, signs, or letters, at any distances, except when such motive power is developed by the combined action of the long galvanic circuit, a contrivance for closing and breaking the circuit, an electro-magnet, armature, and spring, or their equivalents, substantially as set forth in said specifiation.

[L. S.] WILLIAM H. SWAIN, *President.*
JOSEPH SAILOR, *Secretary.*
B. B. FRENCH.
A. J. GLOSSBRENNER.
J. M. BRODHEAD.

Improvement in the Mode of Communicating Information by Signals, by the Application of Electro-Magnetism.

Your petitioner, therefore, hereby enters his disclaimer to so much of said claim as includes the use of the motive power of electro-magnetism for marking or printing intelligible characters, signs, or letters, at any distances, except when such motive power is developed by the combination of a long galvanic circuit, a contrivance for closing and breaking the circuit, an electro-magnet, armature, and spring, or their equivalents, substantially as set forth in said specification.

ALFRED VAIL. [L. S.]

Improvement in the Mode of Communicating Information by Signals, by the Application of Electro-Magnetism.

Your petitioners, therefore, hereby enter their disclaimer to as much of said claim as includes the use of the motive power of electro-magnetism for marking or printing intelligible characters, signs, or letters, at any distances, except when such motive power is developed by the combined action of the long galvanic circuit, a contrivance for closing and breaking the circuit, an electro-magnet, armature, and spring, or their equivalents, substantially as set forth in said specification.

JOHN BUTTERFIELD,
President New York, Albany, and Buffalo Telegraph Co.
WM. J. BACON, *Secretary.*
SILAS D. CHILDS.
J. V. P. GARDNER.
P. S. FAXTON.
GEORGE CURTIS.

Improvement in Boilers for Culinary Purposes.

Your petitioners, therefore, enter the following disclaimer:

We do not claim the employment of a metallic tube or tubes extending down at or near the side or sides of culinary vessels, to carry off the steam or gases into the stove, grate, or range on which they may be placed, in any other manner than when the said tube or tubes shall terminate at the bottom of the flange *a*, substantially in the manner and for the purposes specified in the said patent.

GOODRICH, LEARY & Co.

Improvement in Sewing Machines.

Your petitioners, therefore, have entered their disclaimer to that part of the claim in the afore-named specification which is in the following words, to wit:

"The arrangement, above described, in a sewing machine, for feeding the cloth along, consisting of a notched bar, which has a vertical or up-

and-down motion for fastening the cloth upon and releasing it from the notches of said bar, by striking it against a yielding plate; and a lateral motion, or motion forward and back, for feeding the cloth along after each stitch, substantially as above set forth;" which disclaimer is to operate to the extent of the interest in said letters patent vested in your petitioners; said interest being the exclusive right to manufacture said invention throughout the United States, and the exclusive right of using and vending said machine, excepting in such places as said right of using and vending has been conveyed by them to others, as will fully appear of record.

WILLIAM O. GROVER. [SEAL]
ORLANDO B. POTTER. [SEAL]
ORLANDO B. POTTER, } [SEAL]
WILLIAM O. GROVER, }
Attorneys for Wm. E. Baker, and in his stead.

EXTENSIONS.

For Improvement in Shuttles for Weaving Cloth.

What I claim, therefore, as my invention, and desire to secure by letters patent, is the above-described mode of furnishing the shuttle with a spring and catch in one piece, and so applying the spring to the spindle, as that the rounded end H of the head of the spindle shall come in contact with the spring, and by turning the spindle the catch is moved so as to release or receive the bobbin without any other operation.

JAMES BALDWIN.

Improvement in Machines for Husking and Shelling Corn.

I do not claim to be the first to have constructed a machine for shelling corn by the aid of a revolving conical nut, furnished with teeth, and placed within a curb; nor do I claim to be the first to have used spring-staves to bear the corn up against the revolving-nut; but what I do claim in the above-described machine is, the manner in which I have arranged and combined the hinged-staves, furnished with springs, with the stationary pieces F F, so as to allow the said staves to spring out without opening the joints between them; the whole being constructed substantially in the manner and for the purpose set forth.

SAMUEL S. ALLEN.

Improvement in Mode of Coloring Maps.

I do not claim the invention of coloring through patterns, or theorems, as they are sometimes called; but I do claim as my invention,

and desire to secure by letters patent, attaching the patterns to a plate revolving on a fixed centre, as herein set forth, and the combination of the revolving plate with the table on which the map is placed, the whole connected and operating as above described.

LUCIUS STEBBENS.

Improvement in the Machine for Crushing Hard Substances.

1st. That which I claim as my invention, and desire to secure by letters patent, is the mode herein described of preventing the grinding-wheels from slipping, by means of the cog-gearing, or by cross-projections and indentations in the bottom of the valley, together with cuts, cogs, or notches on the tread of the grinding-wheels.

2d. The method of applying the weight of the centre revolving-shaft, or any additional weight which may be applied thereto, to the grinding or crushing-wheels, by making the shaft bear upon the vibrating-beam, to which the wheels are attached, as herein described.

JAMES ROWE.

Machine for Forming the Web for Cloth of Wool, Hair, or other suitable Substance, without Spinning or Weaving.

I do not claim as my invention the carding-machines, or any part thereof, in common use; but I do claim the combined use of them, as here described, for the purpose of crossing the fibres of the material of which cloth may be made, in the manner and on the principle herein described, and the new machinery necessary to effect that object, particularly the comb-carrier, the shears, the fallers, and cams, with their several appendages, as hereinbefore described and applied, and therefore I solicit an exclusive right by letters patent.

JOHN ARNOLD.

Improvement in Life-Protectors.

What I claim as my invention, and desire to secure by letters patent, is the combination of the air-tight tubes with the belt, in the manner and for the purpose described.

RALPH BULKLEY.

Improvement in the Machine for Cutting Corks.

1st. I claim rounding and forming the cork by means of the revolving circular knife, in combination with a movable feeding frame, operated by means of the arm Y Y and roller *z*, working with the eccentric groove or cam-work *a a a*, arranged on the shaft F F; the whole constructed and operating substantially in the manner and on the principles above described.

2d. I claim sharpening the revolving knife, *while in operation*, by means of a revolving whetstone, operated as above described.

3d. I claim revolving *both holders* by means of the system of bands and pulleys above described, thereby effectually preventing the liability to twist the cork while in the process of formation.

4th. I claim the combination of the inclined plane *i*, bent rod *e e*, fork *h*, and spiral spring *f f*, operating together as above described, to withdraw the holder W, for the purpose above set forth.

5th. I claim the combination of the movable inclined plane or latch b^2, and catch d^2, with the bent lever Y Y^1, operating with the pulleys W *r*, wheel *v*, and spring *x*, on the axis P P, in the manner and for the purpose above described.

SAMUEL SAWYER.

Improvement in the Mode of Communicating Information by Signals, by the Application of Electro-Magnetism.

What I claim as my invention, and desire to secure by letters patent, is as follows:

1st. The formation and arrangement of the several parts of mechanism constituting the type-rule, the straight port-rule, the circular port-rule, the two signal-levers and the register-lever, and alarm-lever with its hammer, as combining respectively with each of said lever one or more armatures of an electro-magnet, and as said parts are severally described in the foregoing specification.

2d. The combination of the mechanism constituting the recording cylinder, and the accompanying rollers and train-wheels, with the formation and arrangement of the several parts of mechanism, the formation and arrangement of which are claimed as above, and as described in the foregoing specification.

3d. The use, system, formation and arrangement of type, and of signs, for transmitting intelligence between distant point by the application of electro-magnetism and metallic conductors, combined with mechanism described in the foregoing specification.

4th. The mode and process of breaking and connecting by mechanism currents of electricity or galvanism in any circuit of metallic conductors, as described in the foregoing specification.

5th. The mode and process of propelling and connecting currents of electricity or galvanism, in and through any desired number of circuits of metallic conductors, from any known generator of electricity or galvanism, as described in the foregoing specification.

6th. The application of electro-magnets by means of one or more circuits of metallic conductors, from any known generator of electricity or galvanism, to the several levers in the machinery described in the foregoing specification, for the purpose of imparting motion to said levers, and operating said machinery, and for transmitting by signs and sounds intelligence between distant points, and simultaneously to different points.

7th. The mode and process of recording or marking permanently signs of intelligence transmitted between distant points, and simultaneously to different points, by the application and use of electro-magnetism or galvanism, as described in the foregoing specification.

8th. The combination and arrangement of electro magnets, in one or more circuits of metallic conductors, with armatures of magnets, for transmitting intelligence by signs and sounds, or either, between distant points, and to different points simultaneously.

9th. The combination and mutual adaptation of the several parts of the mechanism, and system of type and signs, with and to the dictionary or vocabulary of words, as described in the foregoing specification.

SAMUEL F. B. MORSE.

Improvement in the Cotton Gin.

What I claim as my invention, and which I desire to secure by letters patent, consists in the arrangement of the vibrating saw C, grated hopper B, adjustable plate M, and grooved drawing-roller N, for separating the seed from cotton, in combination with the receiving-roller *s*, and the advancing and receding comb X, for discharging it, as herein set forth.

FONES MCCARTHY.

Improvement in the Expanding and Contracting of Universal Chuck for Lathes.

I do not claim to be the inventor of the above-described mode of working the holders, by means of the convolute groove; but what I do claim as my invention, and desire to secure by letters patent, is the method of securing together the front and back plates by means of the tube and nut, by which I am enabled to attach the front plate directly to the mandrel or face-plate of the latter, all as above described, in like manner.

I do not claim as my invention the rim on the front plate; but what I do claim as my invention is, providing the rim with apertures, through which the slides or holders can pass, for the purpose and in the manner above described.

SIMON FAIRMAN.

Improvement in the Mill for Breaking and Grinding Bark.

What we claim as our invention, and desire to secure by letters patent, is the combination of the conical nuts (one or more) with the cylinders, placed concentrically, as herein mentioned and described, and constructed, arranged, and connected in the manner herein described, and provided with teeth and pickers, arranged as is also herein mentioned and set forth.

RICHARD MONTGOMERY.
LEWIS W. HARRIS.

Improvement in the Machine for Boiling and Washing Rags for Manufacturing Paper.

What I claim as constituting my invention, and desire to secure by letters patent, is, first, the construction and use of a cylindrical revolving boiler and washer, the interior of which is divided into four, or any other convenient number of compartments, by grated partitions, within which the rags are to be subjected to the action of high steam, and of an alkaline solution, in the manner and for the purpose herein set forth; the whole being constructed and operating substantially in the manner described.

GEORGE SPAFFORD.

For Reducing Worn-out Cloths and Silks, of various kinds, to the Fibrous state, so as to be capable of being Manufactured into Cloth.

I do not claim the mere use of cylinders, furnished with teeth or points, for the purpose of tearing or reducing woollen or other rags into fibres; but what I do claim as constituting my invention, and desire to secure by letters patent, is the use of cylinders, furnished with teeth or points, and operating under water or other fluids, in a machine similar, in its general form, to that used by paper-makers in preparing their pulp, but combined with the concave of small cylinders E E, and operating substantially in the manner of that herein fully described and made known.

REUBEN DANIELS.

Improvement in the Machine for Cleaning Wool from Burs and other Foreign Matter.

Having thus fully described the nature and operation of my machine for cleaning wool and picking cotton, what I claim therein as constituting my invention, and desire to secure by letters patent, is the manner of applying and using the vibrating doffer, with its comb-plates, constructed and operating as herein set forth, in combination with the toothed guard-plate, as described; and this I claim, whether the respective parts be formed exactly as herein represented, or in any other way which is substantially the same, producing a like result by analogous means.

MILTON D. WHIPPLE.

Improvement in the Manner of Constructing Padlocks for Mail-Bags, and other uses, called the Clam-Shell Padlock.

Having thus fully described the construction and operation of my improved mail-bag padlock, what I claim therein as constituting my invention, is, first, the forming of the shell, or case, of two pieces of plate-metal, raised and adapted to each other in the manner set forth. I do not claim the raising of metal by means of dies, this being a well-known process; but I limit my claim to the manner in which I have adapted the raised plates to the forming of the shell of a padlock, instead of making it by casting or by joining a rim on to wrought metal, as, by the adaptation, I have not only improved the form, but have given additional strength, and that at a diminished cost.

Secondly, I claim the manner of combining the bow, or hasp, with the shell of the lock, without the use of a joint-pin, as herein fully set forth.

Thirdly, I claim the manner of forming and using the spring-hooks, as described, the springs being so arranged as to be brought into action by the shutting of the hasp, and by the turning of the key, and causing the hasp to fly out by the pressure of the springs against the inclined point of the catch. It will be manifest that variations may be made in the manner of forming and arranging the respective parts of the lock, herein described; and I do not intend, therefore, to limit myself in this respect. The springs may be made in separate pieces, and attached to the spring-hooks, and other changes of a similar kind may be introduced in other parts, whilst the instrument will remain substantially the same, producing a like result by analogous means.

SOLOMON ANDREWS.

Improvement in the Mode of Constructing a combined Caldron and Furnace, for the use of Agriculturists and others.

What I claim in the above described apparatus as of my invention, and which I desire to secure by letters patent, is the combining of the portable furnace with the caldron or boiler, by elevating the sides of said furnace, and connecting therewith the sectional side-pieces, which constitute a flue surrounding the caldron or boiler; the whole being constructed, combined, and operating substantially in the manner and for the purpose herein fully set forth.

JORDAN L. MOTT.

Improvement in the Mode of Regulating Waste Steam in Locomotive Steam-Engines.

I do not claim the plan of increasing the natural draught, by causing the steam from the cylinders to enter the chimney through diminished orifices; but I do claim as my invention, desiring to secure the same by letters patent, the plan of increasing or diminishing the force with

which the steam from the cylinders enters the chimney at the pleasure of the engine-man, while the engine is in use or motion, by enlarging or contracting the orifices of the escape-pipes, increasing or diminishing thereby, at pleasure, the draught of the chimney in the manner above set forth; not intending by this claim to limit myself to the precise arrangement of the respective parts as herein described, but to vary the same as I may think proper, whilst I attain the same end by means substantially the same.

ROSS WINANS.

Improvement in the Machine for Cutting Paper and Trimming Books.

What I claim as my invention, and desire to secure by letters patent, is the peculiar mechanical combination used to give a lateral or sliding motion to the knife, which consists of the inclines or cams formed on the frame F, working on the cams *g g*, the connecting-rods P P, and the frame O, for the purpose and in the manner specified.

Also, I claim the mechanical construction of the press, as arranged and combined with the parts for cutting, thereby forming an entire machine for the purpose described.

FREDERICK J. AUSTIN.

Improvements in the Method of Constructing Clocks.

The invention claimed, and desired to be secured by letters patent, is, 1st, the rotary pendulum;

2d, the rotary hammer in the striking part of a clock;

3d, the connexion between the striking and time part of a clock, by which the time part is driven; all as herein described, and for the purposes hereinbefore set forth.

AARON D. CRANE.

Machine for Rolling Puddle-Balls or other Masses of Iron in the Manufacture of Iron.

What I claim as constituting my invention, and desire to secure by letters patent, is the preparing of the puddler's balls as they are delivered from the puddling furnace, or of other similar masses of iron, by causing them to pass between a revolving cylinder and a curved segmental trough adapted thereto, constructed and operating substantially in the manner of that herein described and represented in figures 2 and 3 of the accompanying drawings, or by causing the said balls to pass between vibrating or reciprocating tables, surfaces, or plates of iron, in the manner exemplified in figure 1 in the accompanying drawings, or between vibrating or reciprocating curved surfaces, operating upon the same principle, and producing a like result, by analogous means.

H. BURDEN.

Improvement in Spark-Arresters.

The undersigned claims as his own invention the combination of the plate H and A, constructed in the manner described above, having a wire gauze arranged between them, with the casing surrounding the chimney of the locomotive, in the form as set forth.

DAVID MATTHEW.

ANNUAL REPORT OF THE COMMISSIONER OF PATENTS

VOL. 1 1854

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1855.

IN THE SENATE OF THE UNITED STATES, *February* 8, 1855.

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Attest:

ASBURY DICKINS, *Secretary*.

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734	Improvement in Amalgamating and Washing Gold and Silver	309	153
735	Improvement in Railroad Frog-guards	309	185
736	Improvement in Cranberry Winnower	309	160
737	Match Machine	310	158
738	Improvement in treating Valcanizable Gums	310	None.
739	Veneering Machine	311	149
740	Combined Table and Chair	311	181
741	Improvement in treating Caoutchouc and other Vulcanizable Gums	312	None.
742	Improvement in Syringe	312	189
743	Machine for making Wire Netting	312	None.
744	Improvement in Metal Drills	313	175
745	Improvement in Training the Grape Vine	313	174
746	Improvement in Pumps	313	179
747	Mode for Manufacturing Wrought Iron Tools	314	155
748	Bench Plane	314	157
749	Crozing Staves	314	154
750	Improvement in Drying Tobacco	315	146
751	Railroad-chair Machine	315	156
752	Improvement in the Construction of Tea and Coffee Pots	315	153
753	Improvement in Seed-planters	316	157
754	Improvement in Mills for Grinding Ores	316	170
755	Improvement in Seed-planters	317	152
756	Improvement in Iron Buildings	317	188
757	Improvement in Sewing-machines	317	188
758	Improvement in Rat-traps	318	152
759	Improvement in Brick-machines	318	189
760	Improvement in the Apparatus for Street Gas Lamps	318	166
10,761	Improvement in Fish-hooks	319	187

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
10,762	Improvement in Machines for Cleaning Cotton	319	169
763	Improvement in Sewing-machines	320	181
764	Improvement in Rat-traps	321	155
765	Improvement in Truss for Iron Bridges	321	165
766	Life Car	321	169
767	Lubricator	322	179
768	Boring and Mortising Machine	322	156
769	Improvement in the Construction and Combination of Foot-stoves and Lanterns	322	90
770	Improved Iron-frame Upright Piano-forte	323	98
771	Improved Attachments for Fish-hooks, and Artificial Baits	323	93
772	Improvement in Dressing Flax and Hemp	325	98
773	Improved Swell-mute Attachment for Piano-fortes	324	96
774	Improved Hinge	325	94
775	Improvement in Earth Cars	325	95
776	Improvement in Piano-forte Actions	325	91
777	Improvement in Brick-machines	326	85
778	Improved Circular Sawing-machines	327	84
779	Improvement in Tailors' Measures	327	91
780	Improvement in Machines for Bleaching Flax	328	33
781	Improvement in Iron Fences	328	33
782	Improvement in Machines for Winding and Folding Cloth	329	33
783	Improved Turning-lathe	329	35
784	Improvement in Spiral Springs for Railroad Cars	330	55
785	Improvement in Machines for Paring Apples	330	35
786	Improvement in Gas Regulators	331	105
787	Improvement in Car-couplings	332	49
788	Improved Box Machine	332	53
789	Improved Apparatus for Painting Window-blinds	332	40
790	Mode of Attaching Propellers	332	53
791	Improved Water-wheel	333	49
792	Machine for Cleaning Blinds	333	38
793	Improvements in Heating, Warming, and Cooking	333	56
794	Improved Landing-net for Anglers	334	40
795	Improvement in Fishing-rods and Floats	334	35
796	Improvement in Potato-washing Machines	335	54
797	Improved Portable Ladder or Fire-escape	335	53
798	Oyster-knife	335	40
799	Improved Slitting-gauges	336	36
800	Improved Faucet	336	85
801	Improved Fly-trap	336	85
802	Improvement in Grass-harvesters	337	90
803	Improvement in Cleaning Cotton and other Fibrous Substances	337	87
804	Improved Ticket-box for Railroad Cars	338	86
805	Improvement in Operating Dumping Cars	338	92
806	Improvement in Cooking	338	83
807	Improved Fire-escape	338	131
808	Improvement in Process for Bleaching Flax	339	85
809	Improved Machine for Filling Match-frames	339	86
810	Improved Machine for Opening Oysters	340	62
811	Improvement in Maize Harvesters	340	62
812	Improvement in Revolving-breech Fire-arms	340	62
813	Improvement in Distilling and Condensing Apparatus	341	62
814	Improvement in Vinous Fermenting Close Vessels	341	64
815	Improved Ditching Ploughs	342	63
816	Improvement in Cast-iron Car-wheels	342	63
817	Improvement in Travelling Bridges	342	64
818	Improvement in Railroad Car Seats	342	64
819	Improved Method of Securing Stones in Foundations	343	62
820	Improved File or Bill Holder	343	59
821	Improvement in Repeating Fire arms	343	75
10,822	Improved Rotary Pump	343	63

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
10,823	Improvement in Machinery for Laying Rope	344	63
824	Improved Machine for Feeding Sheets of Paper to Printing Presses	345	62
825	Improvement in Portable Folding Chair-bedsteads	345	63
826	Improved Wedge Machine	346	64
827	Improved Mode of operating the Feed-Tables of Printing Presses	346	74
828	Improvement in Apparatus for Feeding Paper to Printing Presses	347	64
829	Improved Field-fence	347	62
830	Improvement in Glass Furnaces	347	64
831	Improvement in Brick-making	347	121
832	Improvement in Forming and Hardening Hat-bodies	348	97
833	Improvement in Roofing	348	66
834	Improved Bullet-Moulds	348	74
835	Improvement in Machine for Cutting and Skiving the Counters of Boots and Shoes	349	127
836	Improvement in Pilers for Machinery	349	66
837	Improvement in Railroad Car Seats	349	114
838	Improved Syringe for Eye Baths	350	71
839	Improved Reaction Water-wheels	350	101
840	Improvement in Invalid Bedsteads	350	183
841	Improvement in Guard-fingers of Harvesters	351	179
842	Improvement in Sewing-machines	351	151
843	Improved Method of Discharging Cargo from Canal Boats	351	191
844	Certain Devices in Tonguing and Grooving	352	153
845	Improved Device in Constructing Strap-iron Railing	352	165
846	Improvement in Chargers for Fire-arms	352	177
847	Improvement in Plates for Artificial Teeth	352	105
848	Improvement in Reed Boxes for Musical Instruments	352	49
849	Improvement in Process for Distilling Rosin Oil	353	None.
850	Improvement in Distilling Apparatus	353	79
851	Improvement in Spinning Cotton	353	74
852	Improvement in Railroad Horse-power	354	49
853	Improved Socket for holding Tools	354	77
854	Improvement in making Ships' Knees	354	77
855	Improved Hydraulic Heater	354	77
856	Improvement in Piston Packing	354	77
857	Method of Setting the Valves of Locomotives	355	78
858	Improved Metal Cutter	355	155
859	Improved Machine for Making Bed Pins	355	78
860	Improvement in Straw-cutters	355	155
861	Improvement in Car-trucks with Adjustable Axles	356	152
862	Trunk-lock Hasp	356	157
863	Improvement in Harrow	356	179
864	Improvement in Machinery for the Manufacture of Clinch Rings	356	165
865	Improvement in Flexible Harrow	357	166
866	Improvement in Making Rope	357	188
867	Improvement in Violins	357	49
868	Improved Air-engine	357	53
869	Hydraulic Engine	358	60
870	Milkers' Protector	358	55
871	Improved Rotary Planing-knife	358	54
872	Improved Expanding Bit	359	91
873	Second Improved Slatting Machine	359	53
874	Improvement in Hay-knife	360	63
875	Improvement in Sewing-machine	360	104
876	Improvement in Machinery for Dressing Flax	360	82
877	Improvement in Bee-hives	361	106
878	Improvement in Sewing-machines	361	94
879	Improvement in Sewing-machines	361	111
10,880	Improvement in Sewing-machines	362	104

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
10,881	Improvement in Seed Planters	362	56
882	Improved Hub-borers	363	56
883	Extension Bit Key	363	55
884	Improved Felloe Machine	363	58
885	Improved Pump	363	66
886	Improvement in Cultivators	364	57
887	Improvement in Bridges	364	56
888	Improved Journal-box for Saw-mill Carriages	364	58
889	Improvement in Machine for Cutting Paper	364	58
890	Improved Mortar and Pestle	365	41
891	Improvement in Mode of Unloading Canal Boats	365	44
892	Manure and Sand Loader	365	43
893	Improved Machine for Reducing Wood to Slivers	366	41
894	Improvement in Bleaching Apparatus	366	44
895	Improved Machine for Marking out Sash	366	44
896	Machine for Weighing and Printing Butter	367	63
897	Improvement in the Flues of Steam-boiler Furnaces	367	43
898	Improvement in the Construction of Pistons for Steam-engines	367	44
899	Self-acting Safety Hatch	367	43
900	Improvement in Hinges	368	43
901	Improvement in Locomotive Fire-box	368	41
902	Improvement in Screw Jacks	368	44
903	Joints for Clap-boards	368	43
904	Improvement in Harvester-rakes	368	43
905	Improved Lath-machine	369	44
906	Improved Rotary Shingle-machine	369	112
907	Improvement in Self-heating Smoothing-irons	370	75
908	Improvement in Tables for Ships' Cabin	370	67
909	Improvement in Surgical Splints	371	65
910	Improvement in Knitting-machines	371	68
911	Improvement in the Manufacture of Couplings for Clay Pipes	372	65
912	Improvement for Water-gauge for Steam-boilers	373	67
913	Improvement in Machinery for Combing Wool	373	71
914	Method of Coating Metals	374	74
915	Improvement in Knitting-machines	374	None.
916	Water-wheel	375	79
917	Improvement in Machine for Pegging Boots and Shoes	375	66
918	Improvements in Ox-yokes	376	74
919	Improvement in Shower-bath	376	75
920	Improvement in Cotton and Hay Presses	376	65
921	Improved Fastening for Ear-rings	377	71
922	Lathe for Irregular Forms	377	101
923	Atmospheric Trip-hammer	377	49
924	Improved Carpenters' Brace	377	97
925	Machine for Cutting Glaziers' Points	378	77
926	Improvement in Potato-diggers	378	72
927	Improvement in Gun Locks	378	77
928	Hanging Gates, &c	378	65
929	Improvement in Machinery for Composing Type	379	75
930	Improvement in Fire-arms	379	78
931	Improvement in Portable Mills	379	78
932	Saw	380	71
933	Improved Machine for Paging Books	380	75
934	Improvement in Guitars	380	75
935	Improved Mode of Attaching Blankets to Cylinders for Printing Presses	380	76
936	Improved Mitre-box	380	70
937	Improvement in Ox-yokes	381	71
938	Improvement in Self-heating Smoothing-irons	381	79
939	Lathe-dog	382	74
940	Saws	382	71
10,941	Improved Case for holding Railway and other Tickets	382	78

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
10,942	Hydraulic Heater for Warming Buildings	383	74
943	Improved Machine for Making Hinges	383	69
944	Improvement in Magazine Guns	383	79
945	Improvement in Constructing Ships for Safety and Escape	384	76
946	Lathe for Turning Hollow Ware	384	76
947	Improved Machine for Printing Railway and other Tickets	384	69
948	Improved Piano-forte Action	385	67
949	Improvement in Smut-machines	385	73
950	Improved Primer for Fire-arms	385	105
951	Improved Puppet-valves for Pumps	386	109
952	Improved Excavator for Fence Posts	386	72
953	Improved Apparatus for the Manufacture of Daguerreotype Cases	386	107
954	Improvement in Metallic Hones	387	66
955	Improved Ratchet Lever	387	109
956	Improvement in Cheese Hoops	387	66
957	Improved Sash Balance	387	74
958	Improvement in Counterpoise to Cast Locomotive Wheels	388	107
959	Improved Windmills	388	127
960	Improvement in Self-acting Power-press	388	103
961	Improved Machine for Making Book Covers	389	99
962	Hot-air Furnace	389	114
963	Feed-water Apparatus	389	101
964	Preventing Incrustation in Steam-boilers	389	121
965	Improved Machine for Sawing Thin Boards	390	121, 123
966	Improved Apparatus for Making Palliasses	390	113
967	Improvement in Clover Harvesters	390	91
968	Improvement in Process for Treating Hemp	391	None.
969	Improved Hydraulic Ram	391	106
970	Improved Tire-bender	392	106
971	Improvement in Locomotive Tender for Feeding the Furnaces of Locomotive Engines	392	114
972	Improvement in Button-hole Cutters	392	66
973	Improved Bracelet Clasp	392	101
974	Improvement in Sewing-machine	393	None.
975	Improvement in Sewing-machine	393	111
976	Improvement in Process for Galvanizing Metals	394	95
977	Improvement in Process for Treating Gutta Percha	395	None.
978	Improvement in Dyeing Process	395	102
979	Machine for Cutting and Grinding Corn, Cobs, Bark, &c	395	205
980	Improvement in Knitting-machines	396	94
981	Improved Mode of Manufacturing Turbine Wheels	396	104
982	Improvement in Hot Water Apparatus	396	93
983	Improvement in Fastening the Disk and Rim of Car Wheels	397	110
984	Improvement in Hooks and Eyes	397	86
985	Improved Chuck	397	95
986	Improved Machine for Cutting out Cloth	397	143
987	Improvement in Cameras for taking Stereoscope or other Daguerreotypes	398	96
988	Improved Stave-machine	398	100
989	Improvement in Hay Elevators	399	102
990	Ventilator Window for Railway Cars	399	110
991	Improvement in Neck Yokes	399	110
992	Improvement in Quartz Crushers	400	108
993	Improvement in Knitting-machines	400	51
994	Improvement in Sewing-machines	400	52
995	Improved Typograph	400	59
996	Improvement in Furnace Grate Bars	401	80
997	Improvement in Self-acting Nipper-blocks	401	51
998	Improvement in Knitting-machines	401	145, 146
999	Improvement in Steam-engines relating to the Valve	403	186
11,000	Improvement in Machines for Washing Bottles	403	186

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,001	Improvement in Machines for Washing Bottles	403	186
002	Improvement in Machines for Washing Bottles	403	186
003	Improvement in Machines for Washing Bottles	403	186
004	Improvement in Machines for Washing Bottles	403	186
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11,100	Improvement in Machines for Washing Bottles	403	186

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,101	Improvement in Machines for Washing Bottles	403	186
102	Improvement in Machines for Washing Bottles	403	186
103	Improvement in Machines for Washing Bottles	403	186
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178	Improvement in Machines for Washing Bottles	403	186
179	Improvement in Machines for Washing Bottles	403	186
180	Improvement in Machines for Washing Bottles	403	186
181	Improvement in Machines for Washing Bottles	403	186
182	Improvement in Machines for Washing Bottles	403	186
183	Improvement in Machines for Washing Bottles	403	186
184	Improvement in Machines for Washing Bottles	403	186
185	Improvement in Machines for Washing Bottles	403	186
186	Improvement in Machines for Washing Bottles	403	186
187	Improvement in Machines for Washing Bottles	403	186
188	Improvement in Machines for Washing Bottles	403	186
189	Improvement in Machines for Washing Bottles	403	186
190	Improvement in Machines for Washing Bottles	403	186
191	Improvement in Machines for Washing Bottles	403	186
192	Improvement in Machines for Washing Bottles	403	186
193	Improvement in Machines for Washing Bottles	403	186
194	Improvement in Machines for Washing Bottles	403	186
195	Improvement in Machines for Washing Bottles	403	186
196	Improvement in Machines for Washing Bottles	403	186
197	Improvement in Machines for Washing Bottles	403	186
198	Improvement in Machines for Washing Bottles	403	186
199	Improvement in Machines for Washing Bottles	403	186
11,200	Improvement in Machines for Washing Bottles	403	186

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,001	Improvement in Instruments for taking Deep-sea Soundings	403	81
2	Improvement in Brick and Pottery Kilns	404	192
3	Improvement in the Combination of Railroad Tracks and Wheels	405	144
4	Improvement in Threading Screws	405	117
5	Berth-knee Former	405	116
6	Improved Machine for Dressing Polygonal Timber	406	117
7	Improvement in Ship Timbers	406	116
8	Improvement in Cultivator	406	118
9	Making Seamless Metal Tubes	406	81
10	Improvement in the Arrangement of Dampers in Rotary Stoves	407	125
11	Improvement in Grain Mills	407	125
12	Improved Rivet-clamp for Wire Fences	407	112
13	Improvement in Moth-killers	407	125
14	Improved Machine for Cleaning and Watering Streets	408	99
15	Improvement in Flouring Mills	408	119
16	Improved Method of Turning Hubs	408	113
17	Improved Device for Operating Cutter-heads of Planing-machines	409	97
18	Improved Vault Covers	409	116
19	Improved Hydrant Cap	409	116
20	Improved Mechanism for Operating Pumps	409	118
21	Road-scraper	410	116
22	Improvement in Machines to Print Subscribers' Names, &c., on Newspapers	410	141
23	Improved Mode of Disconnecting Horses from Vehicles	410	81
24	Improved Lubricator	410	91
25	Steam Generator	411	190
26	Improvement in Sofa Bedsteads	411	115
27	Improvement in Eyelet Machines	411	82
28	Improvement in Excavators	412	118
29	Improvement in Seed-planters	412	120
30	Water level Indicators for Steam-boilers	412	118
31	Improvement in Feathering Paddle-wheels	412	82
32	Improvement in Seed-planters	413	117
33	Apparatus for Filing Mill-saws	413	115
34	Gold Amalgamator	413	130
35	Improved Lath-machine	414	106
36	Improved Method of Operating Saw-mill Blocks	414	118
37	Lathe for Figured Work	414	106
38	Improvement in Weaving Cut pile Fabrics	414	82
39	Improvement in Cleaning Bolts for Flour	415	117
40	Improvement in Grinding-mills	415	120
41	Improvement in Securing Car-wheels upon Axles	415	91
42	Improvement in Joint-bodied Buggies	416	115
43	Improvement in Cotton and Hay Presses	416	81
44	Moulding Hollow Ware	416	133
45	Improvement in Grinding-mills	416	120
46	Improvement in Drying Flour	417	137
47	Fan-blower	417	203
48	Improvement in Cooking Range	417	117
49	Railroad Wheel Tires	418	115
50	Improvement in the Manufacture of Sulphuric Acid	418	81
51	Improvement in Threshers	418	203
52	Suspended.		
53	Cut-nail Plate-feeder	419	120
54	Improvement in Bed-bottoms	419	118
55	Improvement in the means for controlling the operations of Cut-offs of Steam-engines	420	118
56	Improvement in Cast-iron Car-wheels	420	115
57	Spark-arresters	420	116
11,058	Improvement in Insulating Telegraph Wires	420	92

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,059	Improvement in Stills for Distilling Fatty Bodies	420	81
60	Improvement in Lens Lamp Chimney	420	82
61	Improvement in the Construction of Tanning Apparatus	420	82
62	Improvement in the Construction of Accordeons	420	149
63	Improved Carriage-axle	422	163
64	Improved Printing Press	422	207
65	Improved Tail-board for Wagons	423	192
66	Improvement in Bed-bottoms	423	214
67	Improvement in Vices	423	132
68	Improvement in Saddle-trees	423	203
69	Improvement in Win owing-machines	424	192
70	Improved Mode of making Cards	424	161
71	Improvement in Exhaust Fans	424	110
72	Improvement in Printers' Friskets	424	102
73	Improvement in Valves for Steam-pumps	425	123
74	Improvement in Couplings for Carriages	425	125
75	Improvement in Mills	425	103
76	Improvement in Harvester-cutters	426	127
77	Improved Mode of Closing Wickets in Canal Gates	426	125
78	Instrument for Trimming the Welts of Boots and Shoes	426	97
79	Improvement in Adjustable Rails for replacing Cars on the Track	426	113
80	Cable-stoppers	426	101
81	Improvement in Crushing and Grinding Quartz and Minerals	427	123
82	Improvement in Railroad Odometers	427	102
83	Improvement in Bridle-Bits	427	112
84	Spoke-machine	428	103
85	Riding Vehicles	428	114
86	Improvement in Harvesters	428	99
87	Improvement in Processes for Hardening Tallow	428	None.
88	Steering Apparatus	429	101
89	Steam-boiler	429	97
90	Improvement in Buckles	429	121
91	Improvement in Locking up Printers' Forms	429	119
92	Improvement in Tightening Windows	430	113
93	Controlling Plurality of Doors with one Key	430	113
94	Spark-arrester	430	97
95	Feed-water Apparatus for Steam-boilers	430	99
96	Improvement in Composition for Coating Telegraphic Wires, and for other purposes	430	None.
97	Improvement in Soap Compounds	431	None.
98	Improvement in Soap Manufacturing Processes	431	None.
99	Improved Mode of Fastening Shoemakers' Tools to Handles	431	112
100	Improvement in Looms	431	121
101	Improvement in Railroad Car Ventilators	432	125
102	Steam-boilers	432	127
103	Improved Canal Lock Gates	433	108
104	Improvement in Endless-chain Horse-power	433	127
105	Improvement in Machinery for Napping Cloth	433	79
106	Improvement in Machinery for Spinning Wool	433	78
107	Machine for Polishing Veneers	434	80
108	Grommet for Sails	434	74
109	Improvement in Quartz Crushers	434	67
110	Improvement in Setting Steam-boilers	435	80
111	Improvement in Process for Treating Paint	435	None.
112	Improvement in Paint Composition	435	None.
113	Method of Governing the Action of Valve-cocks	436	107
114	Cut-nail Machine	436	68
115	Flour-sifter and Renovator	436	107
116	Improvement in Grain Winnowers	436	80
117	Improvement in Steam-engines	437	67
118	Machine for Printing Woollen and other Goods	437	70
11,119	Double Cylinder Engine	437	80

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,120	Improvement in Machinery for Napping Cloth	437	79
121	Improvement in Machinery for Napping Cloth	437	79
122	Improvement in Machinery for Napping Cloth	437	79
123	Improvement in Machinery for Napping Cloth	437	79

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11, 120	Improvement in Weaving Double Cloth	437	None.
121	Improvement in the Construction of Reed Musical Instruments.	438	65
122	Tool Handle	438	74
123	Improvement in producing Continuous Circular from Reciprocating Rectilinear Motion	438	59
124	Improvement in Cast iron Car-wheels	439	71
125	Extra Yard to Topsails	439	96
126	Carriage Tops	439	61
127	Improvement in the Mode of making Bricks	439	51
128	Improvement in Gas Meters and Regulators	439	59
129	Improvement in Painters' Brushes	440	101
130	Improvement in Radial Arms for Car Brakes	440	59
131	Burglars' Alarm	440	51
132	Steam-engine Regulator	441	61
133	Improved Watch-chain Swivel	441	59
134	Slate Frame	441	52
135	Improvement in Breast Pumps	441	59
136	Turning Bodies of Barrels, &c., out of Solid Blocks	442	77
137	Improvement in Cast-iron Vices	442	54
138	Improvement in Railroad Car Brakes	442	52
139	Windlass for Ships	442	61
140	Machine for Drying Grain	443	59
141	Improvement in Tentering Cloth	443	61
142	Mode of Protecting Gas Retorts of Iron	443	61
143	Application of Ordinary and Superheated Steam for Heating Purposes	444	59
144	Carriage Tops	444	61
145	Improvement in Machines for Folding and Measuring Cloth	444	191
146	Mode of Setting and Holding Pens for Paper Ruling	445	103
147	Improved Machine for Stamping out Soles of Boots and Shoes.	445	168
148	Improvement in Omnibus Registers	445	185
149	Padlock	445	191
150	Improvements in Steam-boiler Furnaces	446	183
151	Improved Cider Mill and Press	446	184
152	Improvement in Coffee and Spice Mills	446	176
153	Improved Grape Frame	447	185
154	Improvement in Regulators for Equalizing the Flow of Gases and Fluids	447	183
155	Improvement in Mowing-machines	447	123
156	Improvement in Reversible Capstans	448	114
157	Breech-loading Gun	448	103
158	Door Locks	448	106
159	Improvement in Seed Planters	449	112
160	Improvement in Suspender Ends	449	73
161	Improvements in Sewing-machines	449	119
162	Improved Rotary Cultivator	449	73
163	Improvements in Machinery for Tentering and Drying Cloth	450	169
164	Improved Mitering-machine	450	196
165	Improved Hydro-pneumatic Force Pump	450	165
166	Improvement in Coffins	451	164
167	Improvement in Gas-burners	451	196
168	Improvement in Gas-burners	451	164
169	Improved Double-acting Force-pump	452	170
170	Improved Fruit Picker	452	180
171	Improvement in Inhaling Tube	452	164
172	Bread Cutting Machine	453	170
173	Improvement in Road Scrapers	453	164
174	Improved Charger for Fire-arms	453	174
175	Trap for Animals	453	184
176	Improvement in the Manufacture of Wooden Buttons	453	164
177	Improved Mortising-machine	454	155
11, 178	Improvement in Grain Separators	454	166

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11, 179	Improvement in Carriage Axles	454	182
180	Callipers	455	173
181	Improvement in Corn and Flour Mills	455	166
182	Steam-hammer	455	167
183	Improved Head-gate for Water-wheels	455	171
184	Ventilating Sewers	456	177
185	Improvement in Coffins	456	167
186	Improved Mode of forming Wire-frames for Bonnets	456	173
187	Improvement in Whistling Tops	457	173
188	Machine for Feeding Paper to Printing Presses	457	174
189	Process of Engraving or Printing upon Glass	457	148
190	Powder Channel for Doors of Safes and Vaults	457	175
191	Machines for Forming Moulds for Castings	458	216
192	Improved Pump	458	272
193	Apparatus for Desiccating Alimentary Substances	458	166
194	Mode of Preparing the Extract of Archil	459	None.
195	Machine for Scouring and Cleaning Grain	459	177
196	Improved Machine for Cutting Heels for Boots and Shoes	459	186
197	Magazine, Repeating, and Needle-gun	459	129
198	Improvement in Breech-loading Gun	460	157
199	Improvement in Preparing Cotton and other Fibres	460	136
200	Ventilated Flour Barrels	461	130
201	Improvement in Ploughs	461	183
202	Improvement in Cordage Machinery	461	185
203	*A. Kerocene*, for illuminating, and other purposes	462	None
204	*C. Kerocene*, for illuminating, and other purposes	462	None.
205	*B. Kerocene*, for illuminating, and other purposes	463	None.
206	Improved Machine for Digging Potatoes	463	136
207	Improvement in Evaporating Pans	463	136
208	Screw-wrench	463	129
209	Improved Machine for Bending Felloes	463	189
210	Improved Mechanism for Operating Saw-mill Carriages	464	187
211	Improved Machine for Creasing and Beveling Barrels	464	136
212	Improvement in the method of constructing Sofas, Settees, Cradles, and Cribs, or Crib-bedsteads	465	89
213	Improvement in the preparation of Collodion for Photographic Pictures	465	None.
214	Improvement in Pressing or Finishing Palm-leaf Hats	465	83
215	Improved Valve for Wind Musical Instruments	466	83
216	Improvement in Dressing Mill-stones	466	85
217	Improvement in the Application of Lightning Conductors to Ships or other Navigable Vessels	466	89
218	Sub-marine Battery	467	89
219	Improvement in Quartz and Ore-brushers	467	92
220	Steam-boiler	468	91
221	Improved Milk-strainer	468	85
222	Machine for Punching Rivet holes in Hose	468	90
223	Improvement in Steam-engines	468	87
224	Improvement in Reading and Writing stands	469	87
225	Improvement in Spike machines	469	88
226	Improved Distributer of Seed-drills	469	83
227	Improvement in Vault-cover Fastenings	470	91
228	Improved Wash-board	470	90
229	Improvement in Ore-stamping Machines	470	92
230	Improvement in Regulating the Draught in Stacks or Kilns for Burning	470	90
231	Improvement in Paddle-wheels	471	90
232	Improvements in Horse-powers	471	87
233	Improvement in Cast-iron Car-wheels	471	91
234	Improvement in Brick-kilns	472	89
235	Improved Beveling-plane	472	84
11, 236	Mode of Hanging Bells	472	85

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11, 237	Improvement in Machines for Cutting Veneers	473	92
238	Improvement in Machines for Cutting Veneers	473	92
239	Improvement in Machines for Cutting Veneers	473	92
240	Improvement in Machines for Cutting Veneers	473	92
241	Improvement in Machines for Cutting Veneers	473	92
242	Improvement in Machines for Cutting Veneers	473	92
243	Improvement in Machines for Cutting Veneers	473	92
244	Improvement in Machines for Cutting Veneers	473	92
245	Improvement in Machines for Cutting Veneers	473	92
246	Improvement in Machines for Cutting Veneers	473	92
247	Improvement in Machines for Cutting Veneers	473	92
248	Improvement in Machines for Cutting Veneers	473	92
249	Improvement in Machines for Cutting Veneers	473	92
250	Improvement in Machines for Cutting Veneers	473	92
251	Improvement in Machines for Cutting Veneers	473	92
252	Improvement in Machines for Cutting Veneers	473	92
253	Improvement in Machines for Cutting Veneers	473	92
254	Improvement in Machines for Cutting Veneers	473	92
255	Improvement in Machines for Cutting Veneers	473	92
256	Improvement in Machines for Cutting Veneers	473	92
257	Improvement in Machines for Cutting Veneers	473	92
258	Improvement in Machines for Cutting Veneers	473	92
259	Improvement in Machines for Cutting Veneers	473	92
260	Improvement in Machines for Cutting Veneers	473	92
261	Improvement in Machines for Cutting Veneers	473	92
262	Improvement in Machines for Cutting Veneers	473	92
263	Improvement in Machines for Cutting Veneers	473	92
264	Improvement in Machines for Cutting Veneers	473	92
265	Improvement in Machines for Cutting Veneers	473	92
266	Improvement in Machines for Cutting Veneers	473	92
267	Improvement in Machines for Cutting Veneers	473	92
268	Improvement in Machines for Cutting Veneers	473	92
269	Improvement in Machines for Cutting Veneers	473	92
270	Improvement in Machines for Cutting Veneers	473	92
271	Improvement in Machines for Cutting Veneers	473	92
272	Improvement in Machines for Cutting Veneers	473	92
273	Improvement in Machines for Cutting Veneers	473	92
274	Improvement in Machines for Cutting Veneers	473	92
275	Improvement in Machines for Cutting Veneers	473	92
276	Improvement in Machines for Cutting Veneers	473	92
277	Improvement in Machines for Cutting Veneers	473	92
278	Improvement in Machines for Cutting Veneers	473	92
279	Improvement in Machines for Cutting Veneers	473	92
280	Improvement in Machines for Cutting Veneers	473	92
281	Improvement in Machines for Cutting Veneers	473	92
282	Improvement in Machines for Cutting Veneers	473	92
283	Improvement in Machines for Cutting Veneers	473	92
284	Improvement in Machines for Cutting Veneers	473	92
285	Improvement in Machines for Cutting Veneers	473	92
286	Improvement in Machines for Cutting Veneers	473	92
287	Improvement in Machines for Cutting Veneers	473	92
288	Improvement in Machines for Cutting Veneers	473	92
289	Improvement in Machines for Cutting Veneers	473	92
290	Improvement in Machines for Cutting Veneers	473	92
291	Improvement in Machines for Cutting Veneers	473	92
292	Improvement in Machines for Cutting Veneers	473	92
293	Improvement in Machines for Cutting Veneers	473	92
294	Improvement in Machines for Cutting Veneers	473	92
295	Improvement in Machines for Cutting Veneers	473	92
296	Improvement in Machines for Cutting Veneers	473	92
297	Improvement in Machines for Cutting Veneers	473	92
298	Improvement in Machines for Cutting Veneers	473	92
299	Improvement in Machines for Cutting Veneers	473	92
300	Improvement in Machines for Cutting Veneers	473	92

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11, 301	Improvement in Machines for Cutting Veneers	473	92
302	Improvement in Machines for Cutting Veneers	473	92
303	Improvement in Machines for Cutting Veneers	473	92
304	Improvement in Machines for Cutting Veneers	473	92
305	Improvement in Machines for Cutting Veneers	473	92
306	Improvement in Machines for Cutting Veneers	473	92
307	Improvement in Machines for Cutting Veneers	473	92
308	Improvement in Machines for Cutting Veneers	473	92
309	Improvement in Machines for Cutting Veneers	473	92
310	Improvement in Machines for Cutting Veneers	473	92
311	Improvement in Machines for Cutting Veneers	473	92
312	Improvement in Machines for Cutting Veneers	473	92
313	Improvement in Machines for Cutting Veneers	473	92
314	Improvement in Machines for Cutting Veneers	473	92
315	Improvement in Machines for Cutting Veneers	473	92
316	Improvement in Machines for Cutting Veneers	473	92
317	Improvement in Machines for Cutting Veneers	473	92
318	Improvement in Machines for Cutting Veneers	473	92
319	Improvement in Machines for Cutting Veneers	473	92
320	Improvement in Machines for Cutting Veneers	473	92
321	Improvement in Machines for Cutting Veneers	473	92
322	Improvement in Machines for Cutting Veneers	473	92
323	Improvement in Machines for Cutting Veneers	473	92
324	Improvement in Machines for Cutting Veneers	473	92
325	Improvement in Machines for Cutting Veneers	473	92
326	Improvement in Machines for Cutting Veneers	473	92
327	Improvement in Machines for Cutting Veneers	473	92
328	Improvement in Machines for Cutting Veneers	473	92
329	Improvement in Machines for Cutting Veneers	473	92
330	Improvement in Machines for Cutting Veneers	473	92
331	Improvement in Machines for Cutting Veneers	473	92
332	Improvement in Machines for Cutting Veneers	473	92
333	Improvement in Machines for Cutting Veneers	473	92
334	Improvement in Machines for Cutting Veneers	473	92
335	Improvement in Machines for Cutting Veneers	473	92
336	Improvement in Machines for Cutting Veneers	473	92
337	Improvement in Machines for Cutting Veneers	473	92
338	Improvement in Machines for Cutting Veneers	473	92
339	Improvement in Machines for Cutting Veneers	473	92
340	Improvement in Machines for Cutting Veneers	473	92
341	Improvement in Machines for Cutting Veneers	473	92
342	Improvement in Machines for Cutting Veneers	473	92
343	Improvement in Machines for Cutting Veneers	473	92
344	Improvement in Machines for Cutting Veneers	473	92
345	Improvement in Machines for Cutting Veneers	473	92
346	Improvement in Machines for Cutting Veneers	473	92
347	Improvement in Machines for Cutting Veneers	473	92
348	Improvement in Machines for Cutting Veneers	473	92
349	Improvement in Machines for Cutting Veneers	473	92
350	Improvement in Machines for Cutting Veneers	473	92

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol II
11,237	Improved Cement	472	None.
238	Improvements in Machinery for making Looped or Netted Fabrics	473	88
239	Method of Purifying Oils	473	None.
240	Improvement in Sewing-machines	473	175
241	Improvement in Cheese-presses	474	165
242	Improvement in Excavating-machine	474	169
243	Process for making Car-wheels	475	167
244	Improvement in Gas-heating Apparatus	475	171
245	Improvement in Coal-lifters	475	218
246	Slide-valve motion	475	178
247	Clothes Refiner	476	None.
248	House for Mooring and Managing Balloons	476	162
249	Improvement in Machines for Harvesting Grain	476	162
250	Improved Implement for Blasting Rocks	477	168
251	Improvement in Foundation for Pavements	477	176
252	Parallel Motion	477	165
253	Improved Machine for Mortising Sash-stiles	477	180
254	Improvement in Trap-doors	478	172
255	Method of Applying Water to Cuniform Buckets of Flutter-wheels	478	162
256	Apparatus for Plating Metals	478	324
257	Improved Sawing-machine	478	162
258	Improvements in Horse-power	479	172
259	Improvement in Gas-stoves	479	164
260	Improvement in Eyelet-machines	479	168
261	Improvement in Lightning-rods	479	170
262	Improvement in the Method of Detaching Harness from Horses	480	169
263	Ornamenting Metallic Buttons	480	178
264	Improved Mode of Connecting Water-pipes	480	180
265	Improved Mode of Arranging Arch-boards for Cistern-arches	480	167
266	Improvement in Compositions for making Photographic Pictures	481	None.
267	Improvement in Photographic Pictures on Glass	481	None.
268	Improvement in Ventilating and Heating Railroad Cars	481	175
269	Fusible Marble	482	None.
270	Improvement in the Construction of Ink-stands	482	139
271	Improvement in Walking-canes convertible into Chairs	482	129
272	Improvement in Diaper-locks	482	134
273	Improvement in Cow-catchers	483	132
274	Improvement in Condensers for Steam-engines	483	134
275	Improvement in Machines for Planing Stone and Metal	483	133
276	Improvement in Ship Ventilators	484	124
277	Improved Machine for Hackling Corn-husks	484	131
278	Improvement in Hot-air Furnaces	484	128
279	Improvement in Self-acting Mules for Spinning	485	122
280	Improvement in Augers, Gimlets, &c	485	127
281	Improvement in Machines for Bottling Mineral Waters or Liquids under Pressure	485	140
282	Improved Adjustable Bearings for Circular Saws	486	131
283	Improvement in Fire-arms	486	126
284	Improvement in Sewing-machines	486	124
285	Improved Machine for making Heddle-eyes of Wire	486	142
286	Improvement in Machinery for Carving Marble	487	134
287	Improvement in Boot and Shoe Pegging Machines	487	131
288	Improved Machine for making the Heads of Shovel Handles	488	124
289	Improvement in Lanterns	488	122
290	Improvement in Constructing Iron Houses	488	132
291	Improved Grapnel for Raising Sunken Vessels	488	132
292	Improved Mode of Constructing Metallic Roofing	489	128
293	Freeing Canal Boats from Water	489	142
294	Improvement in Cut off Valves of Steam-engines	489	126
11,295	Improvement in Elevated Ovens used with Cooking-stoves	489	135

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II
11,296	Improved Water-wheel	489	128
297	Improvement in Hermetical Sealing	490	124
298	Improvement in Lifting-jacks	490	144
299	Improvement in Whale-blubber Press	490	144
300	Improved Valvular Arrangement for Diaphragm Pumps	491	144
301	Improved method of Stretching Shoes	491	137
302	Improved Hat-shaping Machine	491	124
303	Improvement in Lifting-jacks	492	135
304	Mode of taking Daguerreotypes for Stereoscopes	492	203
305	Improved Bedstead Fastenings	492	141
306	Improved Chain-hook	493	161
307	Improved mode of Ringing Bells by Steam	493	205
308	Improved Screw-wrench	493	122
309	Improvement in Mills	494	141
310	Improvement in Brakes for Light Vehicles	494	190
311	Improved mode of Manufacturing Iron Slats for Window-blinds	494	205
312	Improvement in Flouring and Bolting Process	494	161
313	Improvements in Machine for Manufacturing Paste-board	495	141
314	Improved Pen and Pencil Case	495	158
315	Improved Iron Picket-fence	495	153
316	Improvement in Steam-boiler Furnaces	495	147
317	Improvement in Ribs of Cotton-gins	496	141
318	Improvement in Preparing Flock for Felting	496	139
319	Process for Coating Iron with Copper or Brass	496	147
320	Improvement in Slide valves	497	207
321	Improved method of Making Printing-blocks	497	163
322	Improvement in Iron Bridges	497	192
323	Improvement in Excavating Machines	498	207
324	Improved Wind-mill	498	144
325	Improvement in Process of Tanning Leather for Shoes	498	None.
326	Process for Preparing and Separating Impalpable Powder for Paint	498	190
327	Improved Mode of Raising Vessels	499	163
328	Improvement in Horse Power	499	190
329	Improvement in Apparatus for Washing Fabrics in Continuous Sheets	499	147
330	Improvement in Cutting Tobacco	499	None.
331	Improved mode of Manufacturing Lampblack	500	161
332	Improvement in Hermetical Sealing of Preserve Canisters	500	161
333	Improvement in Steam-gauges	500	143
334	Improvement in Washing-machines	501	146
335	Improvement in Weavers' Heddles	501	205
336	Improvement in Buckles	501	130
337	Improvement in Railroad-car Trucks	501	131
338	Improvement in Manufacturing Steel directly from the Ore	502	None
339	Apparatus for Describing the Curve of the Arm-holes of Coats	502	129
340	Improvement in Metallic Fire places	502	190
341	Machine for Holding Ducks of Horses	502	144
342	Improvement in the Reeling Apparatus of Rope Machine	503	152
343	Improvements in Pulping and Disintegrating Vegetable Substances	503	None
344	Improvement in Screw-cutting Machines	504	154
345	Improved Carriage Springs	504	120
346	Improvement in Boot and Shoe Pegging Machines	504	205
347	Improvement in Machinery for Sewing-machine	505	1 3
348	Improvement in Labels for Mailing and other uses	505	205
349	Improved Device in Machines for Cutting Round Tenons	505	203
350	Improved method of Securing Helves in Axes, &c	506	147
351	Improvement in Nutmeg Graters	506	205
352	Improvement in Looms	506	141
353	Improvement in Bottles	506	207
11,354	Improvements in Section Globe-lanterns	507	205

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,375	Improvement in Cotton-gins	507	190
376	Improvement in Ploughs	507	124
377	Improvement in Bottles	508	207
378	Improved Door-spring	508	143
379	Substitute for Sperm or other Oils for Lubricating purposes	508	None
380	Omnibus-step Protector	508	137
381	Improvement in Cultivator	509	141
382	Improvement in the striking part of Eight-day Steeple Clocks	509	138
383	Improvement in Machines for Making Metallic Rings	509	107
384	Improved Arrangement for Lathe-chuck	509	72
385	Improved Mode for Driving and Straining Saws	510	105
386	Improvement in Library Tables	510	105
387	Improvement in the Mowing-machine	510	109
388	Improvement in Quartz and Ore Crushers	511	73
389	Improvement in Vehicles	511	109
390	Improvement in Butter-workers	511	103
391	Improvements in Portable Grates	512	73
392	Improvement in Dressing Mill-stones	512	73
393	Improved Water wheel	512	109
394	Improved Lock	512	151
395	Improvement in Windows	512	156
396	Improvement in Shirt Collars	512	None.
397	Improvements in Steam-boilers	513	159
398	Improved Device for securing ends of Wires in Fence-posts	513	154
399	Improvement in Cultivator	513	145
400	Improvement in Eyelet machines	513	179
401	Improved Coupling for Carriages	514	191
402	Improvement in Ditching Ploughs	514	146
403	Improved Mode of Securing Staples to Walls	514	181
404	Improvement in Portable Soda-water Fountains	515	153
405	Improved Mode of Stopping Mineral-water Bottles	515	150
406	Improvement in Regulating the Heat of Stoves	515	187
407	Improvement in Machines for Working Butter	515	156
408	Improvement in Platform Scales	515	181
409	Improvements in Sheet-metal Candlesticks	516	188
410	Improvement in Corn-cob Cutters	516	189
411	Improved Ditching spade	517	183
412	Improvement in Horseshoes	517	152
413	Method of ascertaining Draughts of Boats	517	150
414	Improvement in Paddle-wheels	517	143
415	Improvement in Seed Planter	517	143
416	Spring Polishing Wheel	518	133
417	Improved Mode of Fitting Heads in Boxes	518	181
418	Improvement in Bedsteads	518	138
419	Improvement in Hot-air Furnace and Cooking Range	518	137
420	Improvement in Hedge Trimmers	519	147
421	Improvement in Cider-mills	519	147
422	Improvement in Stove-pipe Thimbles	519	131
423	Improved Mortising-machine	520	139
424	Improvement in Cable Stoppers	520	137
425	Improvement in Machinery for Making Matches	520	139
426	Lubricating Material	521	None.
427	Wood-carving Machine	521	144
428	Improvements in Brick-machines	521	143
429	Improvement in Steam-boiler Tubes	521	115
430	Improvement in Saws or Blades for Sawing Stone	522	139
431	Improved Machine for Drying Thick Paper	522	122
432	Improvement in Door-locks	522	178
433	Punching Apparatus for Cutting Metallic Plates	523	106
434	Improved Cover for Hot-air Furnaces	523	184
435	Improvement in Magneto-electric Machines	523	172
11,436	Improvement in Draughting and Modelling Vessels	523	148

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,417	Improved Machine for Sawing Fire-wood	524	164
418	Improved Machine for Working and Moulding Dough for Crackers	524	168
419	Improved Revolving-breech Pistol	524	173
420	Improvement in Callipers, Compasses or Dividers	525	181
421	Improved Pen	525	183
422	Improvement in Brick-machines	525	155
423	Improvement in Lathing Buildings	526	187
424	Mode of Attaching Thills and Poles to Vehicles	526	153
425	Mode of Attaching Whiffle-trees to Vehicles	526	186
426	Improvement in Wash Boards	527	160
427	Improvement in Shot Pouches	527	153
428	Improvement in Railroad Car Couplings	527	187
429	Improvement in Propellers	528	189
430	Improved Mortising-machine	528	182
431	Improvement in Houses for Switch Tenders	528	150
432	Improvement in Saws for Sawing Stone	528	129
433	Improvement in Feed Apparatus for Steam-boilers	529	158
434	Improvement in Machinery for Sticking Card-teeth	529	129, 130
435	Improvement in Measuring Cloth on Looms	530	185
436	Improvement in the Process of Warping and Dressing Yarn	530	138
437	Improvement in Fastening Lanterns	531	154
438	Improvement in Car-wheels with independent Flange and Tread	531	133
439	Improvement in Threshing-machines	532	136
440	Improvement in Moulds for Cement or Earthen Pipes	532	131
441	Improved Dumping Car	532	132
442	Self-loading and Dumping Cart	532	140
443	Improved Mode of Cleaning and Feeding	533	133
444	Improvement in Saw-mills	533	128
445	Improvement in Slips for Pulling on Shoes	533	131
446	Improved Tires for Carriage-wheels	534	122
447	Improvement in Fire-arms	534	132
448	Improvement in Machinery for Cleaning the Top Cards of Carding-machines	534	135
449	Improvement in Bedsteads	534	133
450	Method of Applying Power to Fire-engine	534	133
451	Improvement in the Manufacture of Brooms and Brushes	535	135
452	Improvement in Harrows	535	142
453	Improvement in Machine for Lasting Boots	535	136
454	Improvement in Cultivators	535	138
455	Improved Hydraulic Press	536	179
456	Improvement in Ploughs	536	170
457	Improvement in Horse-power Hoisting-machinery	536	148
458	Improvement in Machinery for Cleaning and Drying Grain	537	214
459	Screen for Clover-seed Huller	537	164
460	Improvement in Cultivator	537	226
461	Improvement in Withes for Masts of Vessels	538	162
462	Improvement in the Manufacture of Hats	538	None.
463	Improvement in Machines for Planing Metal	538	182
464	Seed-planter	538	182
465	Improvement in Brick-presses	539	202
466	Improvement in Dumping Wagons	540	198
467	Improved Wooden Tubular Bridge	540	200
468	Improvement in Imitating Marble	540	None.
469	Improvement in Stoves	540	202
470	Improvement in Fire-arms	541	201
471	Improved Carriage-clip to Prevent Rattling	541	208
472	Improvement in Cotton-presses	541	201
473	Improvement in Sawing and Planing Machines	541	201
474	Improvement in Rozin-oil Lamps	541	202
475	Improvement in the Stop Motion of Speeders, &c	542	204
476	Improvement in the Manufacture of Pigments from Iron Ore	543	None.
11,477	Improvement in Fire-arms	543	197

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,478	Improvement in Fire-arms	543	197
479	Improvement in Fire-arms	543	197
480	Improvement in Fire-arms	543	197
481	Improvement in Fire-arms	543	197

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,478	Improved Device for Grooving Boards	543	204
479	Improvement in Melodeons	544	206
480	Improvement in Machinery for Packing Salt	544	194
481	Improvement in Radiators	544	204
482	Improvement in Brick Machines	544	254
483	Improvement in Firearms	545	206
484	Improvement in Spring-bottoms of Bedsteads	545	194
485	Improvement in Condensers	545	238
486	Improvement in Buggies	545	208
487	Improvement in Brick Machines	546	217
488	Improvement in Sofa Bedsteads	546	199
489	Improvement in Method of Graduating Carpenters' Squares, Rulers, &c	547	234
490	Improved Spring-body Carriage	547	197
491	Improvement in Wooden Pavements	548	202
492	Improvement in Machinery for Dressing Stone	548	242
493	Improvement in Clover Separators	549	194
494	Improvement in Railroad Car Ventilators	549	208
495	Improvement in Machines for Cutting Soles of Boots and Shoes	549	206
496	Improvement in Carriages	550	193
497	Improvement in Lard Lamps	550	201
498	Improvement in Car Coupling	550	201
499	Improvement in Window-sash Springs	551	200
500	Improvement in Machinery for Cutting out Boot and Shoe Soles	551	206
501	Improvement in Fastenings for Hames	552	*
502	Improvement in the Rollers of Furniture Casters	552	193
503	Improvement in Self-heating Smoothing-irons	552	196
504	Improved Document File or Holder	553	204
505	Improvements in Shuttle-guards	553	194
506	Improvement in Furniture Casters	553	194
507	Improvement in Sewing-machines	553	208
508	Improvement in Blasting Rock, Timber, &c	554	194
509	Improved Mode of Constructing Iron Buildings	554	234
510	Improvement in Ship-blocks	554	202
511	Improvement in Fan-blowers	555	197
512	Improvements in Boring-machines	555	199
513	Improvement in Bottles, Jars, and other similar articles	555	199
514	Improvement in Pegging machines for Boots and Shoes	556	193, 194
515	Improvement in Moulds for Glass Insulators	557	195
516	Improvement in Hot-air Ranges and Elevated Side-ovens	557	208
517	Improvement in Railroad-car Brakes	557	196
518	Improvement in Machines for Turning Irregular Forms	558	227
519	Improvement in Rake	558	194
520	Improved Hand-press	558	197
521	Securing Carriage-wheels to Axles	558	193
522	Improvement in Punches for making Watch-hands	559	193
523	Improvement in Ploughs	559	197
524	Improvement in Lamps	559	201
525	Improved Safety-gauge for Steam-boilers	559	195
526	Improved Grindstone Frame	560	195
527	Improvement in Railroad-car Brakes	560	199
528	Cultivator	560	193
529	Improvement in Lime-kilns	561	202
530	Improved Mode of Unloading Coal and other Cars	561	204
531	Improvement in Sewing-machines	561	200
532	Improvement in Turn-tables	562	195, 196
533	Improvement in Machine for Cutting Irregular Forms	562	202
534	Improvement in Machines for Combing and Stapling Wool	562	274
535	Improvement in Railroad-car Windows	563	263
536	Improvement in Fire-arms	563	241, 242
537	Seed planters, Cotton	564	242
11,538	Horse-rake	564	270

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,539	Improved Mode of Insulating Lightning-rods and securing the Insulators	565	239
540	Process for Printing Long-napped Fabrics	565	None.
541	Improvement in Machines for Amalgamating Gold-bearing ores with Quicksilver	565	247
542	Improved Machine for Pegging Boots and Shoes	565	303
543	Improvement in Winnowers	566	263
544	Improved Centrifugal Pump	566	267
545	Improvement in Hot-air Furnaces	567	266
546	Improvement in Rotary Engines	567	264
547	Improvement in Hominy-mills	568	242
548	Straw-cutter	568	250
549	Improvement in Steam-engines	568	228
550	Improvement in Stop and Waste Cock	568	254
551	Improvement in Portable Bureaus	569	236
552	Improvement in Machinery for Coating Telegraph Wires	569	254
553	Bisulphuret of Carbon Engines	570	218
554	Improvement in Warp-knitting Looms	570	252
555	Improvement in Floating Anchors	570	230
556	Apparatus for Balancing and Hoisting Sashes	570	289
557	Manure and Lime Spreader	571	226
558	Improvement in Grain-mills	571	238
559	Pumps	571	248
560	Wood-gas Generator	571	252
561	Improvements in Umbrellas	572	240
562	Improved Instrument for Manufacturing Door-knobs	572	252
563	Hose Hydrant	572	240
564	Improvement in the Manufacture of Carpets	573	None.
565	Improved Daguerreotype-holder	573	236
566	Improvement in Tuning Forks	573	256
567	Improvement in Preventing Boiler Explosions	573	252
568	Improved Machine for Sawing Clapboards	573	248
569	Improved Saw-set	574	238
570	Improvement in Securing the Glass Sides of Lanterns	574	216
571	Improvement in Sewing-machines	574	228
572	Improved Carpenter's Gauge	574	240
573	Improvement in Harness-saddle Trees	575	230
574	Catamenial Ameliorator	575	218
575	Ploughs	575	240
576	Improvement in Harness-saddles	575	254
577	Improvement in Registers for Numbers applicable to Steam-engines	575	271
578	Improvement in Self-feeding and Discharging Ovens	576	327
579	Track-clearers for Grain and Grass-harvesters	576	329
580	Improvement in Cheese and other Presses	577	266
581	Improvement in Clamps for Sewing-machines	577	327
582	Improved Machine for Planing Lumber out of Wind	577	266
583	Improvement in Dampers for Furnaces and Stoves	578	270
584	Method of making Wrought-iron direct from the Ore	578	330
585	Improvement in Cog-gearing	578	327
586	Improved Tool-rest for Turning Lathes	578	271
587	Tool for Boring Legs of Pianos	578	331
588	Improvement in Sewing-machine	579	330
589	Machine for Forming Heddle-eyes	579	230, 276
590	Machinery for Rolling Shoulders on Axles	579	325
591	Steam-cock	580	196
592	Improvement in Hog-pens	580	271
593	Cultivator for Cotton	580	270
594	Improvement in Washing-machine	580	243
595	Maize-harvester	581	240
596	Improvement in Carpenters' and Masons' Bar-level	581	218
11,597	Improvement in Window-blind Fastenings	582	212

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,598	Improvement in Machinery for Cutting Veneers	582	214
599	Improvement in Machinery for Cutting Veneers	583	214
600	Improvement in Machinery for Cutting Veneers	583	214
601	Improvement in Machinery for Cutting Veneers	583	214

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,598	Improvement in Manner of Fastening Saddle-skirts to the Tree	582	212
599	Stave-machine	582	222
600	Stave-machine	582	223
601	Improvement in Ploughs	582	220
602	Improvement in Manure and Lime Spreaders	583	212
603	Method of Grinding Crosscut Saws	583	209
604	Improvement in Machines for Splitting Leather	583	224
605	Improvement in Bedsteads for Invalids	583	220
606	Improvement in Washer-hinges	584	251
607	Improvement in Slide-valves	584	220
608	Improvement in the Manufacture of India-rubber	584	212
609	Seed-planter	585	219
610	Manure-excavator	585	214
611	Seed-planter and Manure-spreader	585	255
612	Improvement in Safety fillers for Lamps	585	224
613	Improvement in Auger-bits	586	223
614	Improvement in Harrows	586	211
615	Improvement in Binding Folders	586	249
616	Cultivator for Potato Planting	586	269
617	Improvement in Seed-planters	587	221
618	Improved Saw-mill Dog	587	272
619	Improved Method of Tenoning Spokes	587	213
620	Corn-sheller	587	247
621	Hydraulic Ram	588	219
622	Chair for Exercising Young Children	588	208
623	Improvement in Breast-cups	588	224
624	Improved Horse-shoeing Apparatus	588	214
625	Improved Machine for Cutting Tenons	589	221
626	Improved Hydraulic Ram	589	241
627	Improvement in Counter Twist-speeders	590	222
628	Improvement in Nail-machines	590	229
629	Improved Governor for Wind-mills	590	229
630	Method of Operating Wind-mill Sails	590	219
631	Improvement in Sewing-machines	590	224
632	Improvement in Glass Lanterns	591	216
633	Improvement in Lard Lamps	591	224
634	Machinery for Dressing Ship-timber	591	213
635	Improved Multiform Moulding-plane	591	269
636	Improvement in Mill-stone Dress for Cleaning Grain	592	224
637	Improvements in Bolting-machines	592	245
638	Improvement in Spring-rollers for Window-curtains, &c	592	217
639	Improvement in Attaching Pulleys to Shafts	593	233
640	Improvements in Chimney-caps	593	235
641	Improvement in Seed-planters	593	217
642	Improvements in Seed-planters	593	217
643	Improvement in the Manufacture of Ribbons of Velvet	594	236
644	Method of Reefing Topsails from Deck	594	237
645	Machine for Worming Rigging	594	239
646	Portable Door-fastener	594	216
647	Hemp and Flax Brake	594	217
648	Hanging Plane-stocks	595	237
649	Machine for Riving Lumber for Shingles	595	237
650	Improved Driving Wheels of Locomotives for ascending Inclined Planes	595	233
651	Improvement in Ice-cream Freezers	596	237
652	Improvement in Lubies	596	227
653	Machine for Feeding Paper to Printing Presses	596	245
654	Improvements in Dressing Flax	597	198
655	Improvement in Stringed Musical Instruments	597	193
656	Improvement in Doors for Baggage-cars	597	235
657	Improvement in Argand Solar Lamps	597	198
11,658	Improvement in Brick Presses	598	204

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,659	Improvement in Machines for Cleaning Wool	598	197
660	Apparatus for Turning the Leaves of Books	599	225
661	Improvement in Surface Condensers	599	237
662	Improvement in the Method of Manufacturing Boots and Shoes	599	236
663	Metallic Slat Shutter	600	215
664	Improvement in Oscillating Steam-engines	600	228
665	Improvement in Dressing Mill-stones	600	256
666	Valve or Piston for Rotary Pump	600	239
667	Improvements in Straw-cutter	601	239
668	Couplings for Vehicles	601	240
669	Improvements in Ship Ventilators	601	225
670	Truss for Hernia	601	235
671	Improved Method of Applying Heat to Dilate Gases for the purpose of Elevating Water	602	239
672	Corn Sheller	602	255
673	Improvements in Ranges and Cooking Stoves	603	245
674	Improvement in Regulators for Gas-burners	603	251
675	Improvement in Apparatus for Distributing Fluids	603	259
676	Improvement in Means of Weighing the Cargo in Canal-boats and other Vessels	603	253
677	Improved Spoke-machine	604	247
678	Breech-loading Cannon	604	272
679	Improvement in Tailors' Shears	605	211
680	Improvement in Sewing-machines	605	269
681	Improvement in Portable Grist-mills	605	255
682	Plate for Artificial Teeth	606	251
683	Improvement in Curtain Fixtures	606	227
684	Fire-engines	606	237
685	Breech-loading Fire-arms	607	215
686	Improvement in Machines for Dressing Mill-stones	607	216
687	Improvement in Generating Steam	608	227
688	Improvement in Maize Harvesters	608	220
689	Shingle-machines	608	239
690	Improvement in Telegraphic Keys	609	225
691	Improvement in Bee-hives	609	215
692	Improvements in making Slag Ware	610	None.
693	Machine for Sawing Timber	610	254
694	Portable Staging	610	226
695	Vault Lights	610	225
696	Improvement in Caloric Engines	611	239
697	Hydraulic Ram	611	235
698	Revolving Fire-arms	611	236
699	Mode of converting the backs of Car-seats into Beds or Lounges	612	228
700	Breech-loading Cannon	612	225
701	Improvements in Lamps for burning Rosin-oil	612	227
702	Water-meter	613	278
703	Improvements in Counting-machines, and Machines for Indicating Motion	613	225
704	Pumps	614	233
705	Safety washer for Wheels	614	228
706	Improvement in Sausage-stuffers	614	233
707	Machines for Sawing Wood	615	218
708	Improved mode of Operating Guide-rollers and Feed-clamps in Sawing machines	615	276
709	Apparatus for Polishing Daguerreotype Plates	615	236
710	Improvement in Grain and Grass Harvesters	615	232
711	Improvement in Calendar Clocks	616	243
712	Improved Gold Separater	617	238
713	Improvement in Calendar Clocks	617	269
714	Improvement in Gas Generators	618	209
715	Repeating Fire-arms	618	223
11,716	Improvement in Porous Elastic Cloth for Gaiters	619	209

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,717	Improvement in Machines for Cutting Veneers	619	209
718	Improvement in Machines for Cutting Veneers	619	209
719	Improvement in Machines for Cutting Veneers	619	209
720	Improvement in Machines for Cutting Veneers	619	209
721	Improvement in Machines for Cutting Veneers	619	209
722	Improvement in Machines for Cutting Veneers	619	209
723	Improvement in Machines for Cutting Veneers	619	209
724	Improvement in Machines for Cutting Veneers	619	209
725	Improvement in Machines for Cutting Veneers	619	209
726	Improvement in Machines for Cutting Veneers	619	209
727	Improvement in Machines for Cutting Veneers	619	209
728	Improvement in Machines for Cutting Veneers	619	209
729	Improvement in Machines for Cutting Veneers	619	209
730	Improvement in Machines for Cutting Veneers	619	209
731	Improvement in Machines for Cutting Veneers	619	209
732	Improvement in Machines for Cutting Veneers	619	209
733	Improvement in Machines for Cutting Veneers	619	209
734	Improvement in Machines for Cutting Veneers	619	209
735	Improvement in Machines for Cutting Veneers	619	209
736	Improvement in Machines for Cutting Veneers	619	209
737	Improvement in Machines for Cutting Veneers	619	209
738	Improvement in Machines for Cutting Veneers	619	209
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721	Improved Parrel and Bow	620	213
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723	Improvement in Electric Clocks	620	210, 238, 250
724	Improvement in Railroad Car Seats	621	259
725	Improvement in Chair Frames	622	255
726	Improvement in Machines for Adding Numbers	622	214
727	Whiffletrees	623	215
728	Improved Machine for Paging Books	624	232
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732	Improvement in connecting a Series of Car-brakes	625	198
733	Improvement in the Running Gear of Locomotive Engines	625	198
734	Improvement in the Springs to the Knives of Straw-cutters	626	198
735	Improvement in Harvesters of Grain and Grass	626	256
736	Improvement in Washing-machines	626	226
737	Improvement in Washing-machines	627	240
738	Machine for Cutting Irregular Forms	627	213
739	Improvement in the method of Uniting Bats in the Process of Manufacturing Seamless Felt Garments	627	None.
740	Improvement in Process of Making Illuminating Gas from Wood	628	256
741	Improvement in Paddle Wheels	628	234
742	Improvements in the Form of Gas Retorts	628	236
743	Improvement in Steam-gauge	629	248
744	Machine for Manufacturing Frames for Wood saws	629	252
745	Improvement in Revolving Brick presses	629	253
746	Improvement in Machinery for Cutting and Dressing Stone	630	231
747	Improvement in Warming Houses by Steam	630	224
748	Improvement in Machines for Drying Woollen Goods	630	251
749	Improvement in Buttons	630	219
750	Dumping-car	631	324
751	Improvement in Knitting looms	631	222
752	Improved Pen and Pencil Case	631	270
753	Improvements in Brick-machines	632	255
754	Improvements in Stone-cutting Machines	632	257
755	Self-acting Mule	633	258
756	Hat-bodies	633	286
757	Improvement in Curtain Fixtures	633	322
758	Improvement in the Manufacture of Daguerreotype Cases	634	258
759	Improvement in Apparatus for Starting Railroad Cars	634	331
760	Improvement in Brick-machines	634	308
761	Improvement in the Feeding hoppers of Threshers and Separators of Grain	635	328
762	Improved Pen and Pencil Case	635	330
763	Improvement in Railroad Draw-bridge and Switch Telegraph	635	322
764	Improvement in Mosquito-curtains	636	270
765	Improved Printing Press	637	256
766	Improvement in Processes for Purifying Fatty Bodies	637	332
767	Improvement in Gas-meter Movement	638	332
768	Improvement in Moving box Loom	638	332
769	Improvement in the Construction of Needles	638	332
770	Improvement in Stoves	638	303
771	Improvement in Piano-forte Stools	639	316
772	Improvement in Railroad-car Seats	639	314
773	Improvement in Machinery for Making Hat-bodies	640	290
774	Shingle-machine	640	247
11,775	Improvement in Spinning Rope and Cordage	640	301

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,776	Rotary Pump	641	309
777	Improved Machine for Turning Hubs and Tool Handles, &c	641	309
778	Cutter-heads for Planing-machines	641	305
779	Improvement in Stone or Rock Drills	641	211, 262
780	Improvement in Magnetic Alarm Bells	642	393
781	Improved Sewing-pin	643	295
782	Improvement in the Construction of Sugar making Apparatus	643	301
783	Improvement in Machines for making Railroad Chairs	644	223
784	Improvement in the Construction of Ships	644	221
785	Improvement in Brakes for Checking and Starting Cars	645	231
786	Improvement in Compounds for Neutralizing Chlorine	645	None.
787	Improvement in Pawl Drills	645	272
788	Improvements in Saw-gummers	645	245
789	Improvement in Cans for holding Liquids	646	245
790	Improvement in Looms	646	247
791	Improvement in Cutting Shingles	646	245, 249
792	Improvement in Buttons	646	245
793	Improvement in Horn and Shell Splitting Machines	647	272
794	Improved Damper for Ovens	647	231
795	Improvement in Ginning and Cleaning Cotton	647	253
796	Improvement in Rotary Steam-engines	648	270
797	Polishing-machine	648	253
798	Improvement in Turning-lathes	648	249
799	Improvement in Locomotive Lamps	648	255
800	Improvements in Smut-machines	648	247
801	Improvement in the Construction of Sugar Boilers	648	229
802	Improvement in Process for the Manufacture of Salt	649	219
803	Loom for Weaving Cut-pile Fabrics	649	246
804	Improvement in Power Looms	650	261
805	Improvement in Machine for Forming Hat-bodies	650	265
806	Improved Water Meter	651	260
807	Smoke-consuming Stove	651	265
808	Improvement in Shoemakers' Edge-planes	652	264
809	Iron Buildings	652	242
810	Improvement in Grain and Grass Harvesters	652	259
811	Grinding-surface in Mills	653	266
812	Improvement in Roving Tubes	653	244
813	Improvement in Sawing-machine	653	260
814	Improvement in the Mode of Constructing Pipes	653	242
815	Improvement in Process for Enamelling Iron	653	None.
816	Improvement in Joints for Toilet-glasses	654	262
817	Improvements in Brick Presses	654	244
818	Iron Truss Bridge	655	268
819	Improvement in Vessels for Holding Liquids	655	244
820	Improved Pen and Pencil Case	656	267
821	Improvement in Ploughs	656	267
822	Improvement in Lifting and Bolting	656	267
823	Improvement in Smut-machines	657	262
824	Improvement in Straw and Grain Separators	657	259
825	Machine for Softening Hemp, Flax, &c	657	260
826	Improvement in Machinery for Cleaning Cotton	658	267
827	Improvement in Chairs for Round Rails	658	261
828	Improved Mill Bush	658	264
829	Improvement in Seed-planters	658	260
830	Improvement in Granaries	659	266
831	Improvement in Gutta Percha Stereotype Composition	659	None.
832	Improved Bran-duster	660	247
833	Improvement in Looms	660	257, 258
834	Improvement in Manufacturing Carpets of Rugs	661	258
835	Prussian Needle-gun	661	266
836	Pen-holder	661	258
11,837	Improvement in Machinery for Polishing Paper	661	304

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,838	Improvement in Machinery for Making Hat-bodies	662	290
839	Improvement in Machinery for Making Hat-bodies	662	290
840	Improvement in Machinery for Making Hat-bodies	662	290
841	Improvement in Machinery for Making Hat-bodies	662	290
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999	Improvement in Machinery for Making Hat-bodies	662	290
12,000	Improvement in Machinery for Making Hat-bodies	662	290

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
12,001	Improvement in Machinery for Making Hat-bodies	662	290
002	Improvement in Machinery for Making Hat-bodies	662	290
003	Improvement in Machinery for Making Hat-bodies	662	290
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099	Improvement in Machinery for Making Hat-bodies	662	290
12,100	Improvement in Machinery for Making Hat-bodies	662	290

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,838	Improvement in the Process of Making Iron Direct from the Ore	661	296
839	Improved Sliding Pen and Pencil Case	662	317
840	Improvement in Pen and Pencil Cases	662	273
841	Improvement in the Square, Scale, Level, and Bevel	662	275
842	Improvement in Sales	662	306
843	Improvement in Fastening Lamps to Lanterns	663	275
844	Improvement in Stoves	663	285
845	Improvement in Mills	663	323
846	Improvements in Rotary Steam-engines	663	325
847	Improvement in Air-heating Furnaces	665	289
848	Improvement in Bearings for Loose Pulleys	665	293
849	Securing Lamps to Lanterns	665	278
850	Improvement in Roller-catch for Self-acting Mill	665	325
851	Improvement in Steam-engines	666	329
852	Turning-keys for Pianos	666	328
853	Printing Press for Printing in Colors	666	324
854	Improvement in the mode of cutting gradually tapering strips of Raw and Tanned Hide for Whips	666	326
855	Improvement in Grain Winnowers	667	325
856	Burglars' Alarm for Money-drawers	667	331
857	Improvement in Apparatus for Tempering and Flattening Hardened Saws	667	327
858	Shingle Machine	668	323
859	For Ringing Alarm Bells	668	330
860	Machine for Filling Match frames	669	322
861	Improvement in Toothed Clothing for Picking Cylinders	669	282
862	Breech-loading Fire-arms	670	329
863	Improvement in Machinery for making Rope and Cordage	670	279
864	Wagon Seats	670	306
865	Improvement in Machinery for Picking Cotton and other fibrous substances	670	312
866	Improvement in Tailors' Measures	671	320
867	Syphons	671	311
868	Improvement in Flexible Measures	671	342
869	Improvement in the Construction of Hollow Railroad Axles	671	310
870	Breech-loading Cartridge	671	310
871	Breech-loading Powder-flask	672	318
872	Improvement in Apparatus for Sawing Off Piles under Water	672	305
873	Improved Pen and Pencil Case	672	311
874	Cancelled	672	None.
875	Machine for Manufacturing Mast-hoops	672	313
876	Improved Soldering Furnace	672	314
877	Improvement in Odometers	673	316
878	Improvement in Odometers	673	310
879	Improvement in Grate Bars	673	306
880	Improvement in Spark Arresters	674	314
881	Water-meter	674	312
882	Improvement in Machinery for Culling Rags for making Paper	674	316
883	Improvement in Surface Condensers for Steam-engines	675	320
884	Improvement in Sewing-machines	675	307
885	Improvement in Locks	676	311
886	Improvement in the Method of Polishing Stone	676	307
887	Improved Rat-trap	676	318
888	Water-wheel	676	309
889	Improvement in Machines for Dressing Stone	677	310
890	Improvement in the Art of Manufacturing Glass	677	313
891	Corn sheller	677	314
892	Improvement of Buckles	677	316
893	Improvement in Glass Furnaces	677	314
894	Barrel machine	677	310
895	Improvement in Bottle-stoppers	677	306
11,896	Improvement in Furnaces for Warming Buildings	679	308

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,897	Improvement in Vulcanizing Elastic Gums	679	None.
898	Improvement in Coal-hods	679	310
899	Improvement in Potato Diggers	679	308
900	Sawing Bolts for Staves	680	306
901	Bomb-shell	680	314
902	Improved Manufacture of Round Banding	680	310
903	Slate-frames	680	305
904	Improvement in Railroad Car Brakes	681	307
905	Farm Gates	681	305
906	Improvement in Sulphurizing Gutta Percha and like gums	681	None.
907	Machine for Tenoning Blind Slats	681	309
908	Improvement in Steam-engine Valves	682	315
909	Improvement in Rotary Steam-engines	682	316
910	Improvement in Machine for Hat Bodies	682	320
911	Improvement in Harness Saddles	682	313
912	Circular Saw	682	312
913	Improvements in Corn-sheller	683	314
914	Improvement in Blast Furnaces	683	310
915	Machine for forming the opening in the Heads of Shovel-handles	683	305
916	Improvement in Locks	684	311
917	Repeating Pistol	684	315
918	Improvement in Straw-cutters	684	312
919	Improvement in Loom-beams	685	310
920	Improvement in Lifting-jacks	685	314
921	Improvement in Machines for Cutting and Dressing Stone	685	320
922	Improvement in Machinery for Carving Stone	685	318
923	Improvement in Smut-machines	686	306
924	Improvement in Cultivators	686	316
925	Improvement in Slide-valves	686	315
926	Improvement in Double-cylinder Boilers	686	310
927	Improvement in Apparatus for Making Iron	687	317
928	Improvement in Lamp-caps	687	265
929	Improvement in Cultivator	687	263
930	Device for Adjusting Mill-stones	688	246
931	Improved Multigrade Iron-fence	688	268
932	Mode of Holding Vessels by the Keel, in Sectional Dry and Floating Docks	688	242
933	Improvement in Looms	688	241
934	Improvement in Sewing-machines	689	246
935	Improvement in Ploughs	689	261
936	Machine for Paging Books	689	282
937	Improvement in the Method of Engaging and Disengaging Self-acting Car-brakes	690	321
938	Breech-loading Gun	690	319
939	Improvement in Omnibus Registers	691	287
940	Improvement in Railroad-car Coupling	691	281
941	Improvement in Grain-winnowers	691	263
942	Tape-worm Trap	691	244
943	Operation for Removing Tape worm from the Stomach	692	None.
944	Method of Controlling Logs in Saw-mills without a Carriage	692	274
945	Improved Method of Hanging Saws	692	263
946	Improved Method of Controlling the Log for Carved and Bevel Sawing	692	261
947	Improvement in Overshoes	693	323
948	Ditching Plough and Excavator	693	325
949	Excavating-machine	694	265
950	Shingle-machine	694	246
951	Improvement in Grain and Grass Harvesters	694	265
952	Improvement in Machinery for Stretching and Drying Cloth	695	213
953	Saw-gauge	695	212
954	Improvement in Method of Constructing Printing-blocks	695	221
11,955	Improvements in Casting Type	696	213

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,956	Improvement in Machinery for Making Rope	696	213
957	Improvement in Machinery for Making Rope	696	213
958	Improvement in Machinery for Making Rope	696	213
959	Improvement in Machinery for Making Rope	696	213
960	Improvement in Machinery for Making Rope	696	213
961	Improvement in Machinery for Making Rope	696	213
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965	Improvement in Machinery for Making Rope	696	213
966	Improvement in Machinery for Making Rope	696	213
967	Improvement in Machinery for Making Rope	696	213
968	Improvement in Machinery for Making Rope	696	213
969	Improvement in Machinery for Making Rope	696	213
970	Improvement in Machinery for Making Rope	696	213
971	Improvement in Machinery for Making Rope	696	213
972	Improvement in Machinery for Making Rope	696	213
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974	Improvement in Machinery for Making Rope	696	213
975	Improvement in Machinery for Making Rope	696	213
976	Improvement in Machinery for Making Rope	696	213
977	Improvement in Machinery for Making Rope	696	213
978	Improvement in Machinery for Making Rope	696	213
979	Improvement in Machinery for Making Rope	696	213
980	Improvement in Machinery for Making Rope	696	213
981	Improvement in Machinery for Making Rope	696	213
982	Improvement in Machinery for Making Rope	696	213
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997	Improvement in Machinery for Making Rope	696	213
998	Improvement in Machinery for Making Rope	696	213
999	Improvement in Machinery for Making Rope	696	213
12,000	Improvement in Machinery for Making Rope	696	213

No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
12,001	Improvement in Machinery for Making Rope	696	213
002	Improvement in Machinery for Making Rope	696	213
003	Improvement in Machinery for Making Rope	696	213
004	Improvement in Machinery for Making Rope	696	213
005	Improvement in Machinery for Making Rope	696	213
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097	Improvement in Machinery for Making Rope	696	213
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099	Improvement in Machinery for Making Rope	696	213
12,100	Improvement in Machinery for Making Rope	696	213

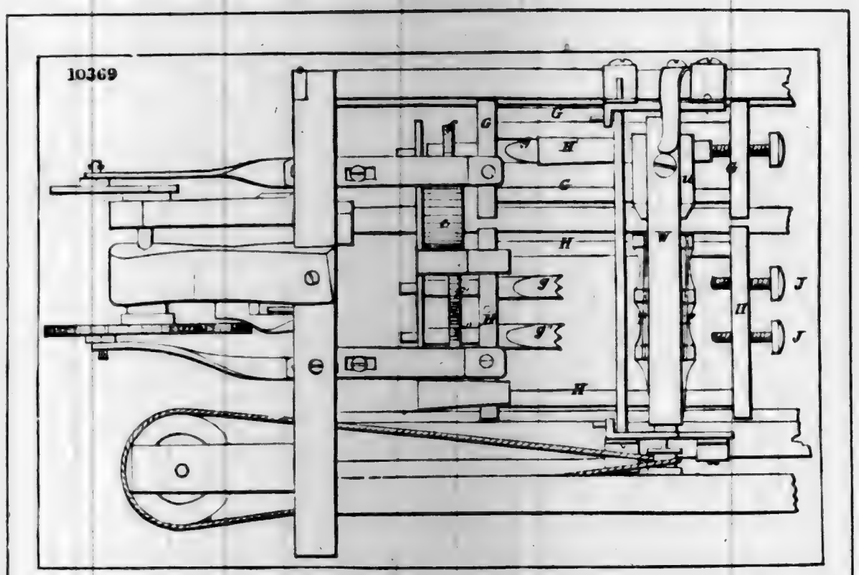
No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
11,956	Improvement in the Rollers of Pattern-chains for Looms	696	221
957	Improvement in Draw-irons for Towlines of Boats	696	264
958	Improvement in the mode of Lubricating the Cylinders and Bearings of Steam-engines	696	251
959	Improvement in Brick moulds	696	253
960	Machine for Papering Walls	697	216
961	Improvement in Sauce-pans	697	251
962	Improvement in Machines for Closing Sheet-metal Boxes	697	251
963	Improvement in Valve-gear	697	267
964	Improvement in Carding-machines	698	270
965	Shingle-machine	698	268
966	Improvement in Kettles for Calcining Plaster of Paris	698	271
967	Improvement in Seed-planters	699	264
968	Improvement in Slide-valves	699	260
969	Improvement in the mode of Attaching Life-preservers to Vests	699	264
970	Improved Arrangement of Pencils for Drawing-machines	699	263
971	Improvement in Sewing-machines	699	266
972	Improvement in Spinning-machines	700	265
973	Improvement in the Manufacture of Wire Rope	700	277
974	Improvement in Machinery for Threading Screw-blanks	701	328
975	Improvement in Furnaces	701	306
976	Improvement in Inhaling Apparatus	701	326
977	Improvement in Clothes-clamps	701	327
978	Dressing Millstones	702	331
979	Improvement in Rosin-oil Lamps	702	298
980	Improvement in Seed-planters	702	331
981	Improved Process of Rotting Hemp, &c	703	322
982	Improvement in Surgical Forceps	703	326
983	Improvement in Scythe-fastenings	703	281
984	Planing-machine	704	260
985	Improved Apparatus for Drying Clothes	704	273
986	Improvement in Hay and Cotton Presses	704	262
987	Fire-engine	705	324
988	Improvement in Quartz crushers	705	324
989	Improvement in Towel Stand or Clothes Horse	705	298
990	Improvement in Clover-hullers	706	322
991	Improvement in Seats for Public Buildings	706	326
992	Paddle-wheel	706	327
993	Improvement in Converting Reciprocating into Rotary Motion	706	None.
994	Improvement in Rotary Cooking-stoves	707	329
995	Improvement in Knitting-machines	707	269
996	Improvement in Dies for Pressing Bonnet-fronts	707	296
997	Improvements in Steam-boilers	708	269
998	Method of Supplying Tanks of Locomotives with Water	708	330
999	Improvement in Stoves	708	326
12,000	Improvement in Manufacture of Metal Rods and Tubes	708	328
1	Breech-loading Fire-arm	708	275
2	Machine for Boring the Chambers in the Revolving Cylinders of Fire-arms	709	279
3	Improved Piano forte Action	709	273
4	Improvement in Machine for Pressing Bonnet-frames	709	285
5	Improvement in Looms for Weaving Bags	710	302
6	Improved Mitre-box	710	273
7	Inclined Sliding-valves	710	275
8	Improved Rotary Lathe	710	298
9	Planing-machine	711	274
10	Improvement in Self-feeding Metal Drill	711	291
11	Improvement in Sewing-machines	711	296
12	Improvement in Washing-machines	711	275
13	Improvement in Ships' Windlasses	712	298
14	Improvement in Binding-guides for Sewing-machines	712	296
12,015	Improvement in Sewing-machines	712	294

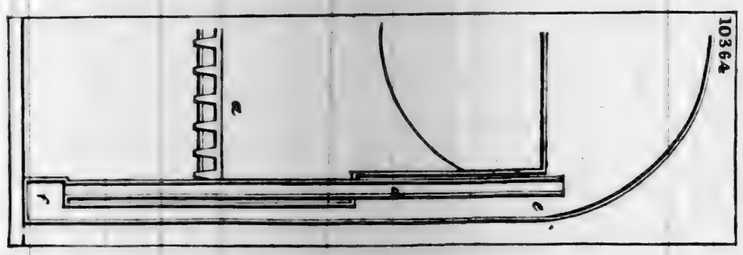
No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
12,016	Improvement in Machinery for Making Rope and Cordage	712	295
17	Improvement in Seats for Public Buildings	713	292
18	Oven for Baking	713	306
19	Improvement in Steam boiler Alarms	714	285
20	Improved Method of Reefing Sails from the Deck	714	306
21	Improved Steering Apparatus	714	281
22	Rotary Pump	714	275
23	Improvement in Railroad-car Seats	715	281
24	Improvement in Railroad Switches	715	287
25	Improvement in Machinery for Separating the Fibre from the Woody Portion of Tropical Plants	716	273
26	Machine for Rounding the Backs of Books	716	323
27	Improvement in Paper-making Machines	716	279
28	Improvement in Paper-making Machinery	716	273
29	Improvement in Washstands	717	306
30	Improved Mill for Shelling and Grinding Corn	717	319
31	Improved Machine for Crushing Ores	718	298
32	Improvement in Steam-boilers	718	276
33	Improvement in Railroad-car Brakes	718	316
34	Dry-docks	718	319
35	Method of Casting Window-sashes	718	277
36	Improvement in Running-gear of Railroad-cars	719	287
37	Improvement in the Manufacture of Brushes	719	319
38	Method of Extinguishing Fire in Inaccessible Places	719	285
39	Regulating Furnaces of Hot-water Apparatus	720	277
40	Improvement in Covering Cotton Thread with Wool	720	280
41	Improvement in Lanterns	720	317
42	Hydraulic Ram	720	283
43	Improvement in Churns	721	273
44	Improvement in Grain and Grass Harvesters	721	320
45	Improvement in Gas-meters	721	313
46	Improvement in Knitting-machines	722	291, 312
47	Lubricating Apparatus	722	289
48	Improvement in Polygraphs	722	292
49	Improved Polygraph	722	312
50	Improvement in Operating Looms by Electricity	423	306
51	Improved Mode of Hanging Carriage Bodies	723	294
52	Improvement in Oscillating Engines	723	301
53	Improvement in Machine for Bending Metal	724	None.
54	Machine for Crushing and Grinding Minerals and other Substances	725	273
55	Improvement in Throstles for Spinning Cotton	726	293
56	Improved Method of Destroying Vermin	726	289
57	Improved Method of Constructing Hoes	726	321
58	Improvement in Coffins	727	325
59	Harrow Improvement in Securing Adjustable Teeth	727	304
60	Fishing-line, Sinkers, and Floats	727	283
61	Improvement in Securing Carpets to Floors	727	273
62	Improved Hub-bands for Carriages	728	292
63	Improvement in Flyers	728	283
64	Improvement in Cut-off Regulators for Steam-engines	728	304
65	Feed-motion for Re-sawing, &c	729	287
66	Improvement in Sewing-machines	729	311
67	Improvement in Propellers	729	297
68	Improvement in Dock-holders	729	312
69	Improvement in Gold collectors	729	.....
70	Improvement in Cheese-vat	730	292
71	Hygrometric Regulator for Hot-water Apparatus	730	275
72	Improvement in Jacquard Machine	730	310
73	Improved Ratan Machine	731	280
74	Improvement in Sewing-machine	731	277
12,075	Improvement in Cultivators	731	319

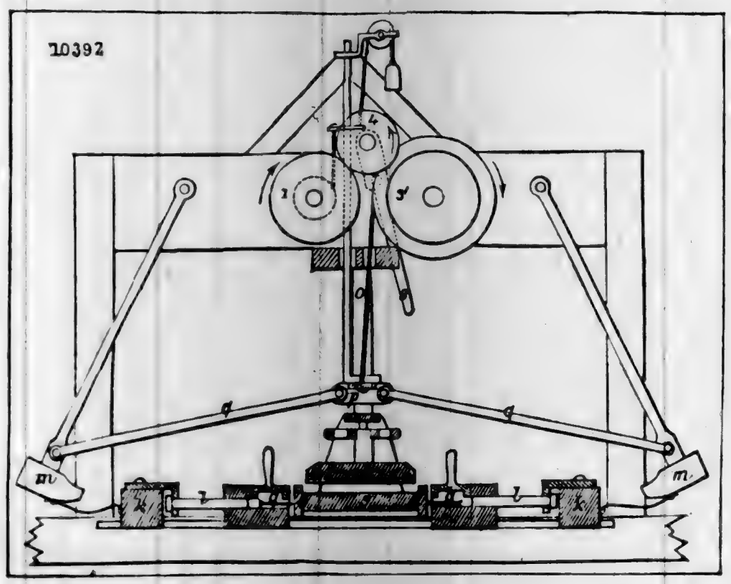
No.	Invention or discovery.	Folio, Vol. I.	Folio, Vol. II.
12,076	Improvement in Metal-scraping Machine	732	318
77	Improvement of the Process of Treating the Mother-water of Salines	732	275
78	Boring-machine	733	273
79	Improvement in the Joints of the Tubing of Surface Condensers	733	292
80	Improvement in Hot-air Furnaces	733	279
81	Improvement in Locks	734	288
82	Machine for Dressing Spokes	734	283
83	Improvement in Windlasses	734	302
84	Seed-planter	734	284
85	Improvement in Water-proofing Cloths, &c	735	None.
86	Improvement in Making Tea-pot Spouts	735	300
87	Improvement in Trussing Yards to Masts	735	302
88	Feeding Apparatus to a Machine for Cutting Irregular Forms	735	296
89	Improvement in Condensers	736	302
90	Improvement in Gold Separators	736	322
91	Improvement for Cleaning Seed-cotton and Feeding it to the Gin	736	285
92	Double-acting Force-pump	736	285
93	Bilge-supporter	736	287
94	Ferry-boat Guards	737	321
95	Improvement in Clover Harvesters	737	317
96	Improvement in Grain Mills	737	296
97	Impact Water-wheel	737	300
98	Improvement in Machines for Straightening Metal Bars	738	321
99	Improvement in Registering Dynamometers	738	317
100	Improvement in Sash fastener	739	319
101	Improvement in Making Sugar-moulds	739	304
102	Improvement in Composition for Tanning	739	None.
103	Improvement in Nail feeding Machines	739	288
104	Method of Holding Vessels by the Keels in Docks	740	304
105	Shingle-machine	740	286
106	Improvement in Revolving Fans for Apartments	740	300
107	Improved Machine for Packing Flour	741	287
108	Improvement in Life-preserving Seats	741	294
109	Improvement in Boot-crimping Machines	741	283
110	Oven Cooking-range	741	284
111	Improvement in Spring-bed Bottoms	742	289
112	Improved Machine for Making Horse-shoes	742	289–290
113	Improvement in Grain and Grass Harvester	742	289
114	Improvement in Leather-splitting Machines	743	318
115	Machine for Turning Prismatic Forms	743	299
12,116	Improvement in Sewing-machines	744	294

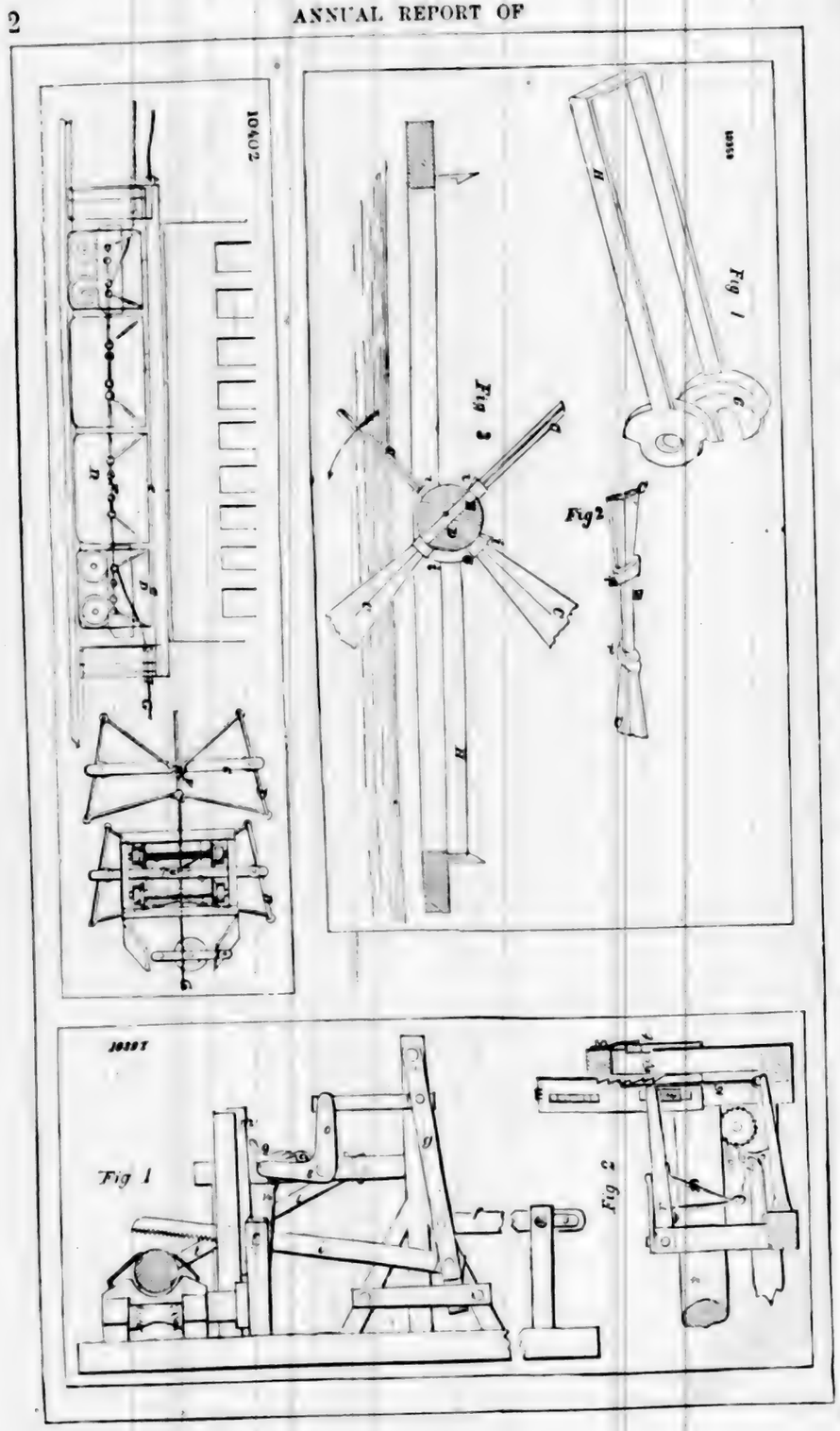
ADDITIONAL IMPROVEMENTS.

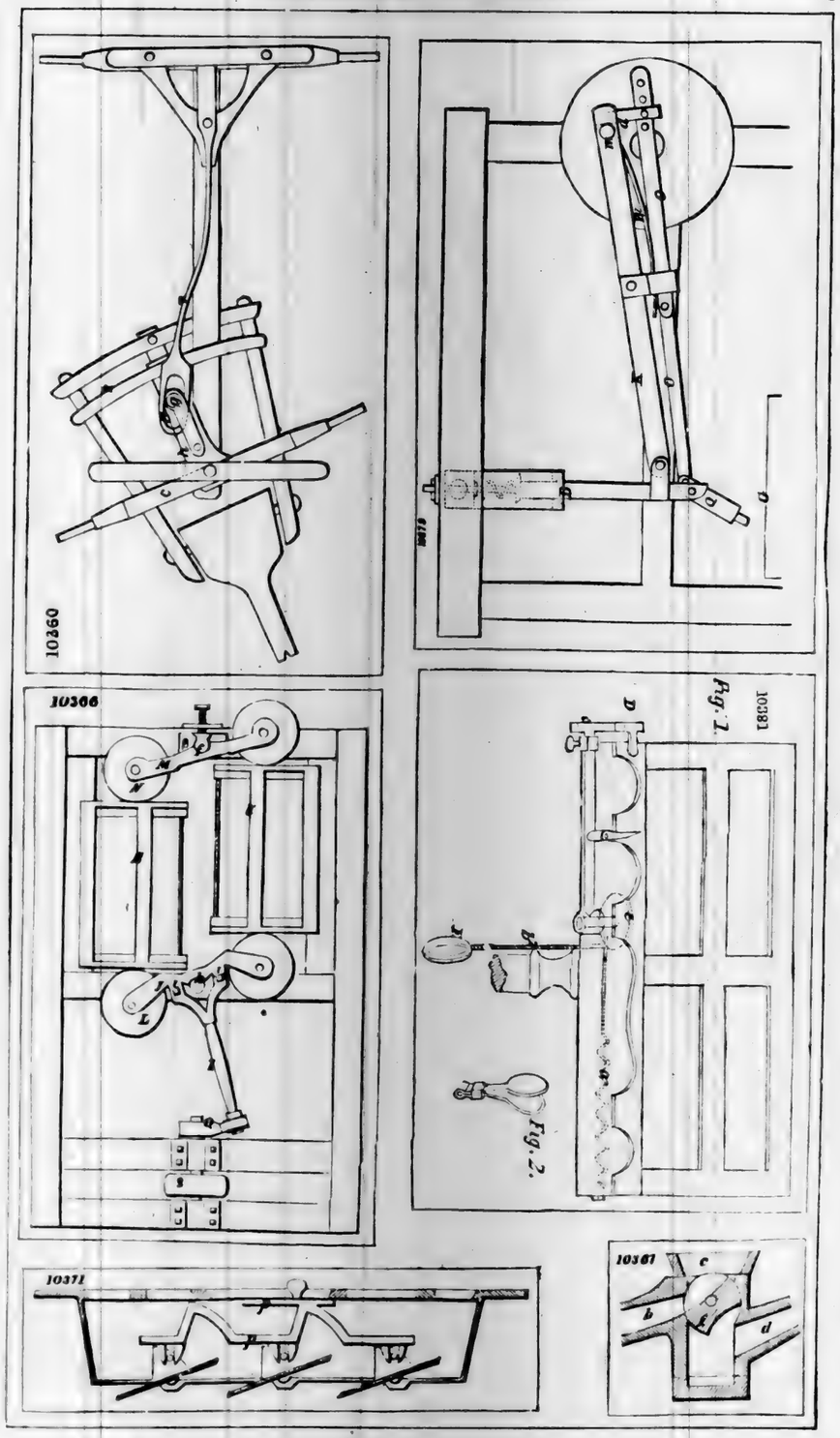
107	Improvement in Bog-cutting Cultivators	762	273
108	Improvement in Smut-machines	763	277
109	Improvement in Ploughs	763	310
110	Apparatus for Opening and Closing Gates	763	319
111	Improvement in Grinning Mills	763	275
112	Improvement in Looms for Weaving Colored Fabrics	764	300
113	For Harness Saddle-trees	764	281
114	Improvement in Machines for Polishing Raw Hide Whips	764	323
115	Improvement in Whiffletree Hooks	765	323
116	Improved Safety Washer for Securing Wheels to Axles	765	321
117	Improvement in the Construction of Reed Musical Instruments	765	325

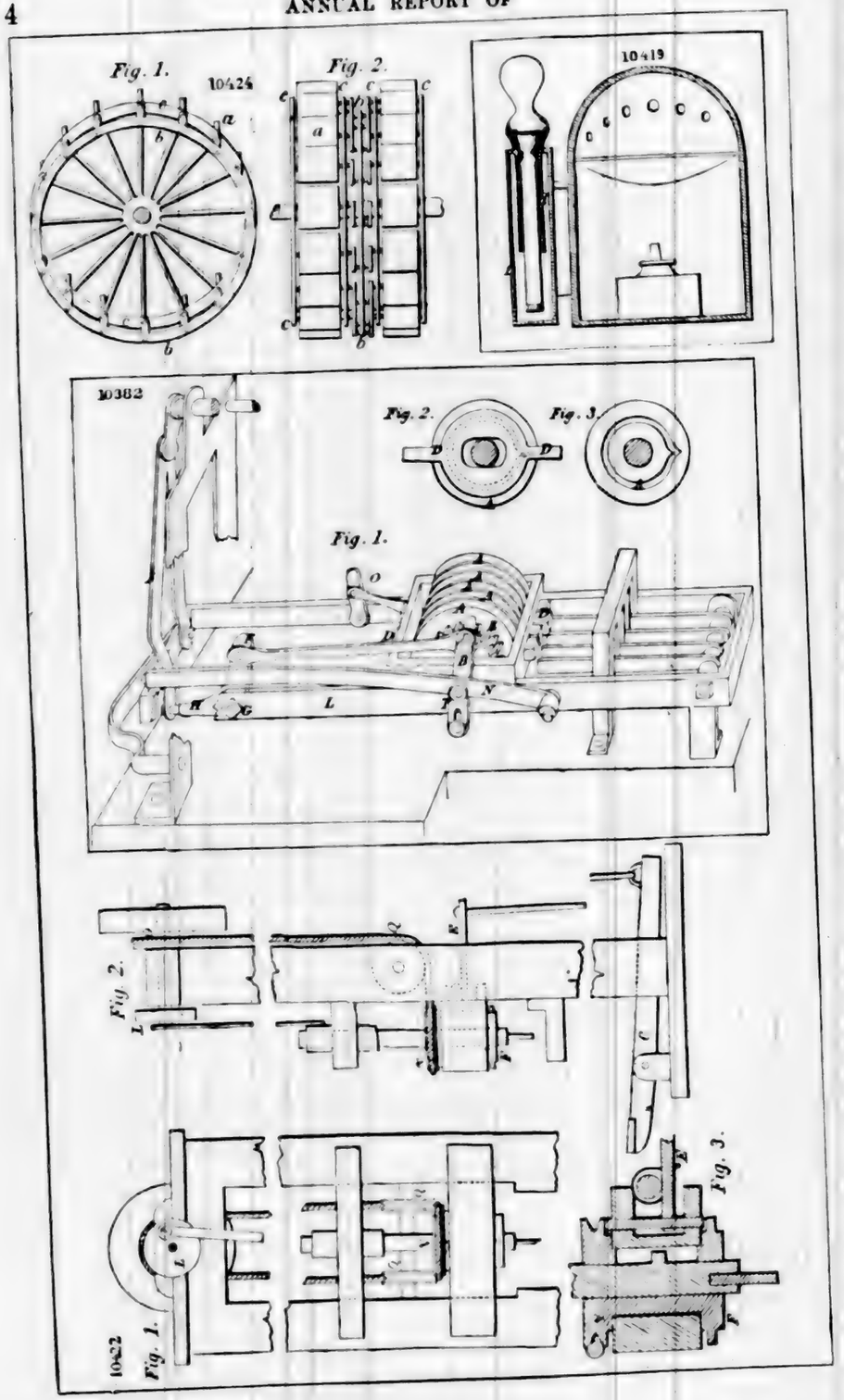


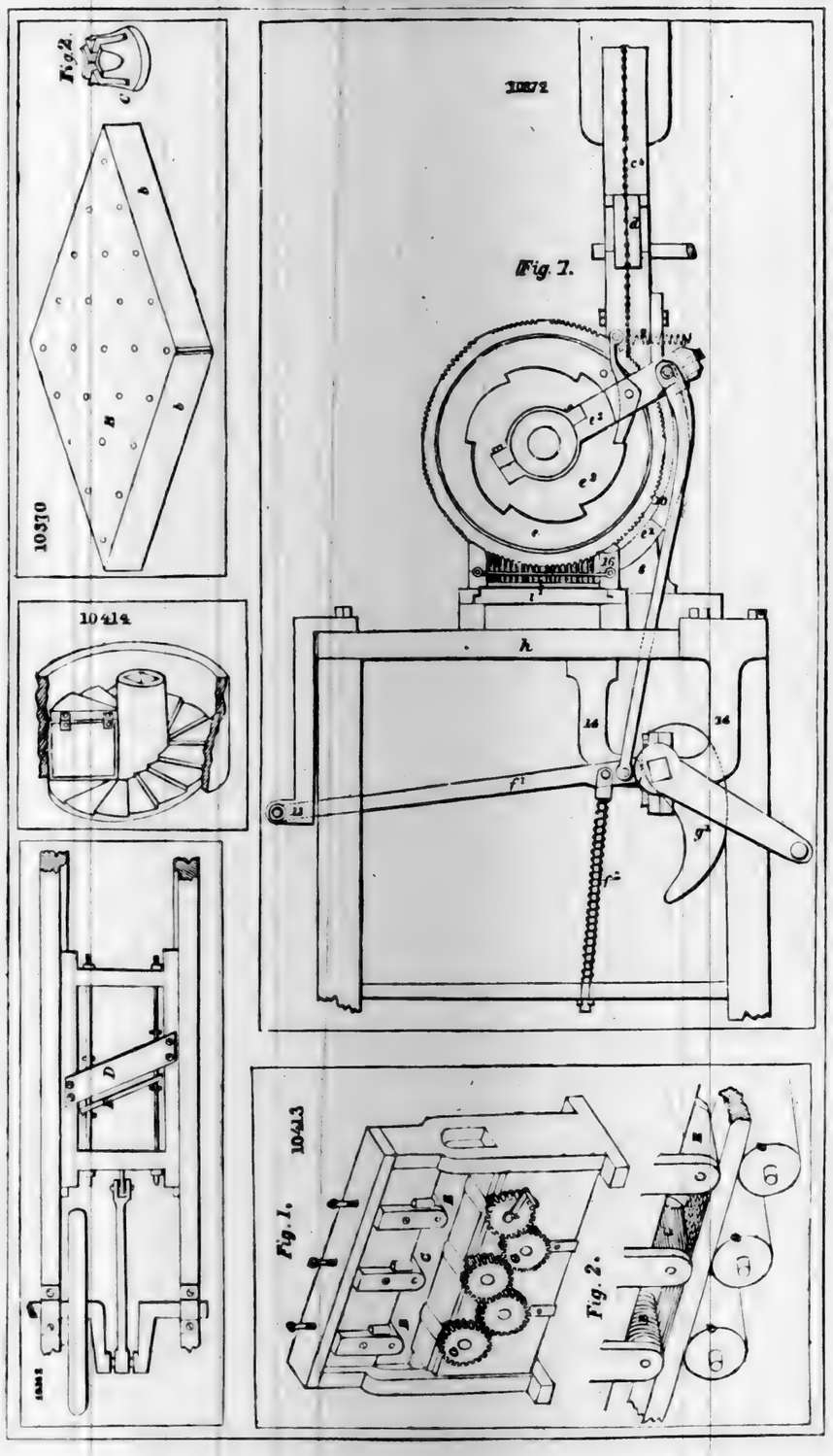





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Fig 1
Fig 3
Fig 2
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Fig 1
Fig 2


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Fig. 1.
Fig. 2.
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4 ANNUAL REPORT OF

COMMISSIONER OF PATENTS. 5

Fig. 1. 10424

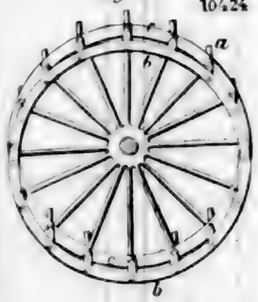
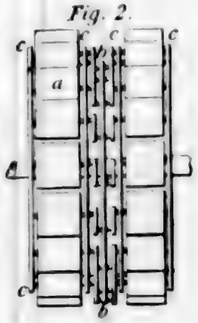
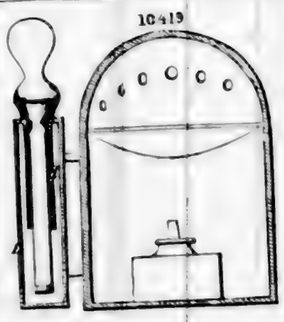


Fig. 2.



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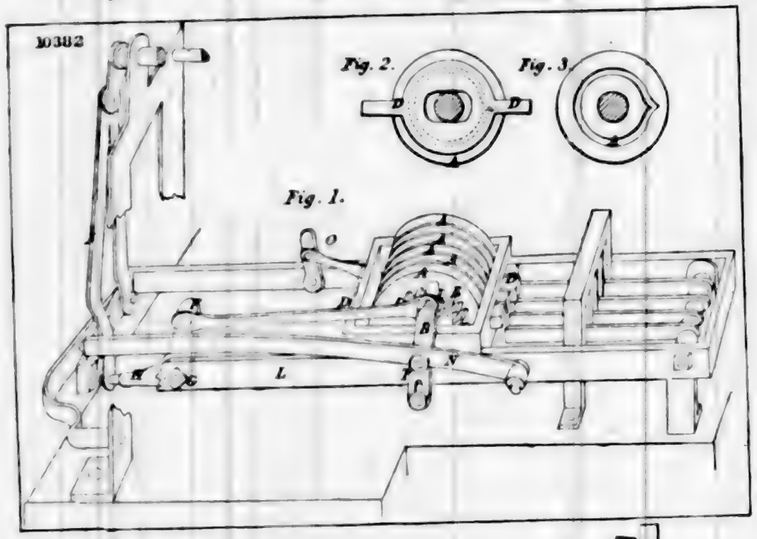


Fig. 2.

Fig. 3.

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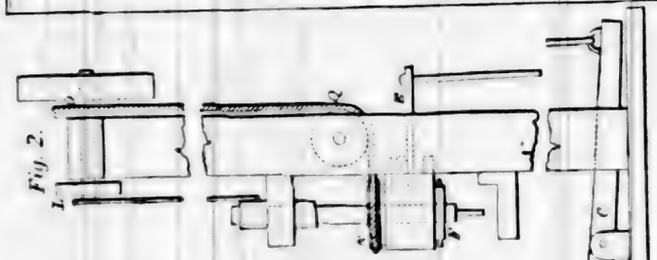
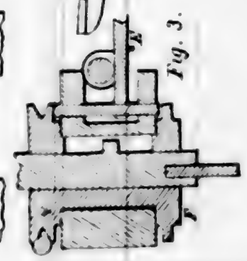


Fig. 3.



10432 Fig. 1.

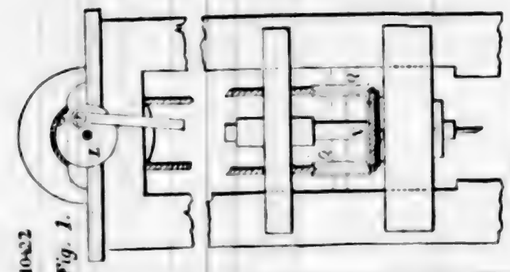
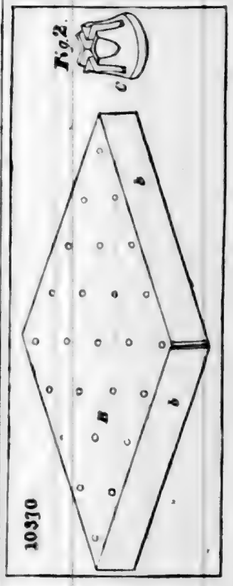
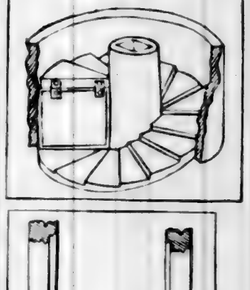


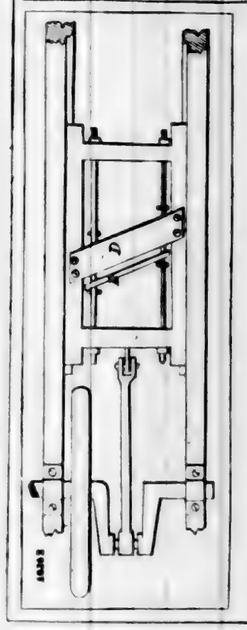
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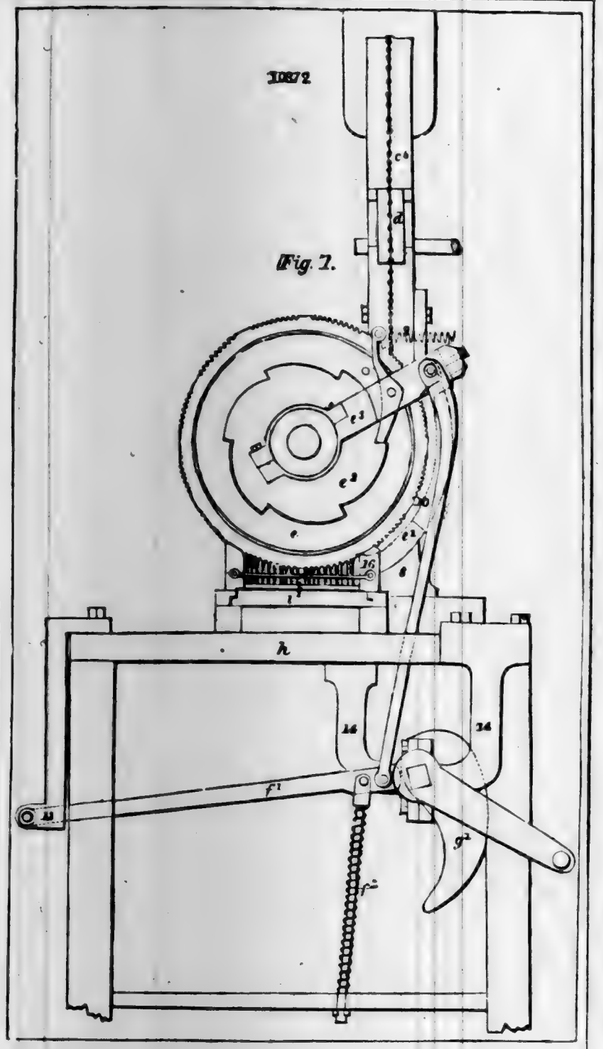
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10372 Fig. 1.



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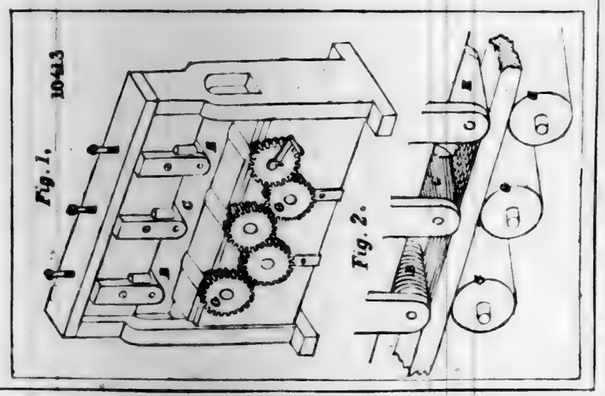


Fig. 2.

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Fig. 2.

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Fig. 3.

Fig. 2

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Fig. 1.

Fig 2

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Fig. 1.

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Fig. 1.

Fig. 2.

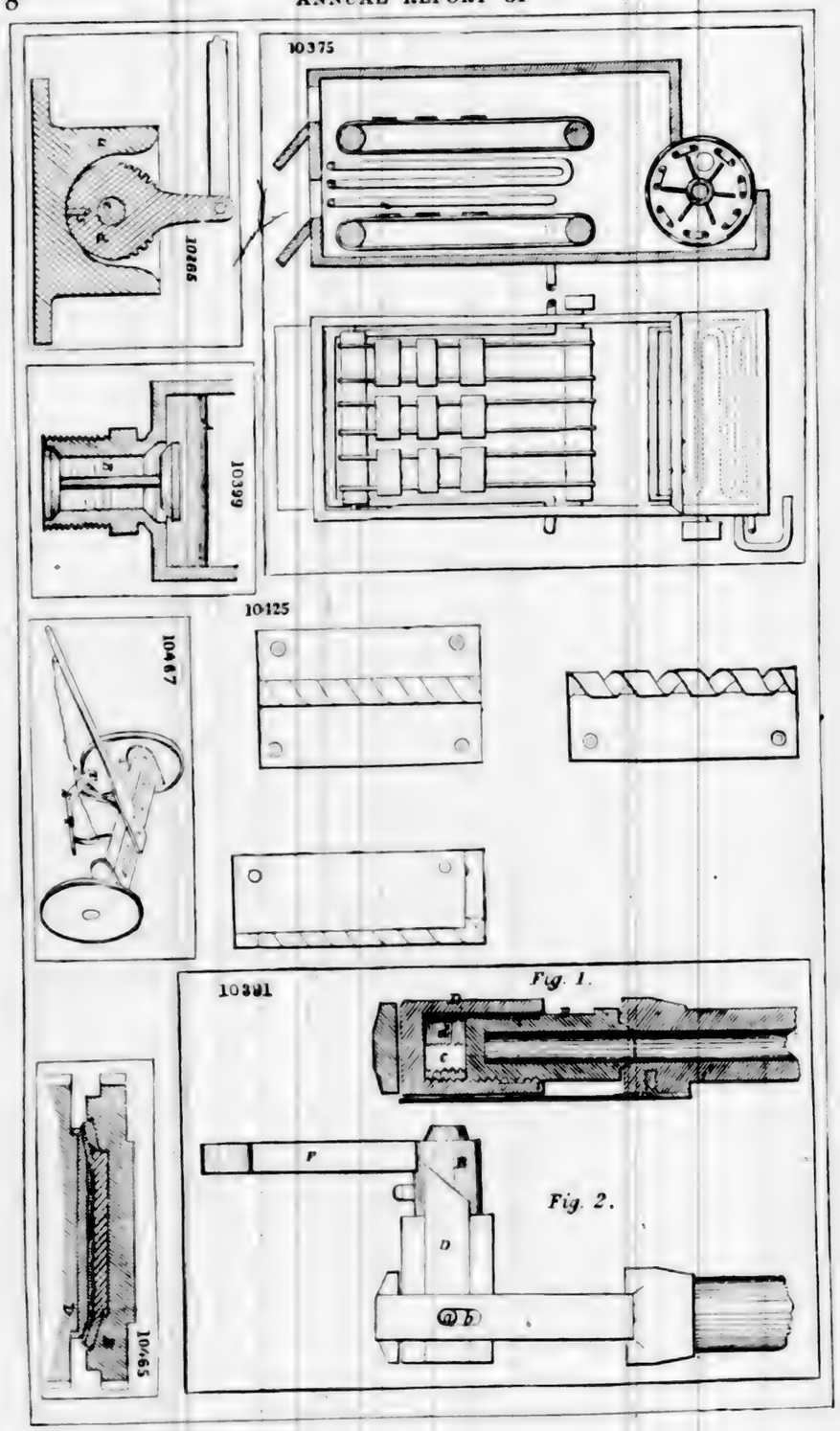
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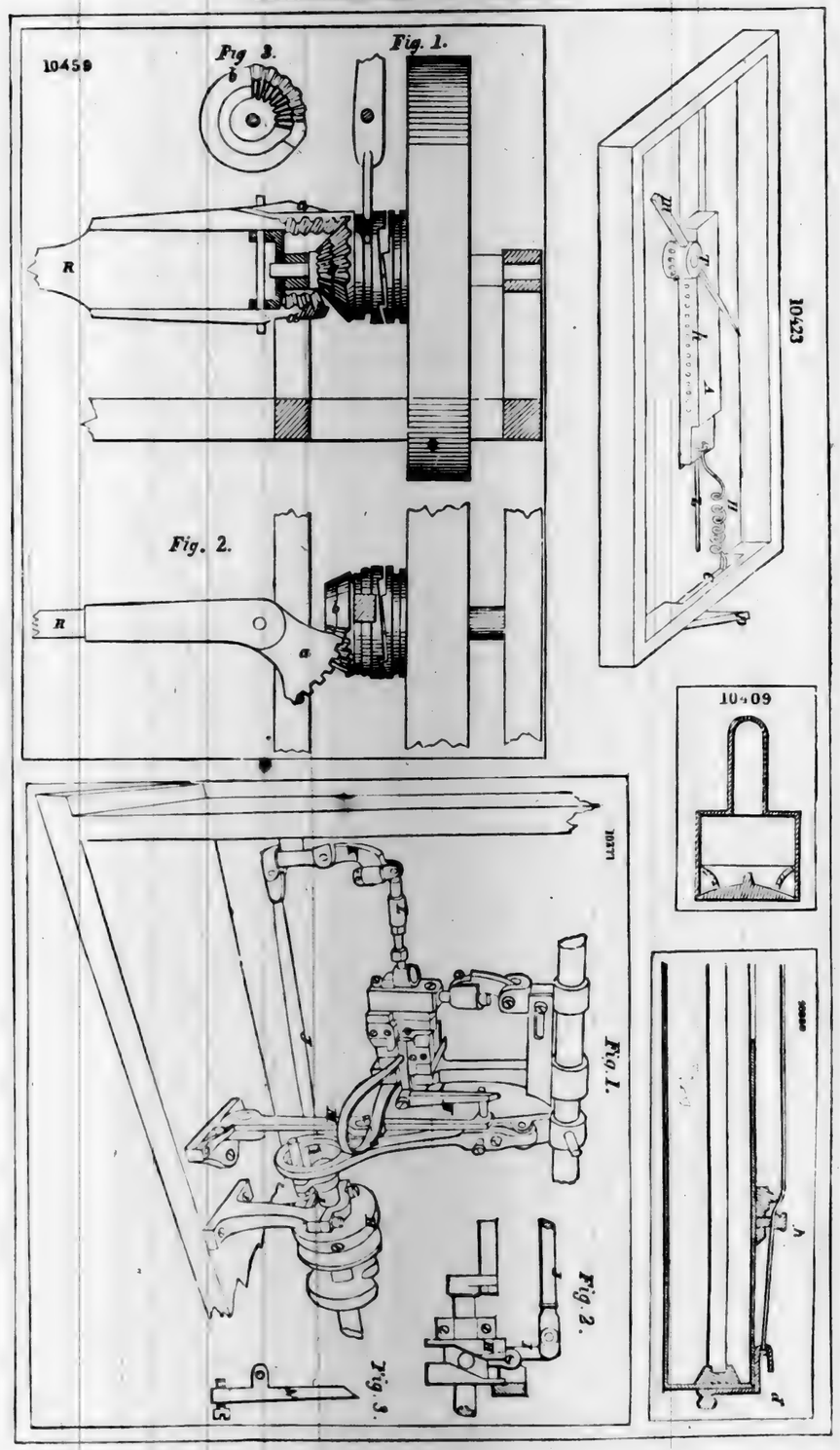
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Fig. 3.

Fig. 1.


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Fig. 1.
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Fig 3.
Fig. 1.
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Fig. 1.
Fig. 2.
Fig. 3.
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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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Fig. 1.

Fig 2

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Fig. 2.

Fig. 1.

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Fig. 1.

Fig. 2.

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Fig. 1.

Fig. 2

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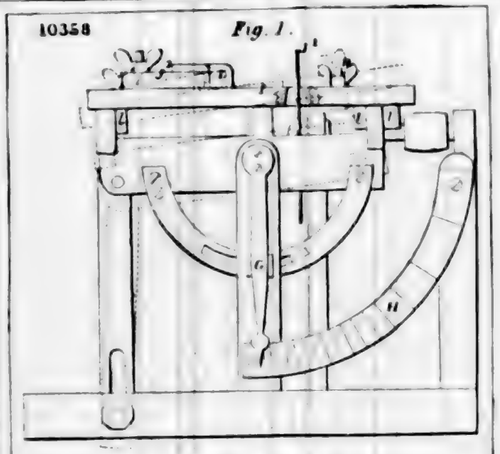
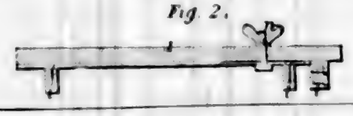


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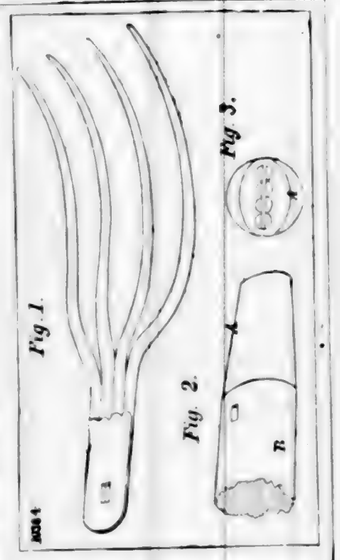
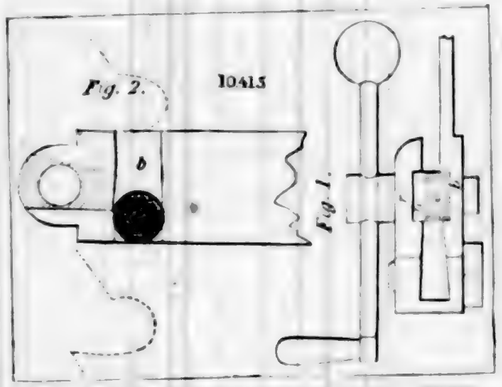
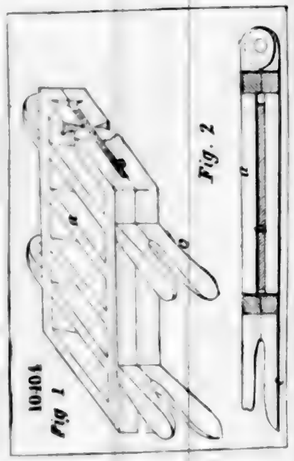
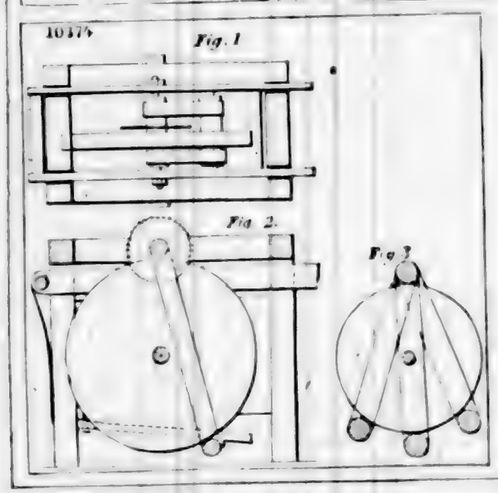


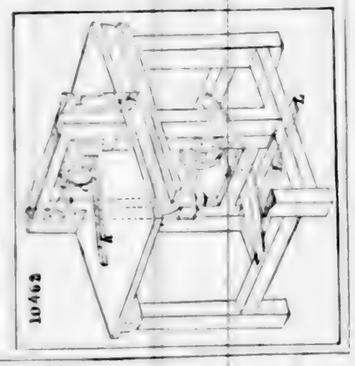
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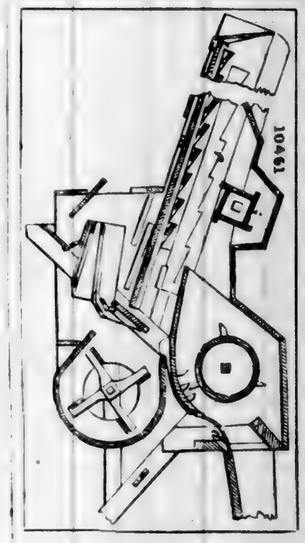


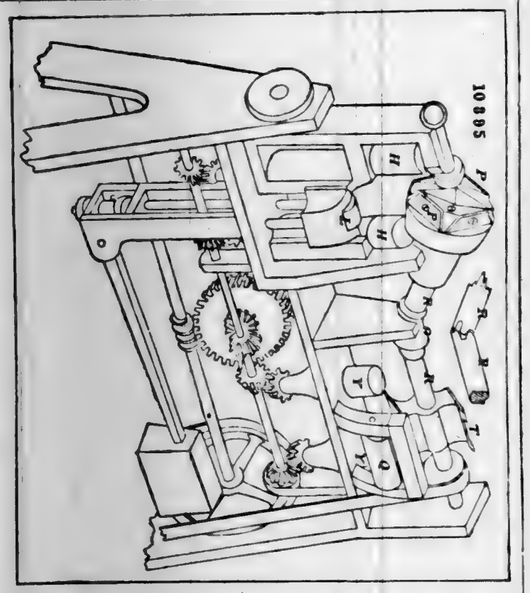


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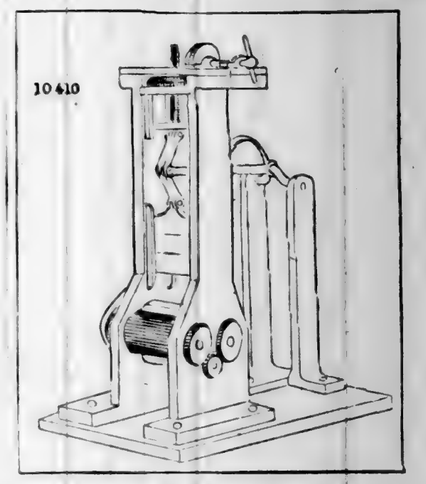




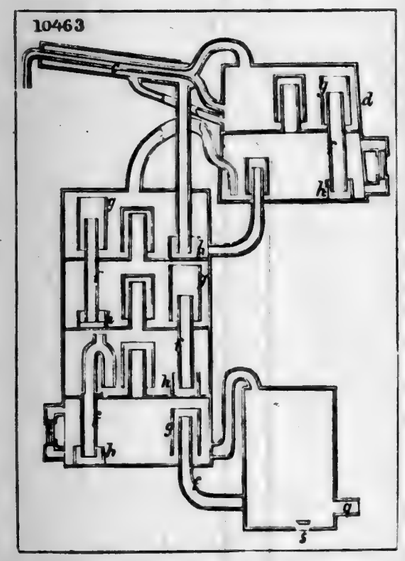




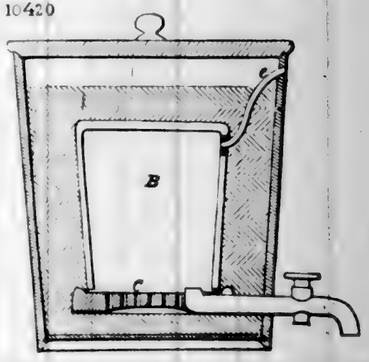
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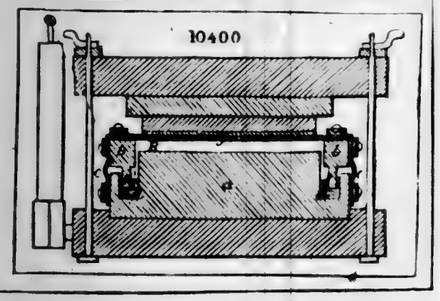
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Fig. 1

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Fig. 1.

Fig. 2.

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Fig 1

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Fig 1

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Fig. 1.

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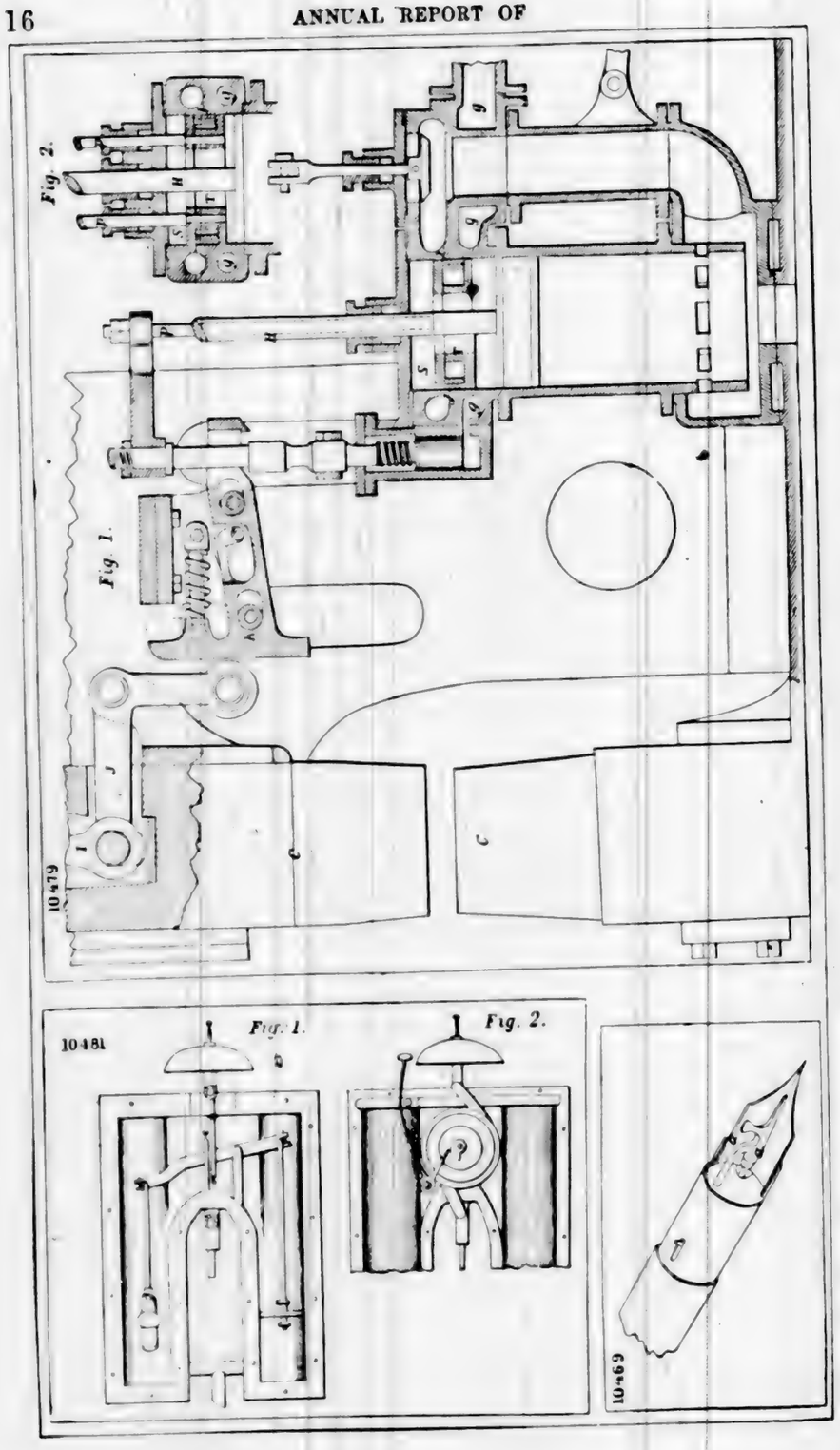
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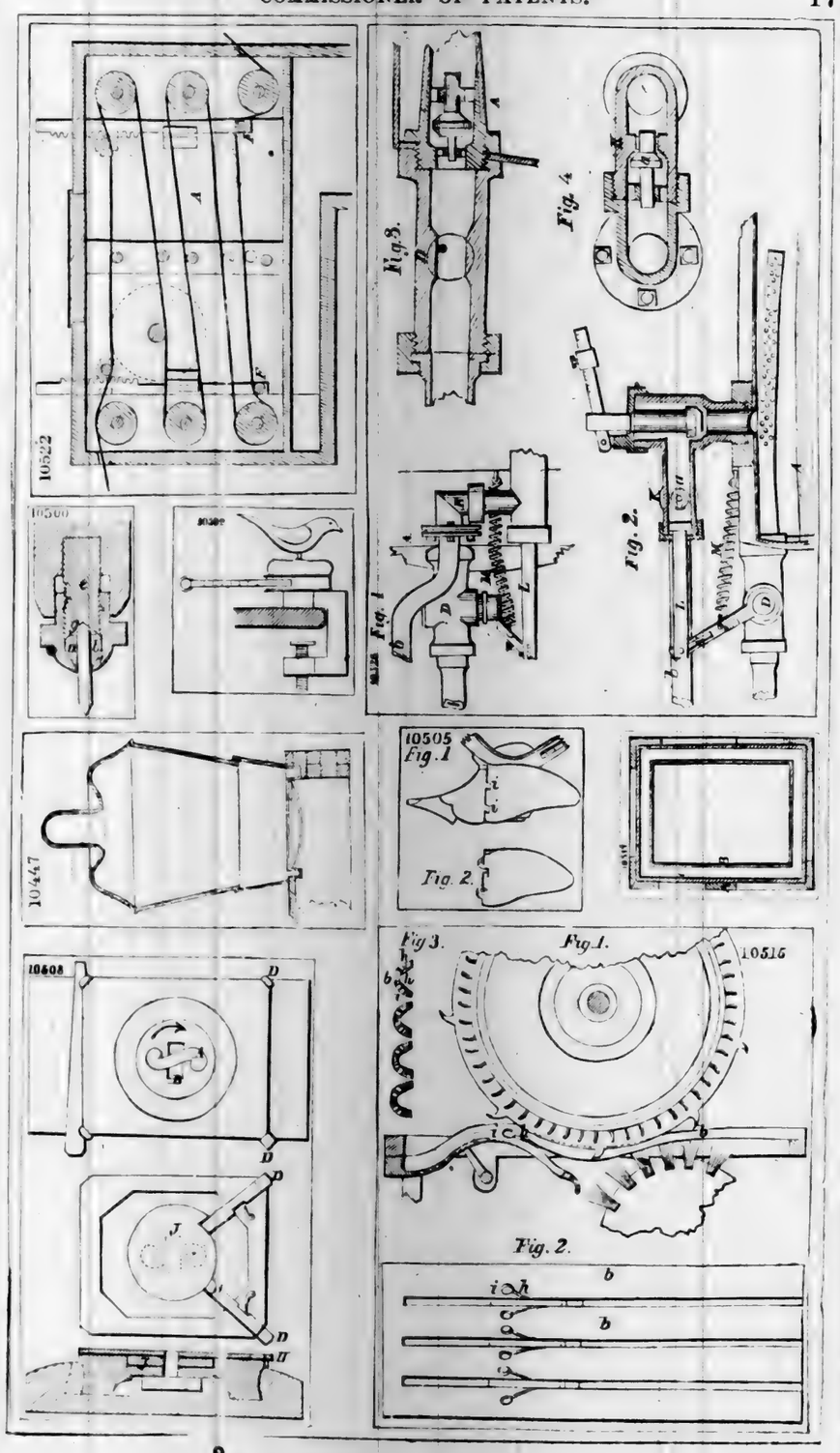
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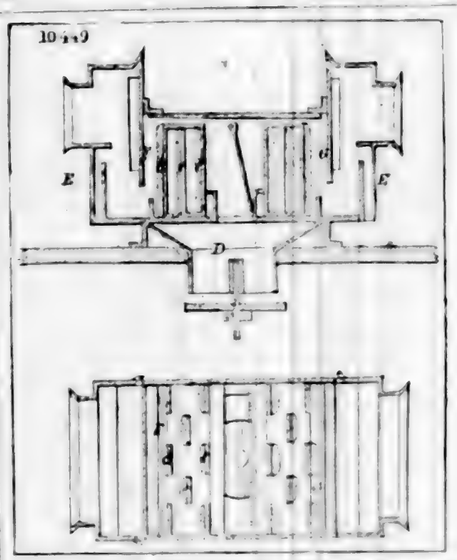
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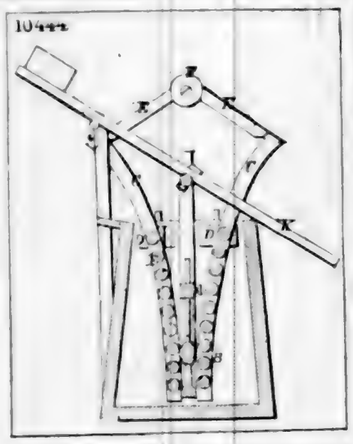
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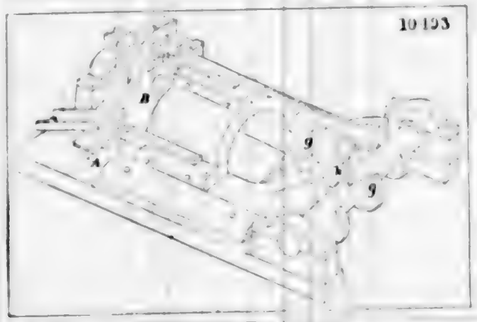
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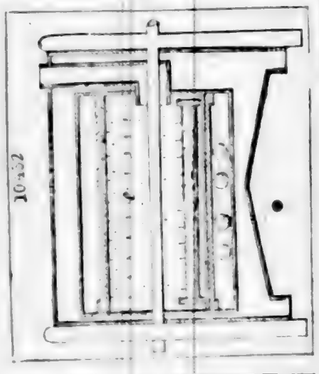
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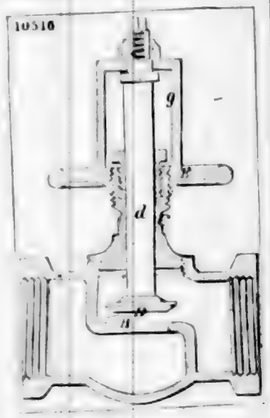
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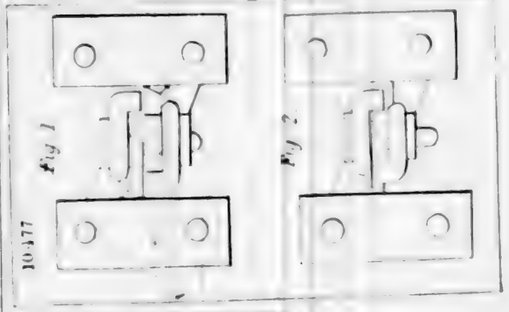
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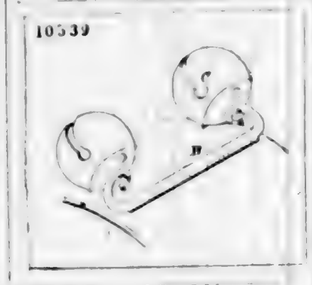
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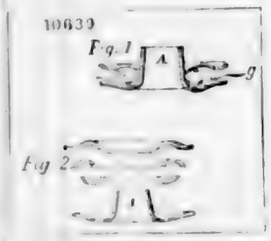
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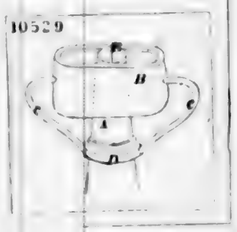
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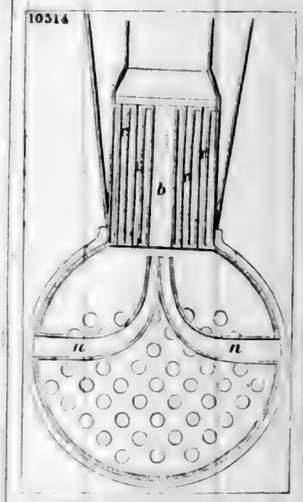
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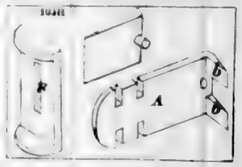
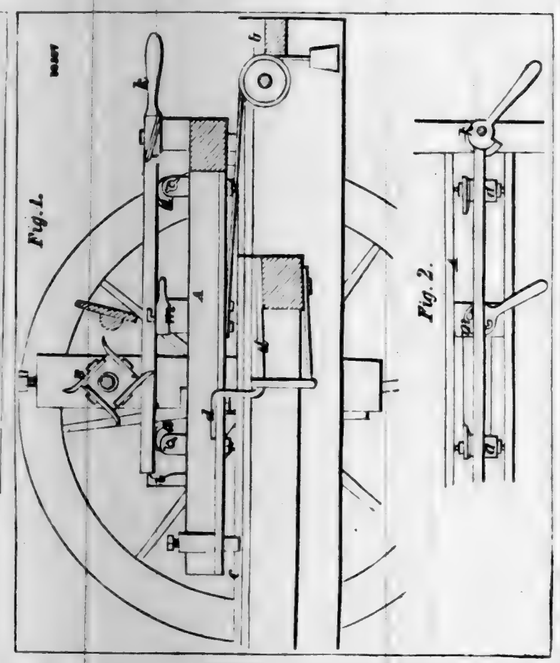
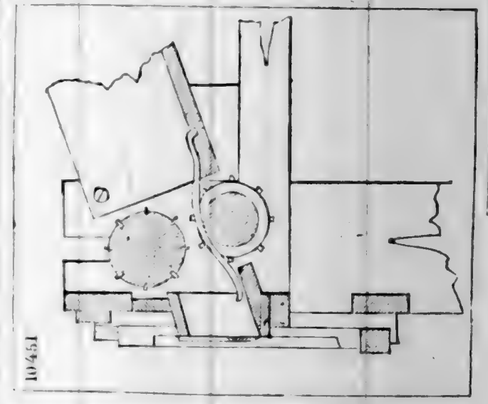


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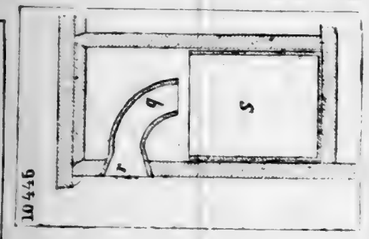
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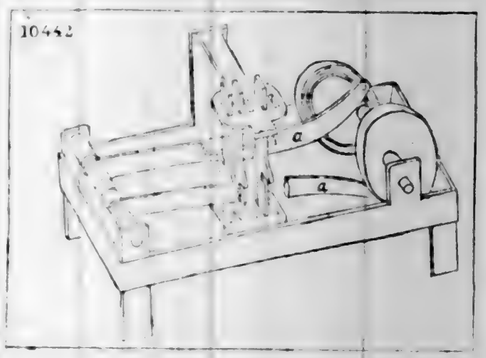
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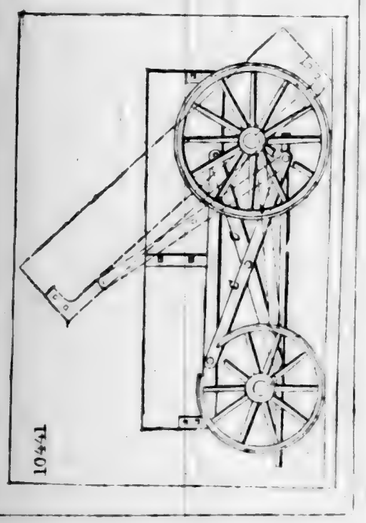
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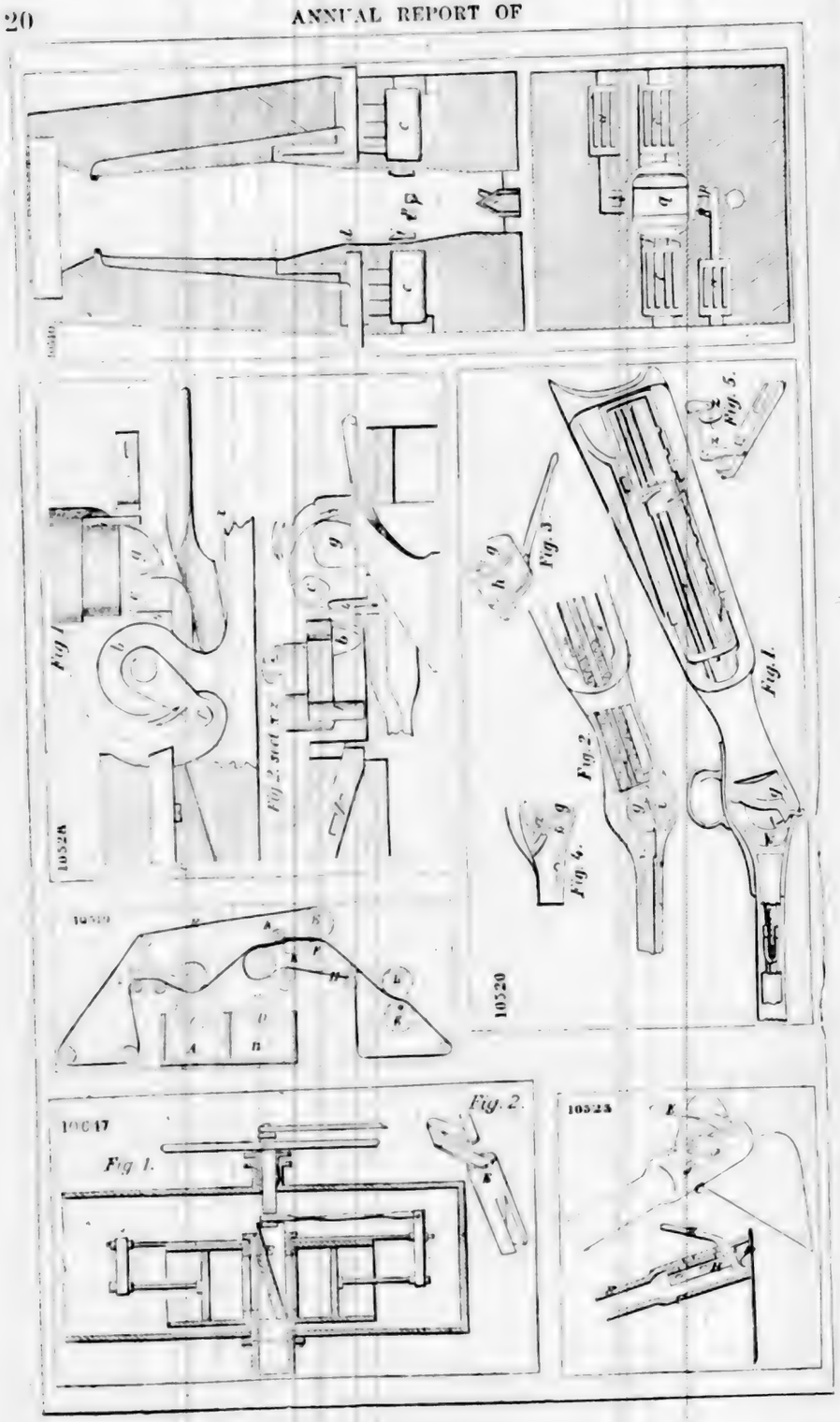


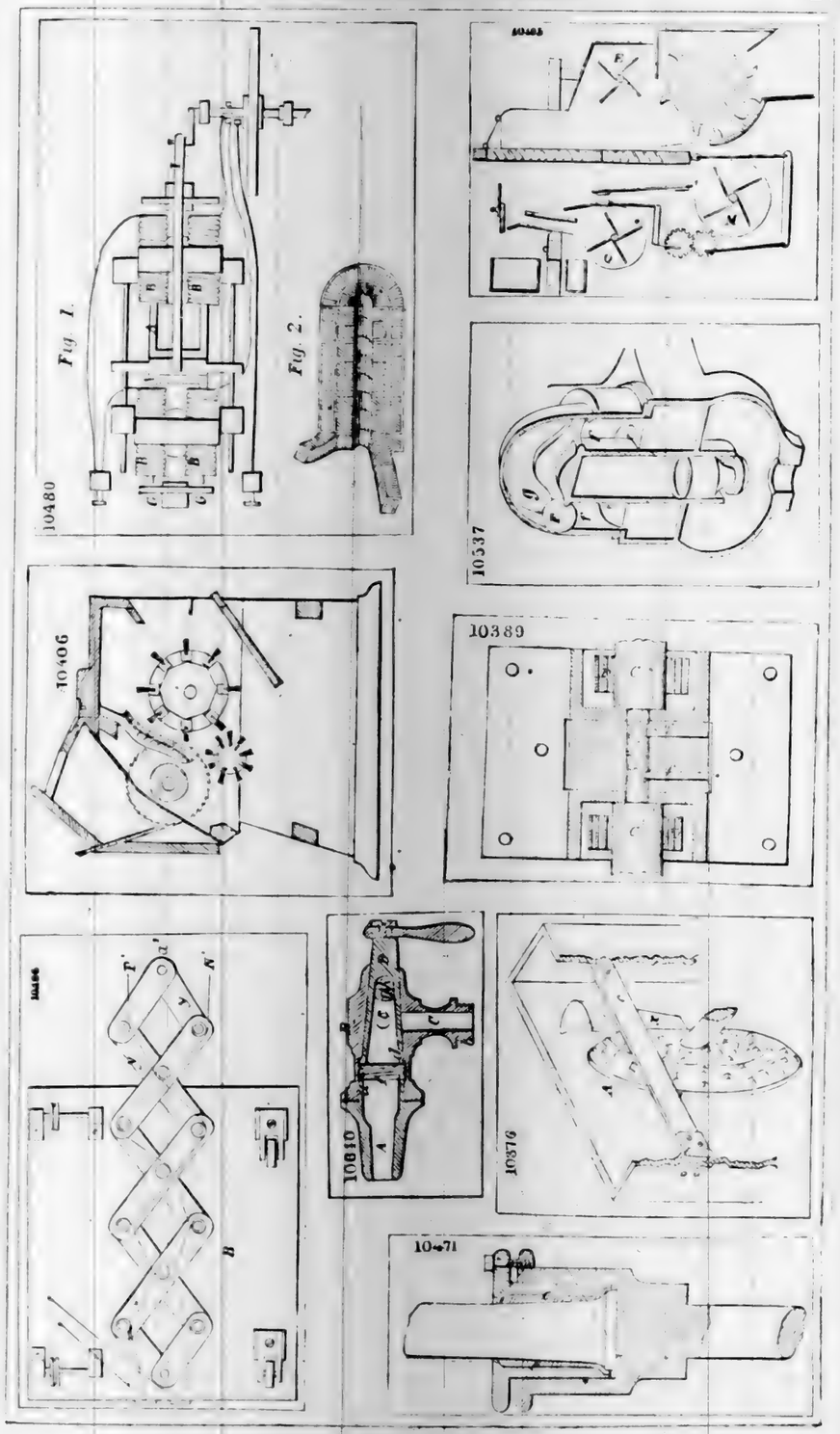
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Fig 1
Fig 2
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Fig. 1.
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Fig. 4.
Fig. 5.
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Fig. 1.
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Fig. 1.
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Fig. 3. Fig. 1. Fig. 2

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Fig. 3.

Fig. 1.

Fig. 2

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Fig 3

Fig 1

Fig. 2.

Fig. 1.

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Fig. 2.

Fig. 1.

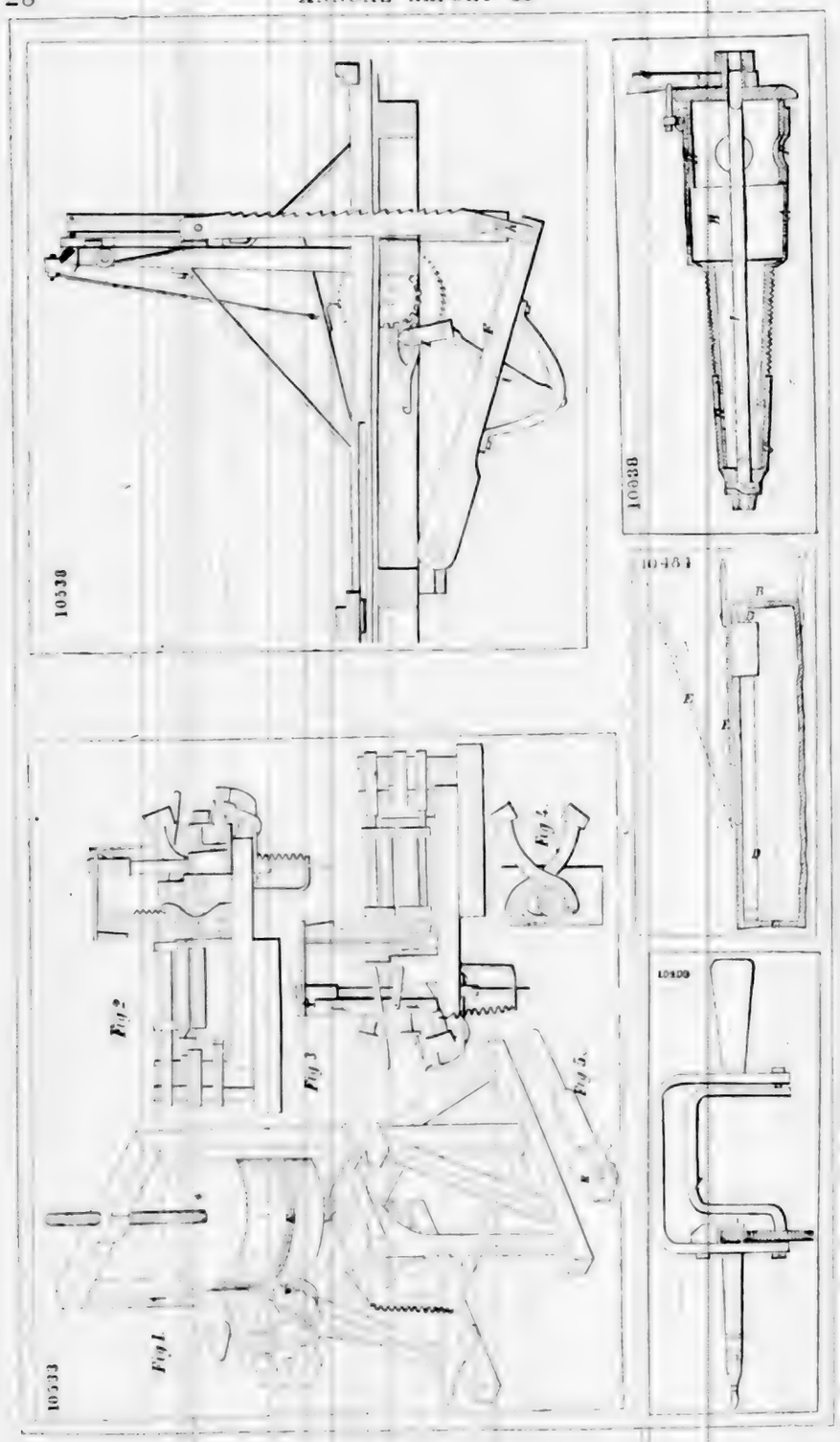
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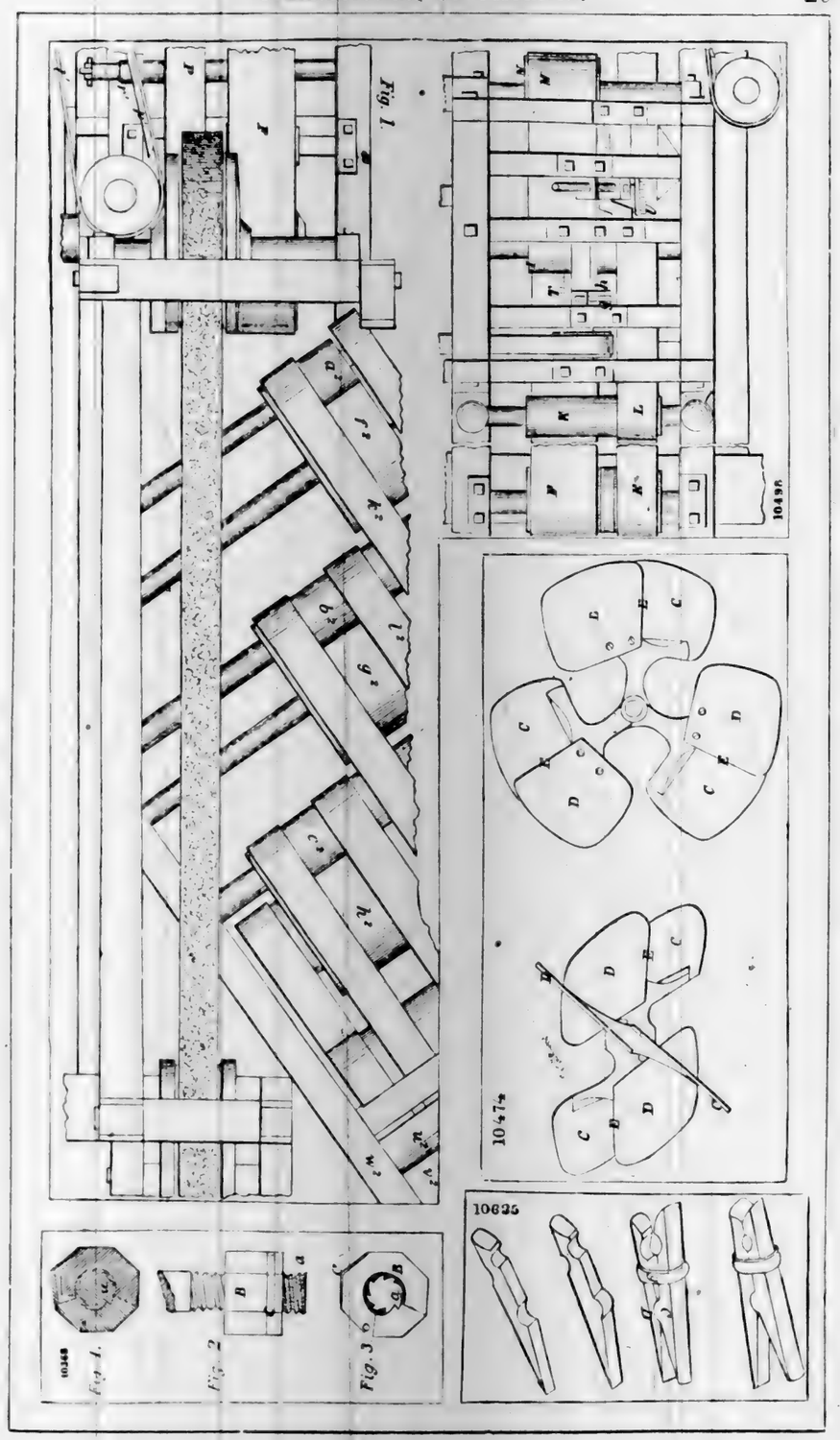
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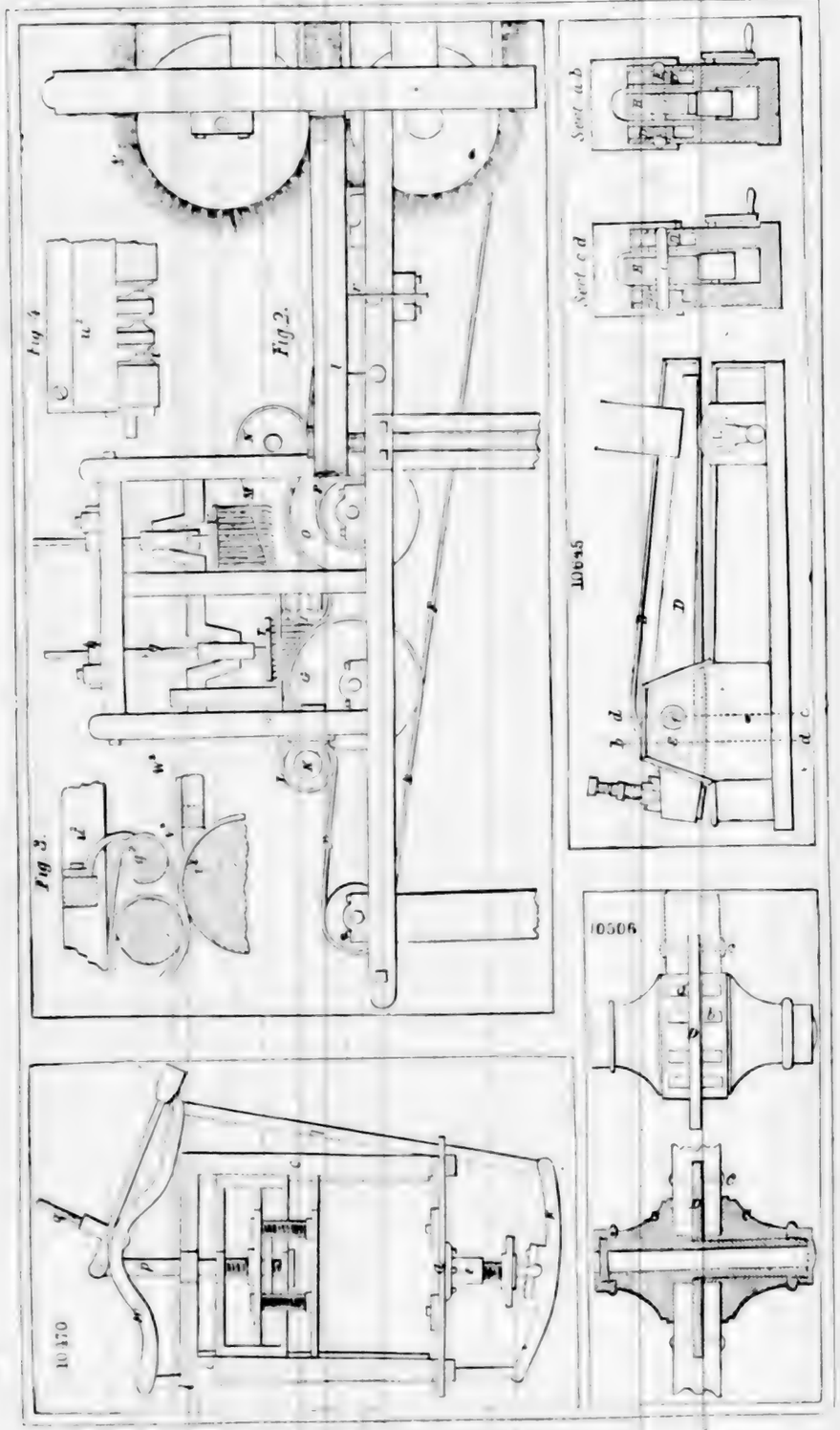
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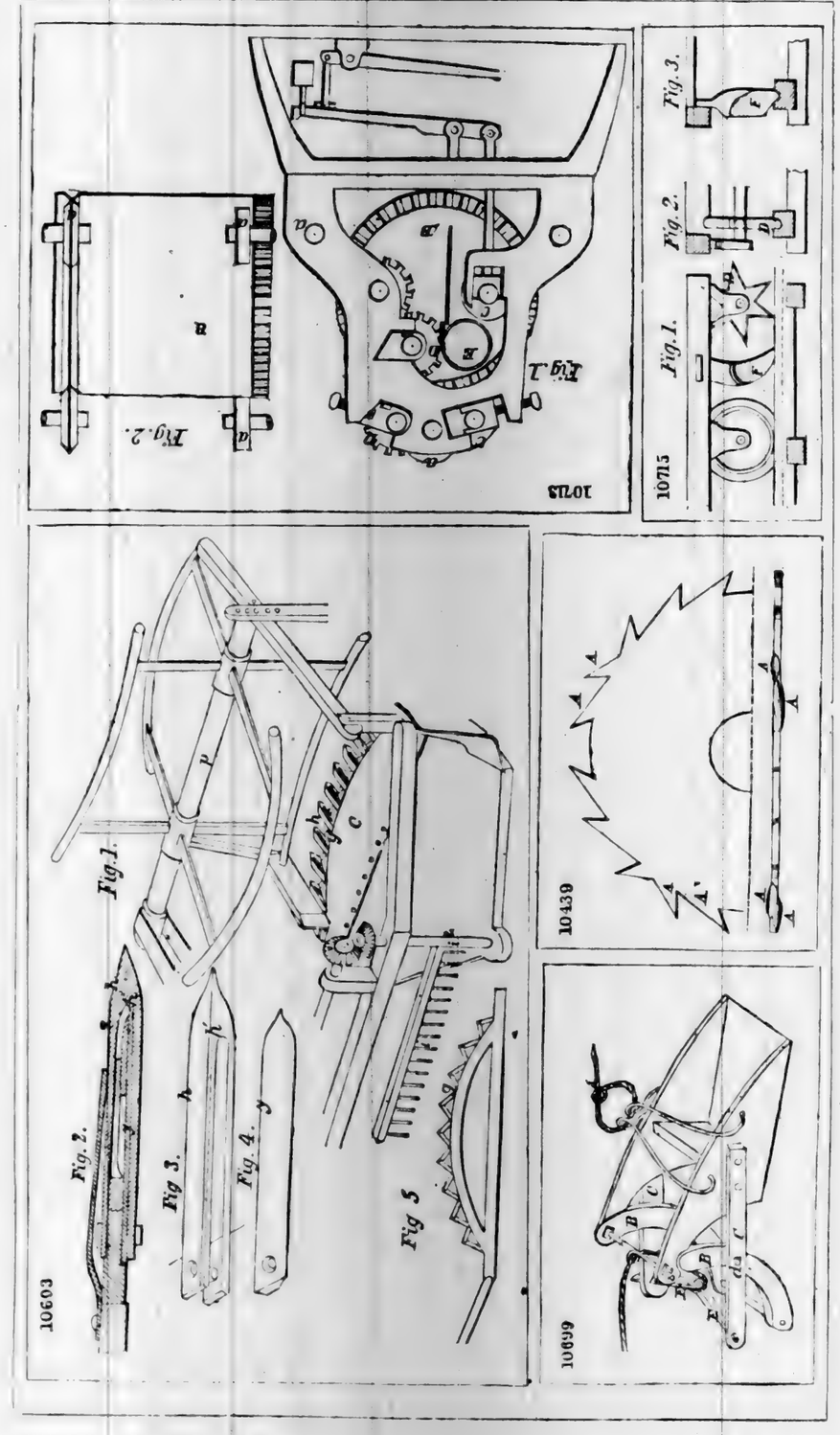
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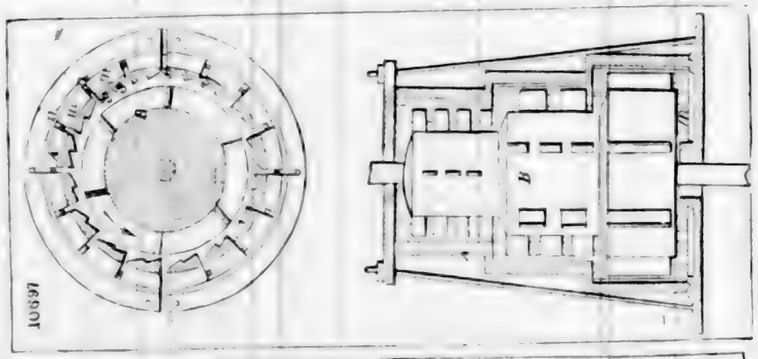
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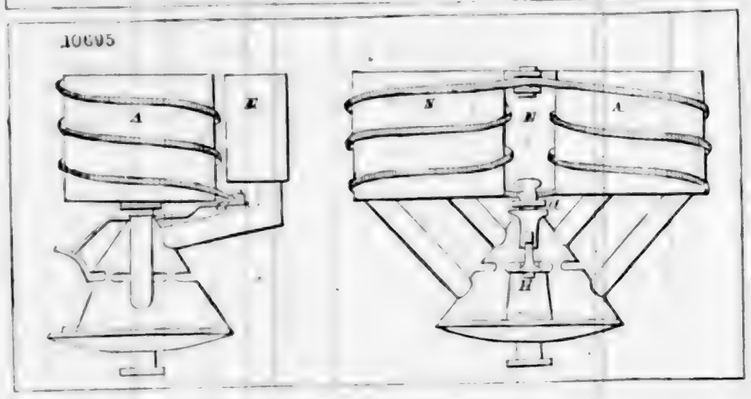

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Fig 1
Fig 2
Fig 3
Fig 4
Fig 5
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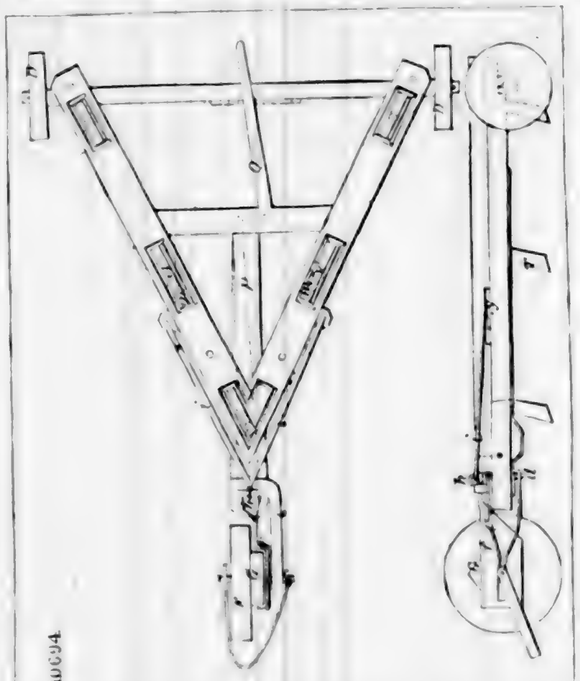

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Fig 1
Fig 2
Fig 3

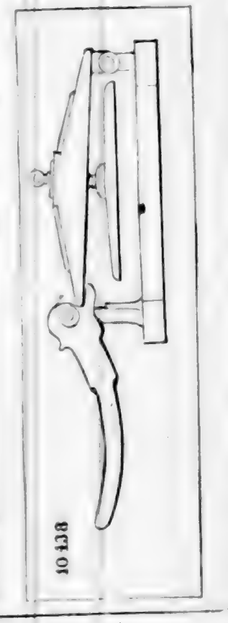

Fig 4
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Fig 3.
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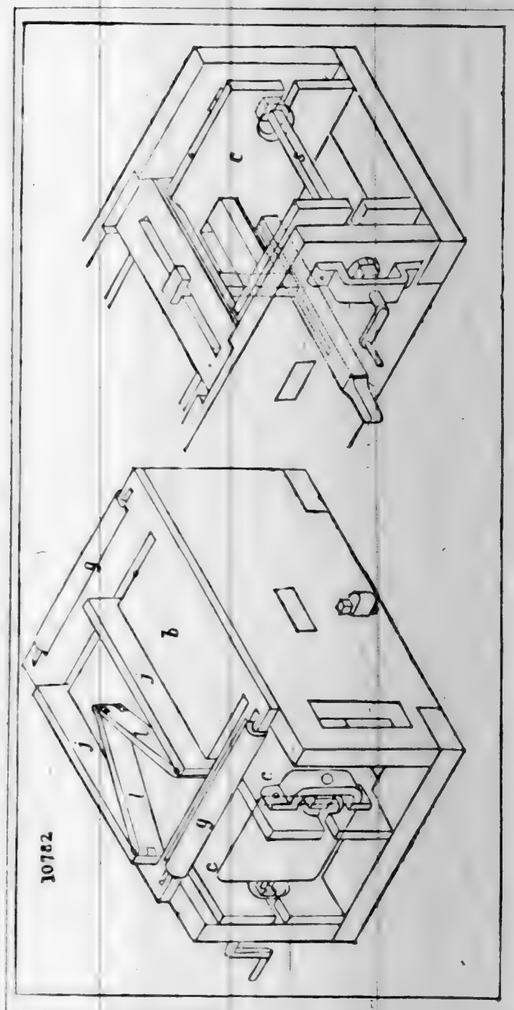

Fig. 1.
Fig. 2.
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Fig. 3.
Fig. 2.
Fig. 1.
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Fig. 1.
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Fig 3.
Fig. 4.
Fig 5
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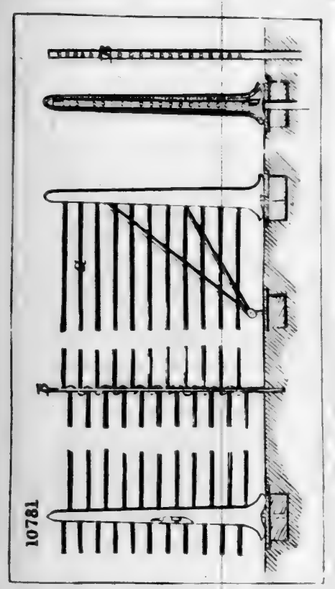

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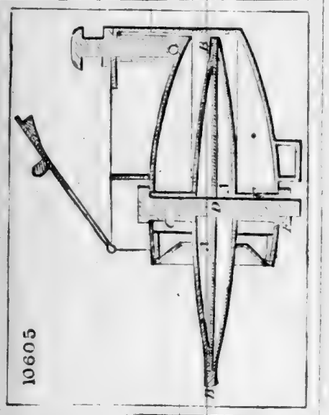

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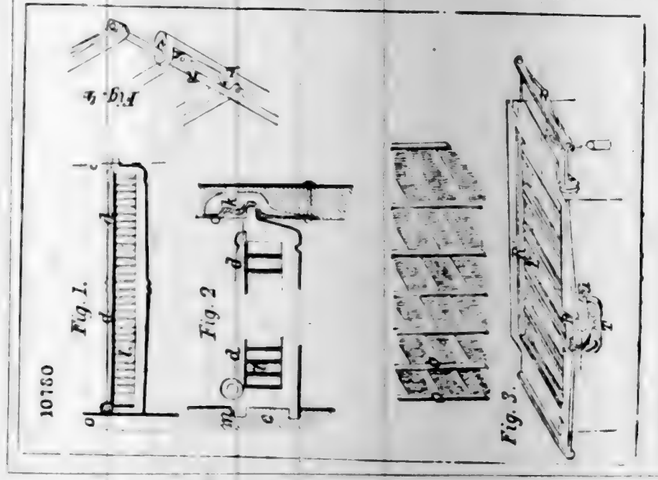

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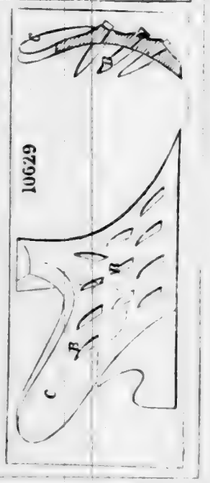

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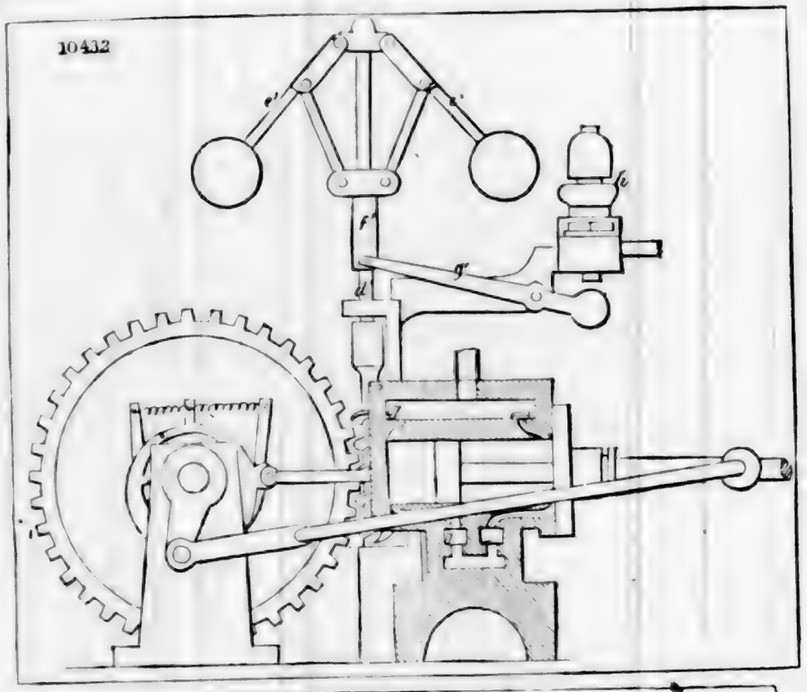

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Fig. 1.
Fig. 2
Fig. 3.


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Fig. 1.

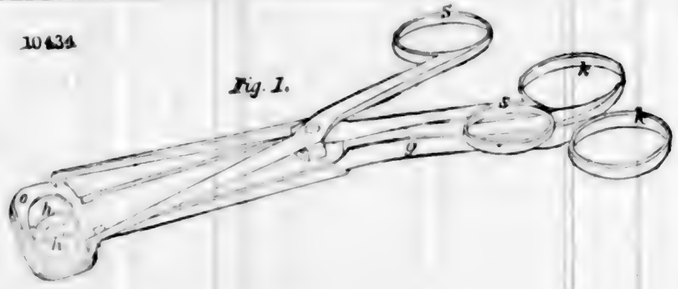
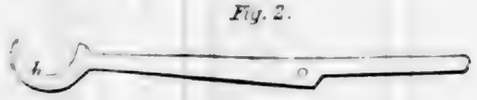
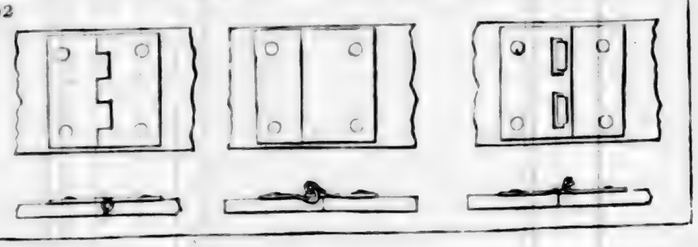


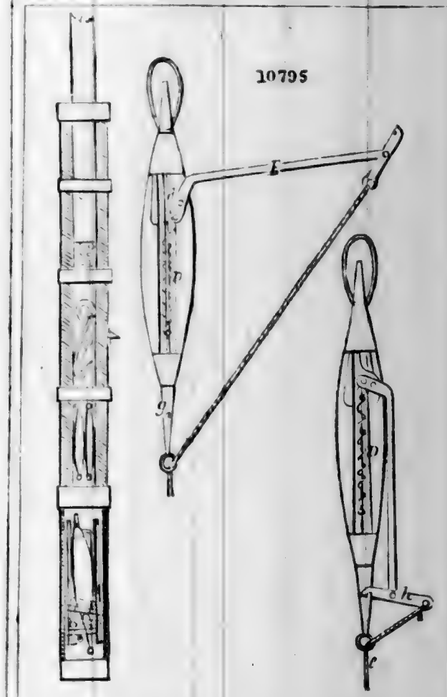
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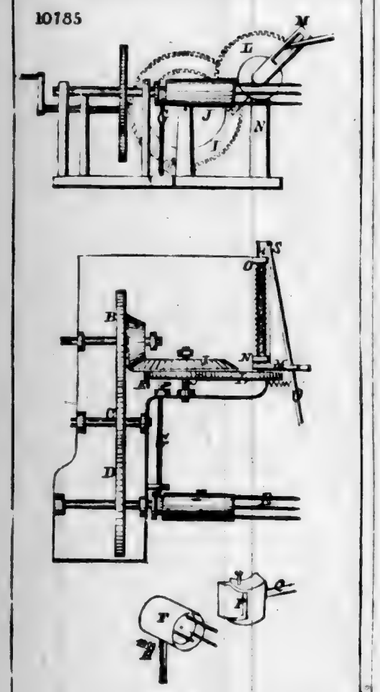
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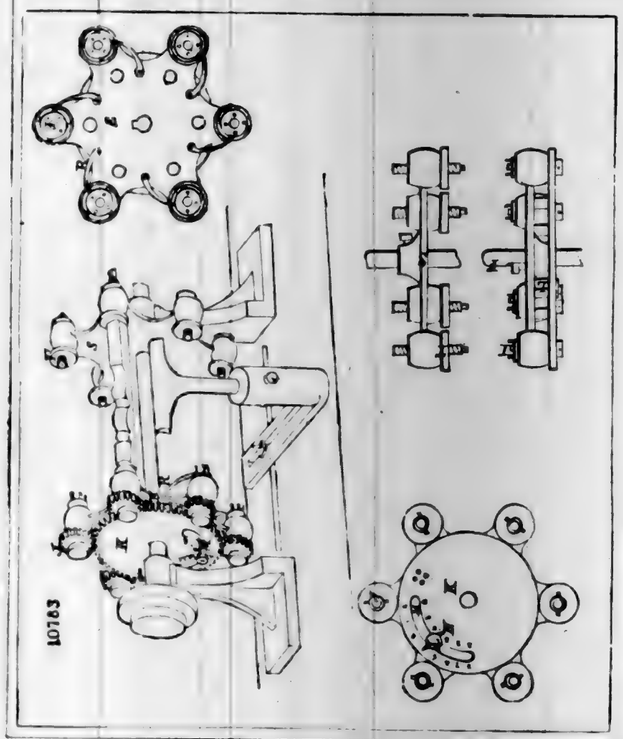


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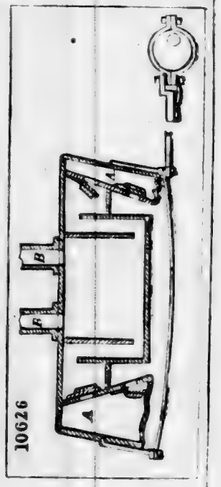


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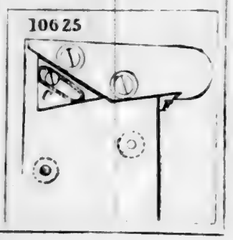




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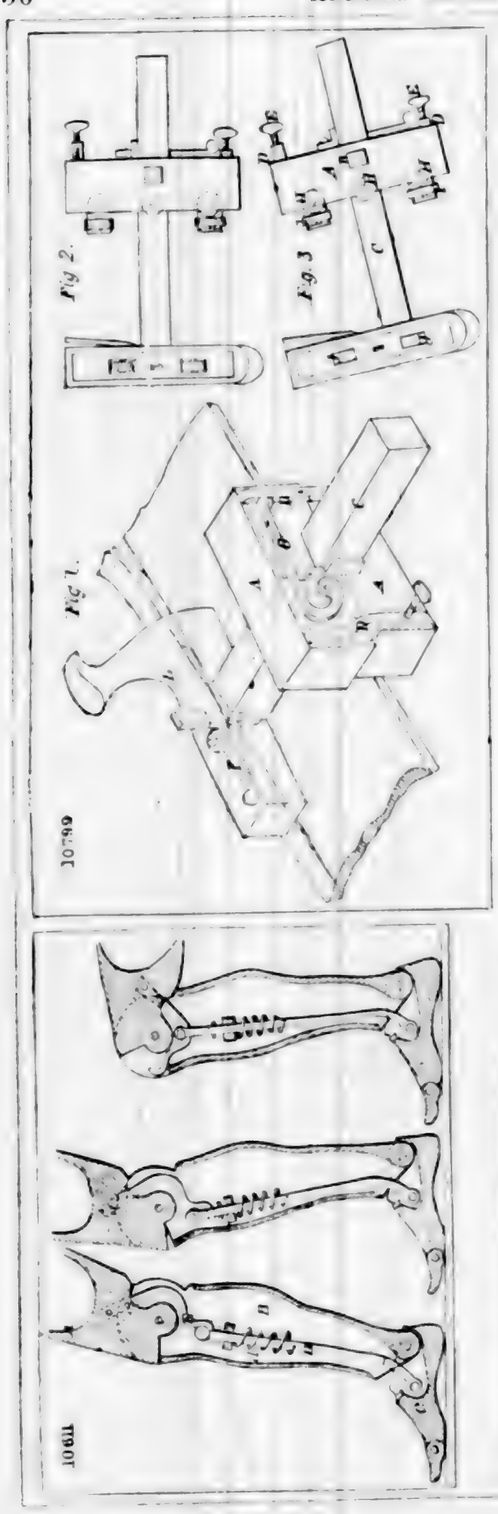

Fig 2.
Fig 3
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Fig 1.
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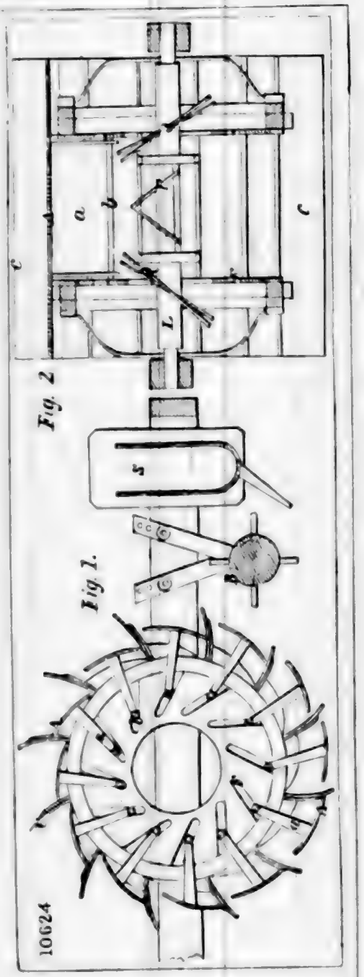
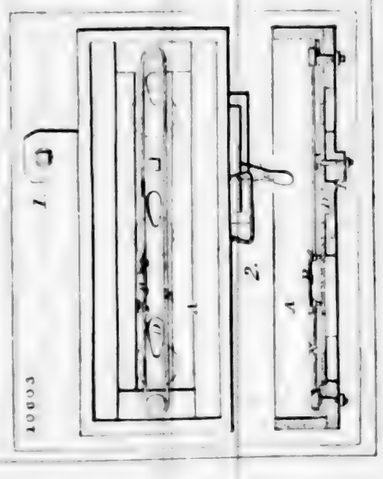

Fig 2
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Fig 1.
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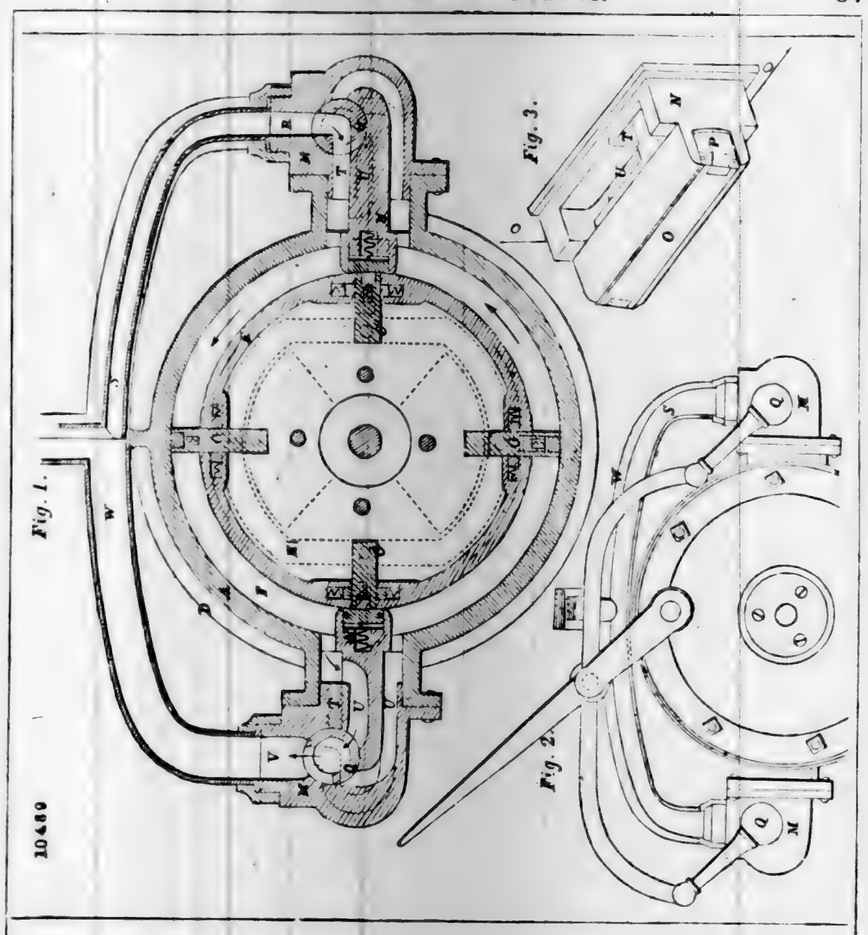
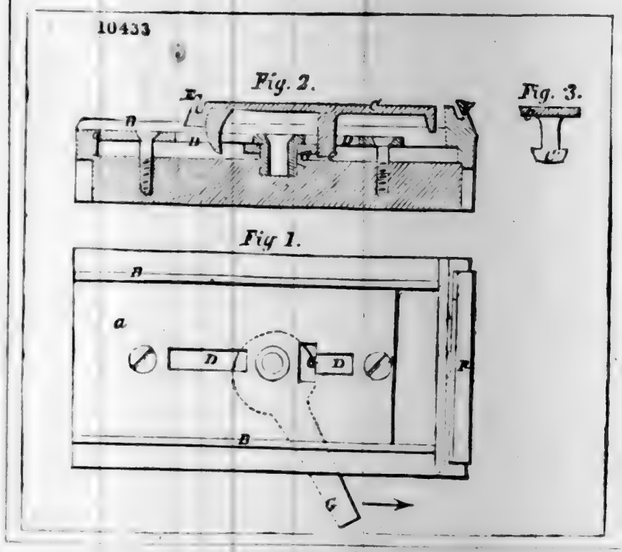
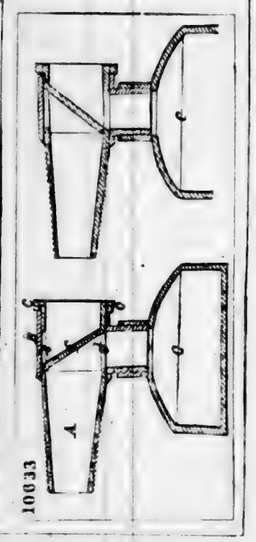

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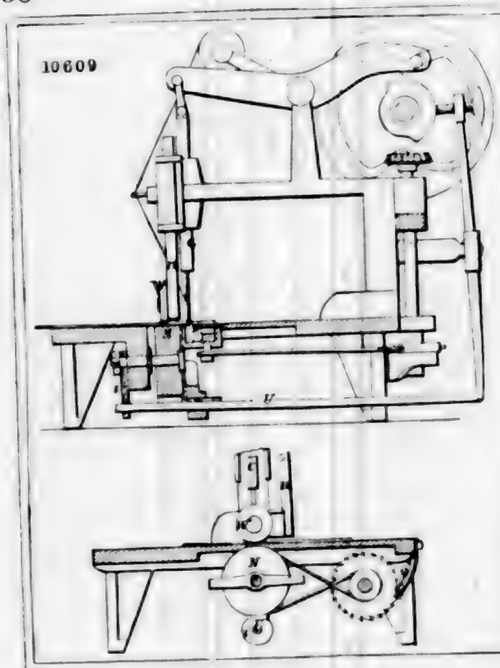
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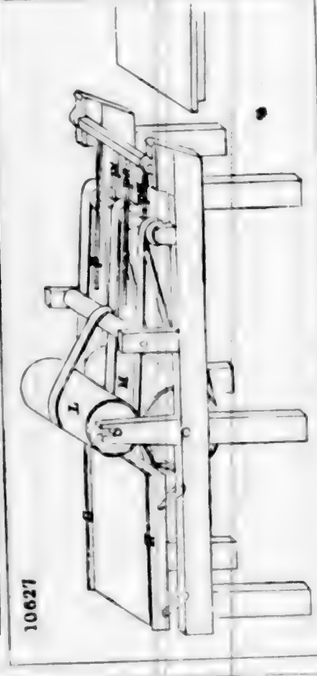
Fig. 2.


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Fig. 2.
Fig. 3.
Fig 1.


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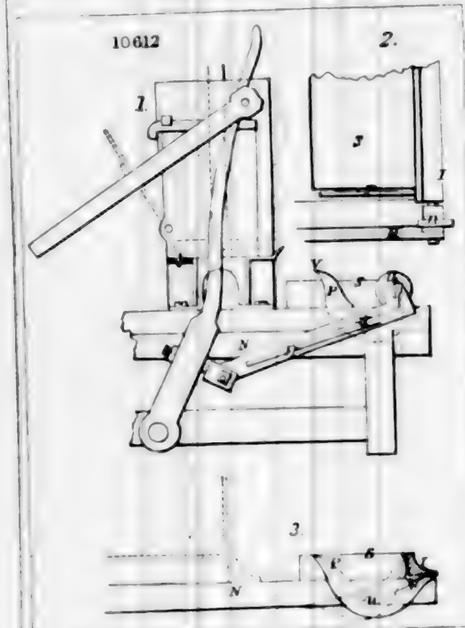
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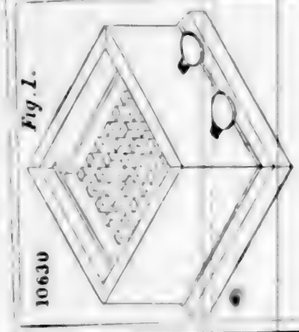
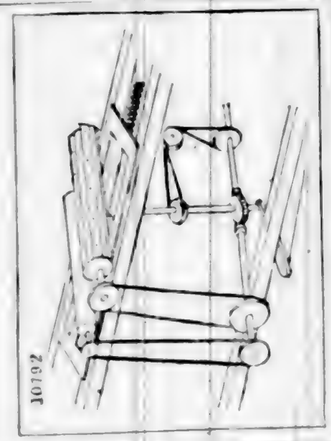


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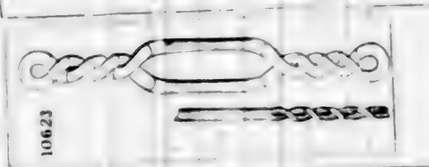
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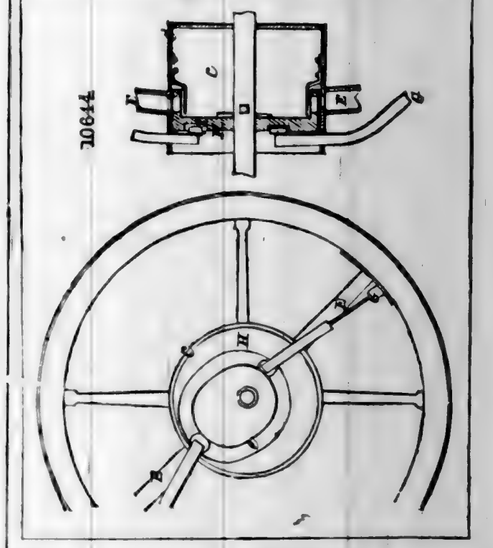


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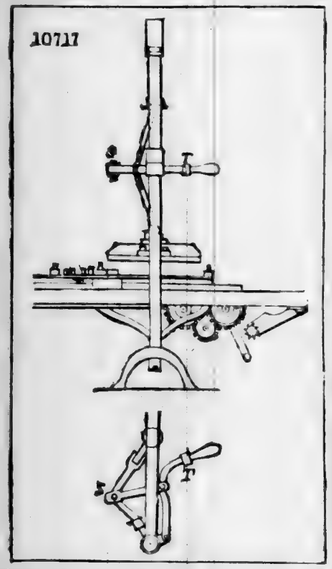
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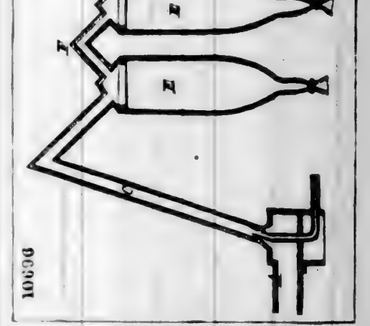


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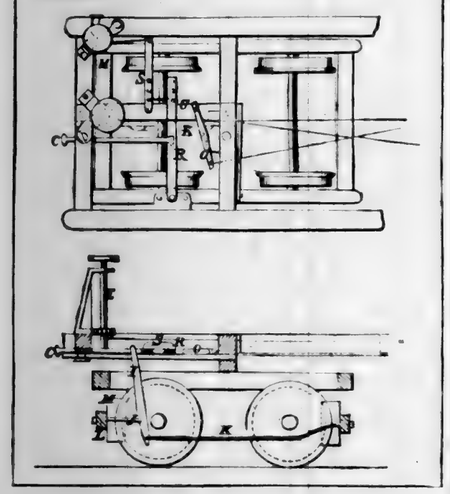
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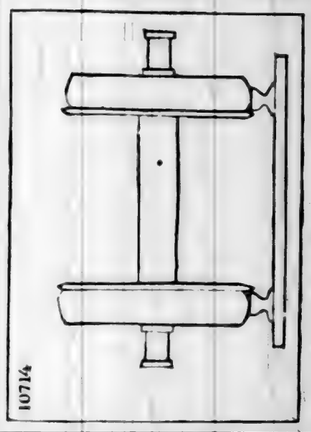


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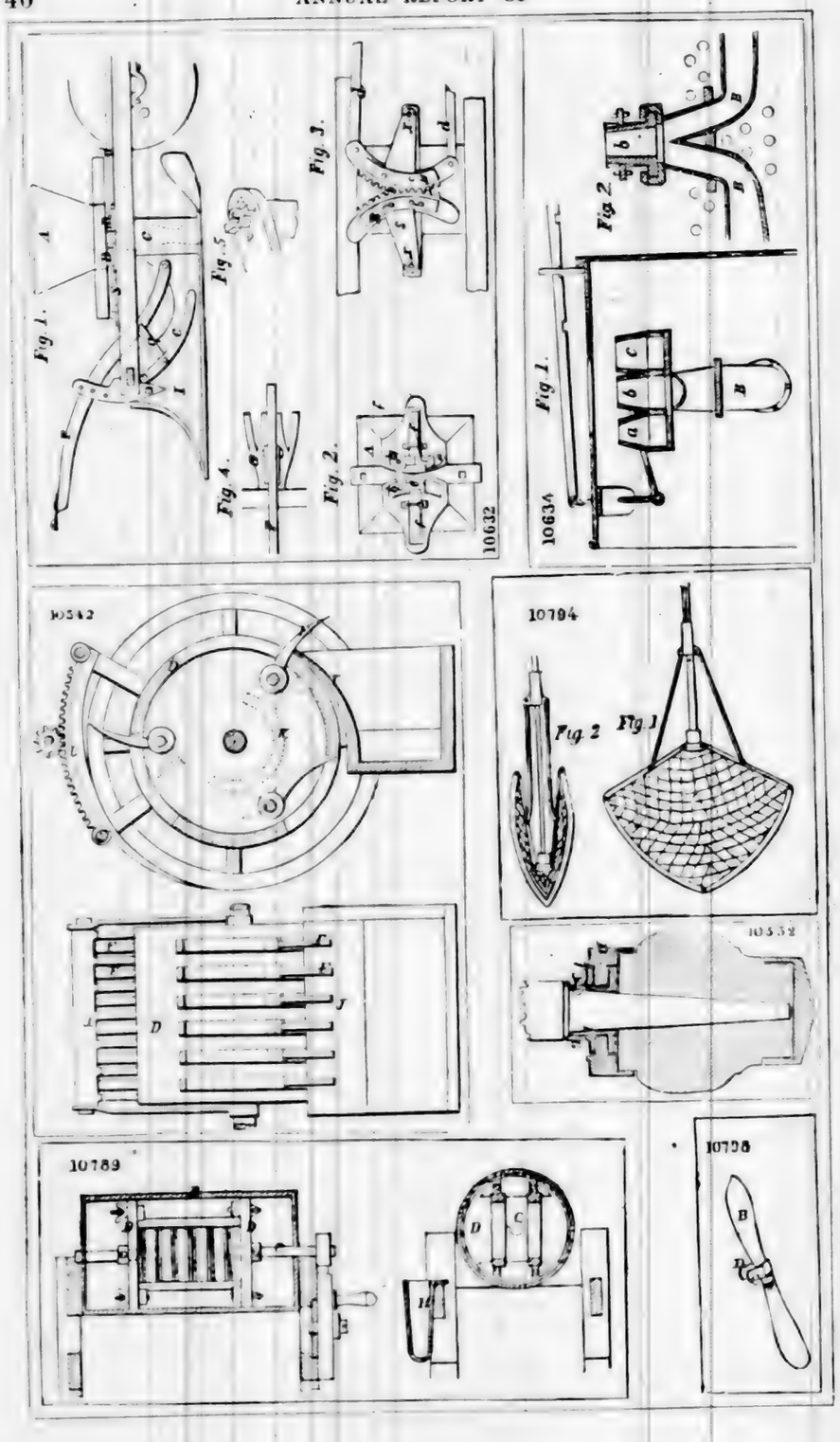


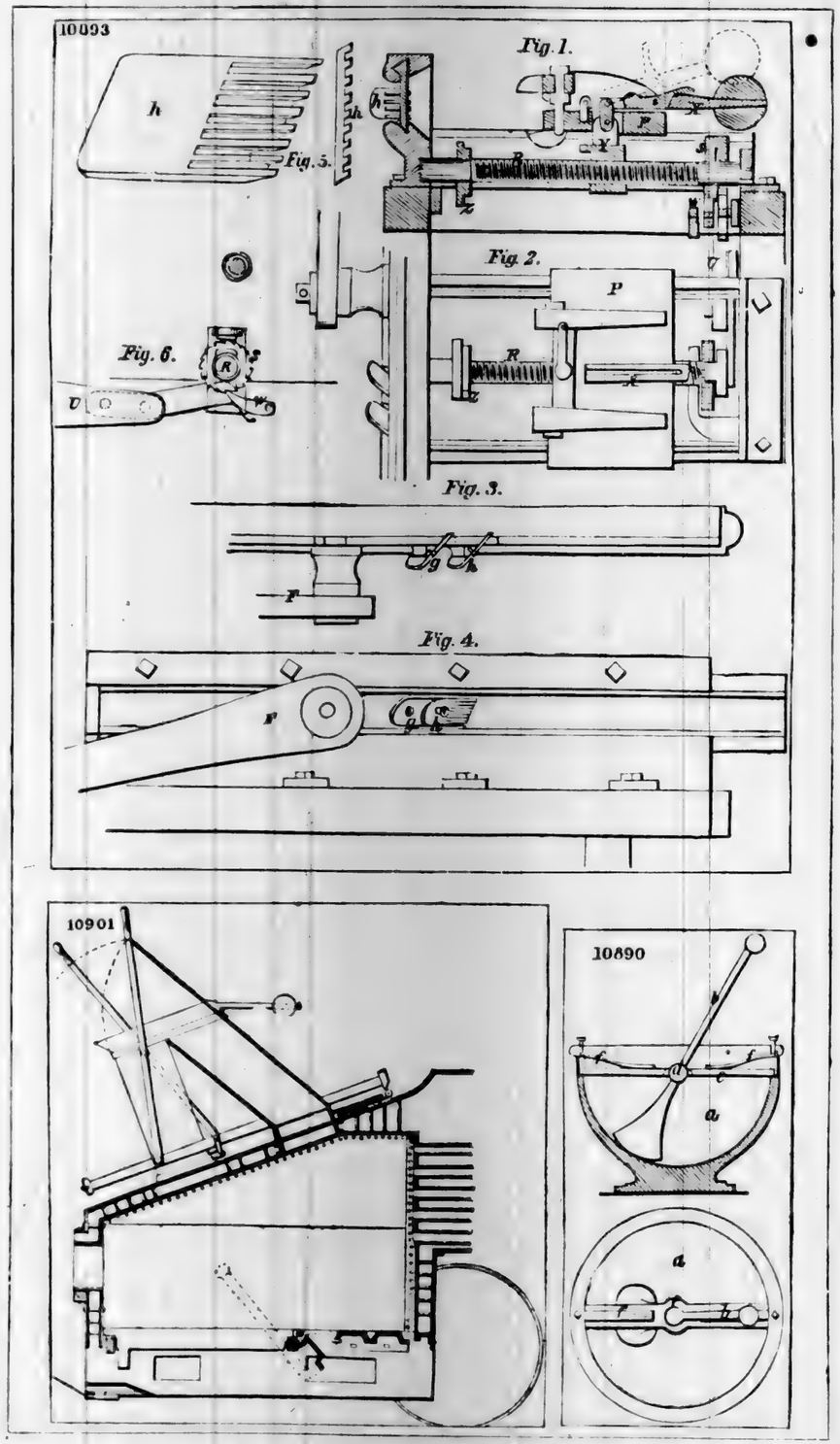
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Fig. 1.
Fig. 5
Fig. 3.
Fig. 4.
Fig. 2.
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Fig 2
Fig. 1.
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Fig. 2
Fig. 1
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Fig. 1.
Fig. 5.
Fig. 2.
Fig. 6.
Fig. 3.
Fig. 4.
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Fig. 3.

Fig. 2.

Fig. 1.

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Fig. 1.

Fig. 2.

Fig. 3.

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Fig. 1.

Fig. 2.

Fig. 3.

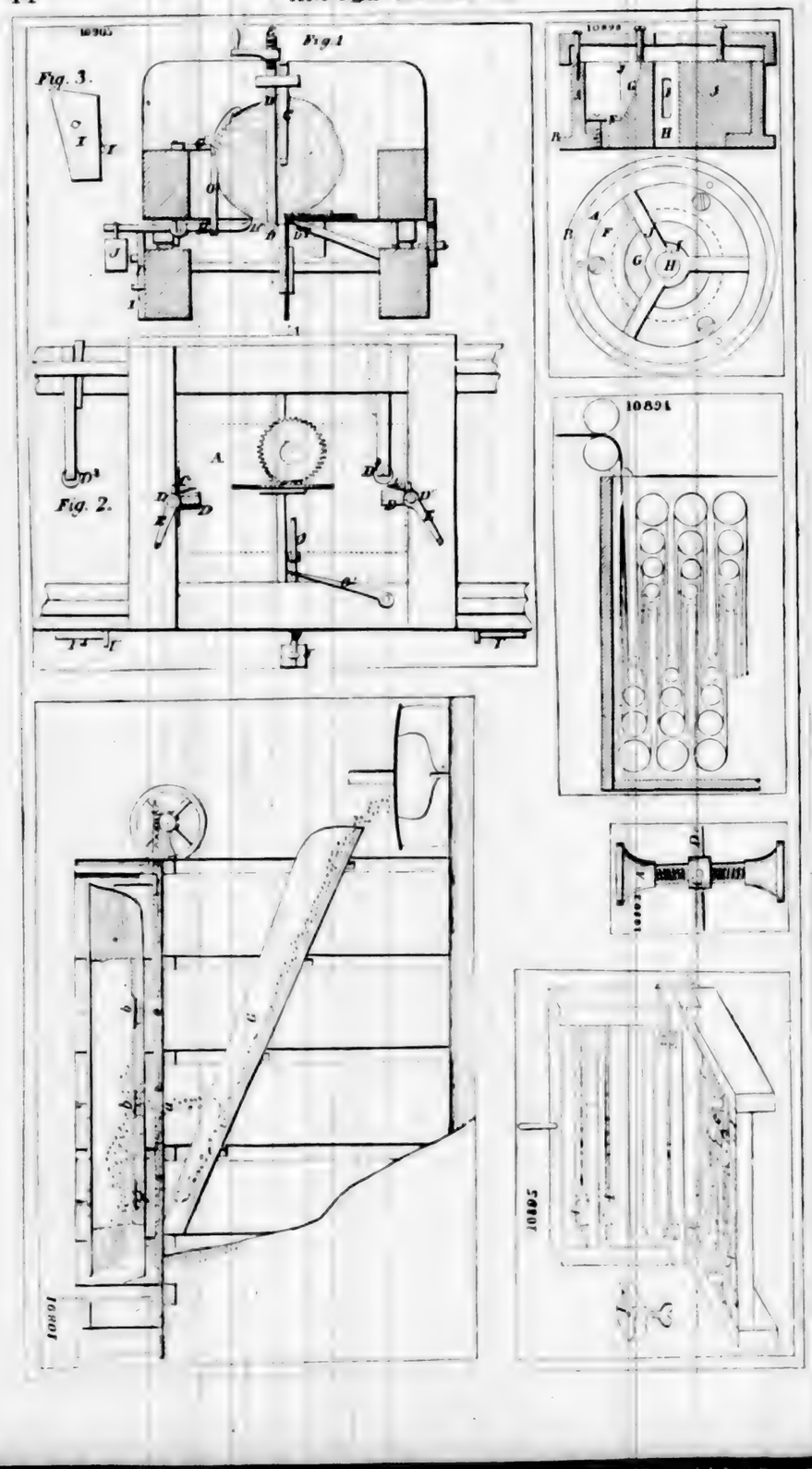
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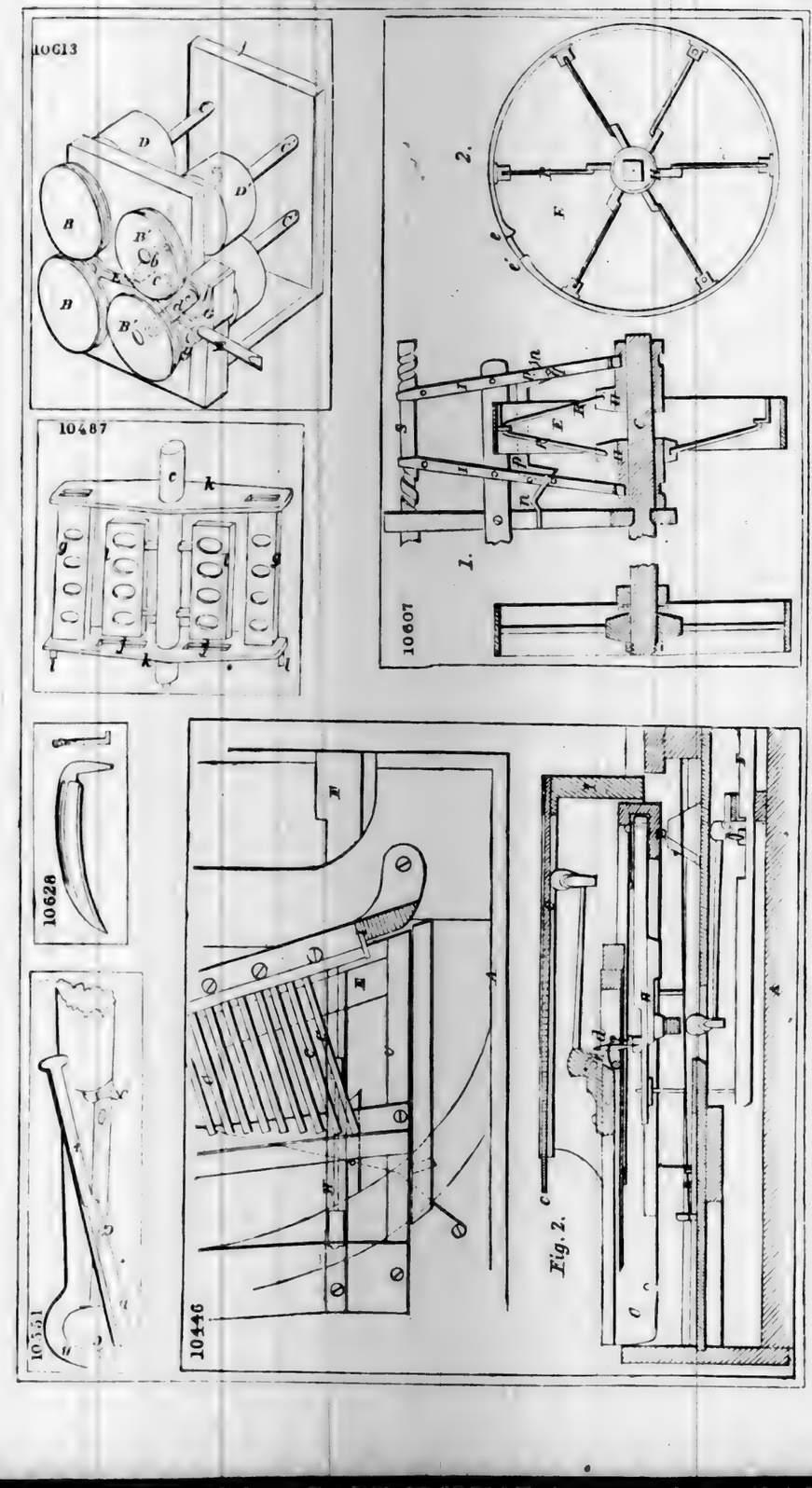
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Fig. 1

Fig. 2.

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Fig. 1
Fig. 3.
Fig. 2.
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Fig. 2.

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Fig. 1.

Fig. 2.

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Fig. 1.

Fig. 2.

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Fig. 2.

Fig. 3.

Fig. 4.

Fig. 1.

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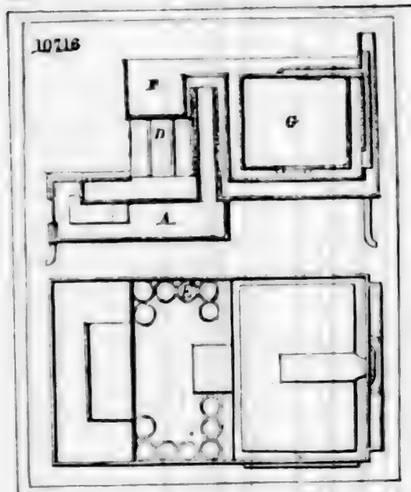
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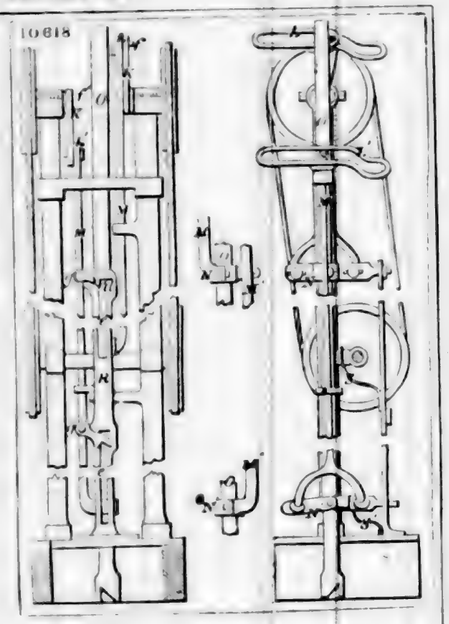
Fig. 3

Fig. 4

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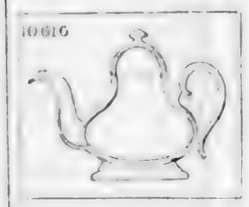
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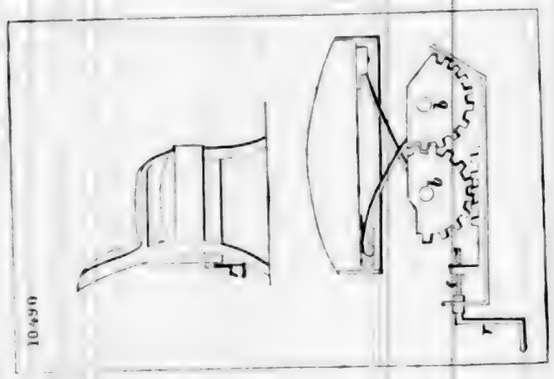
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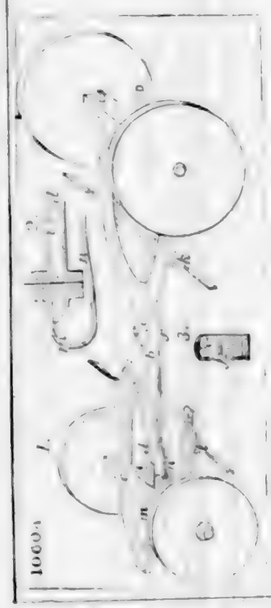
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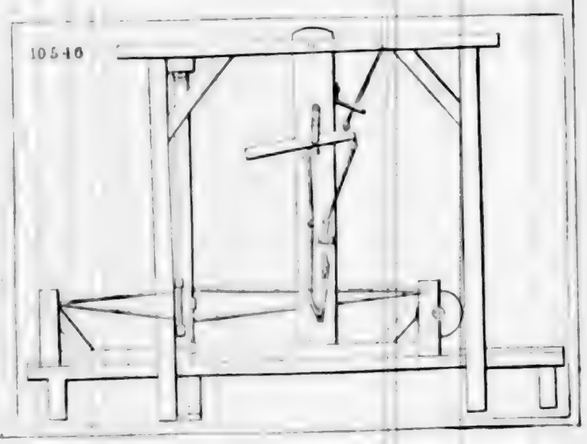
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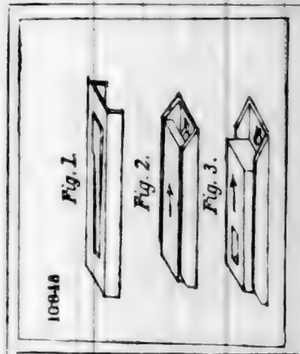
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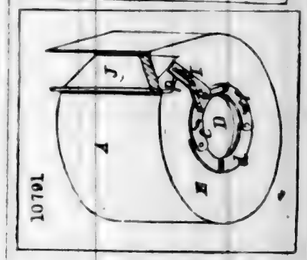
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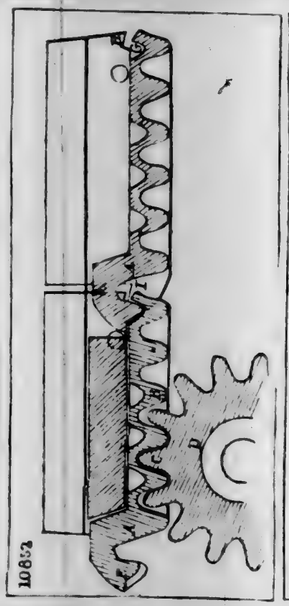
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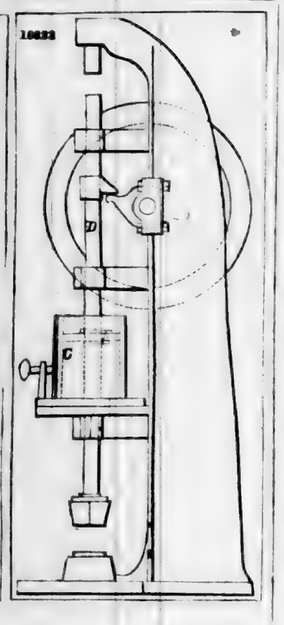
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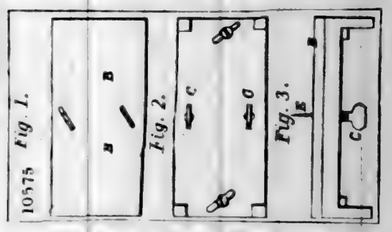
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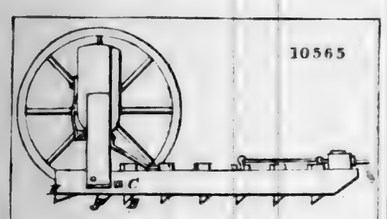
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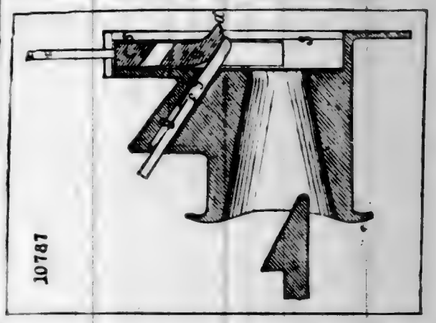
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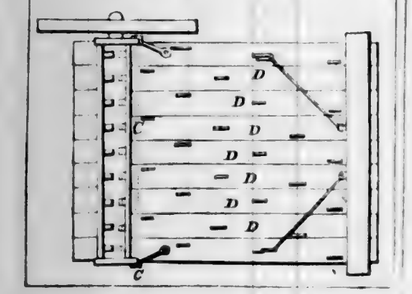


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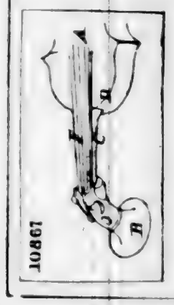


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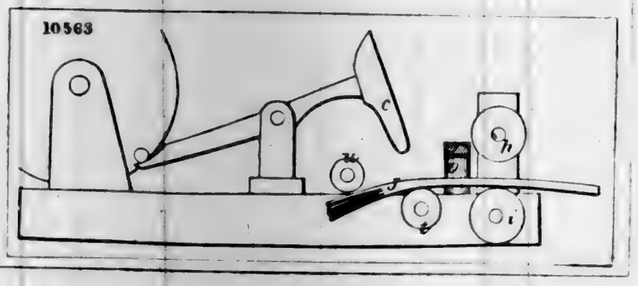


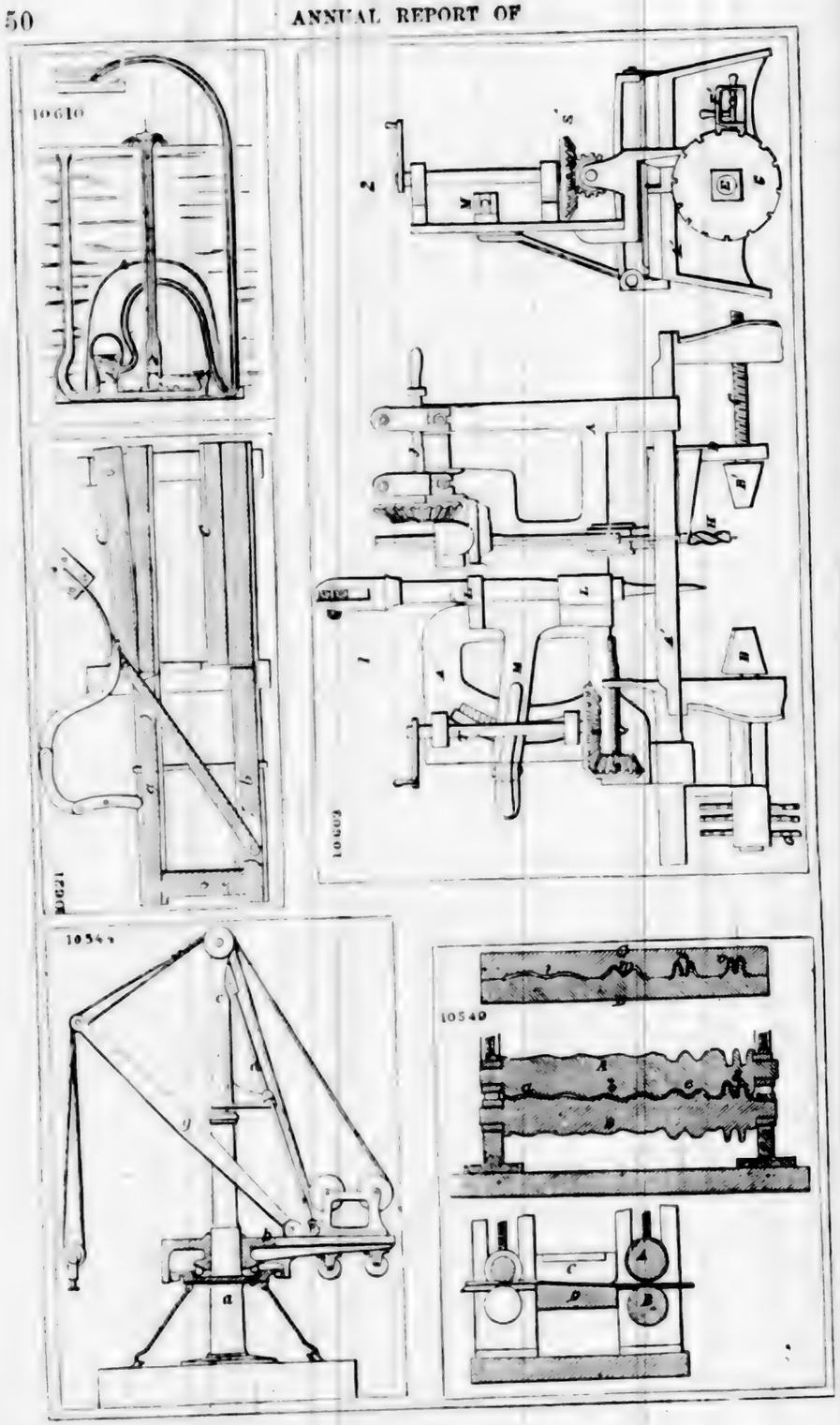


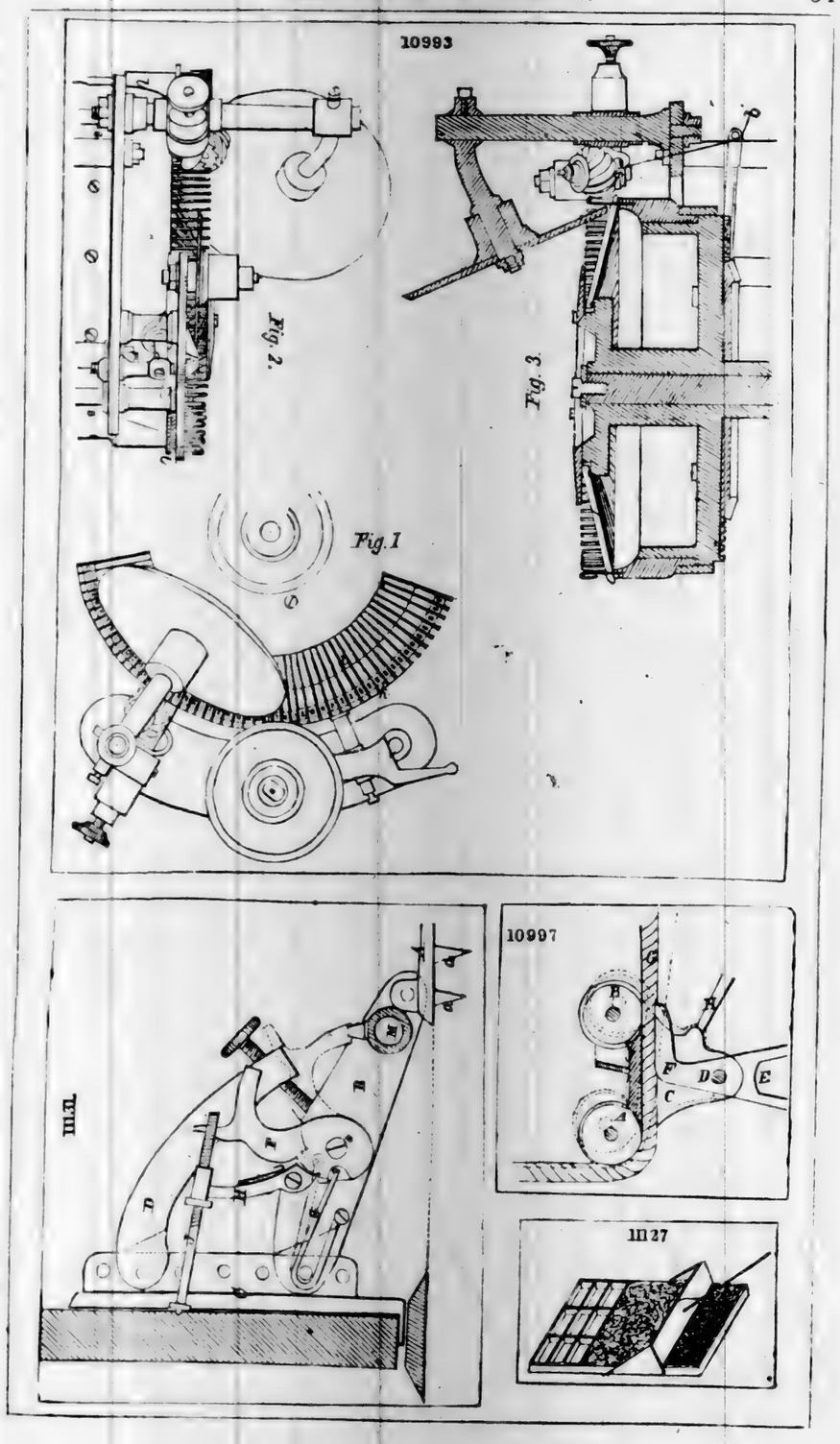
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Fig. 2.
Fig. 3.
Fig. 1
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Fig. 1

Fig. 3.

Fig. 2

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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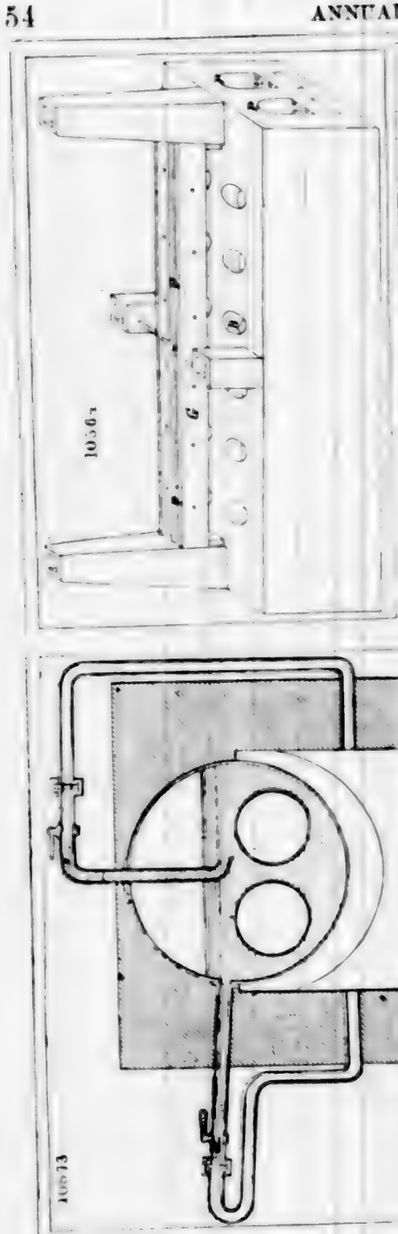
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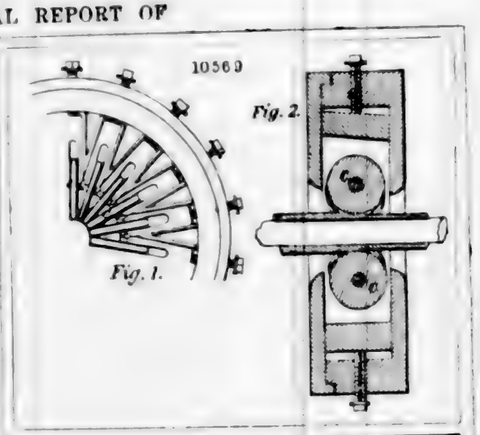
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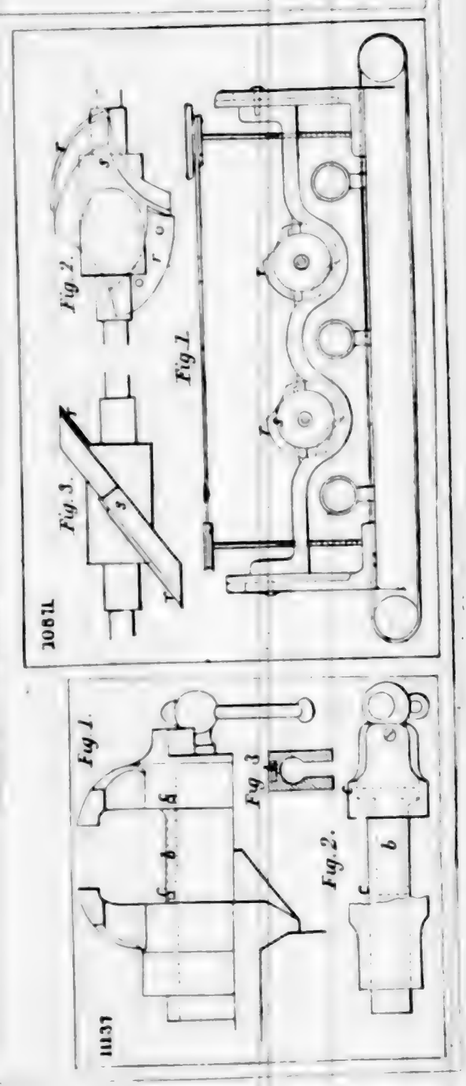
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Fig. 2

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Fig. 2.
Fig 1.
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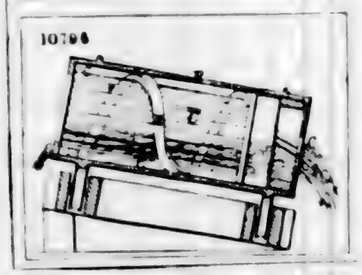
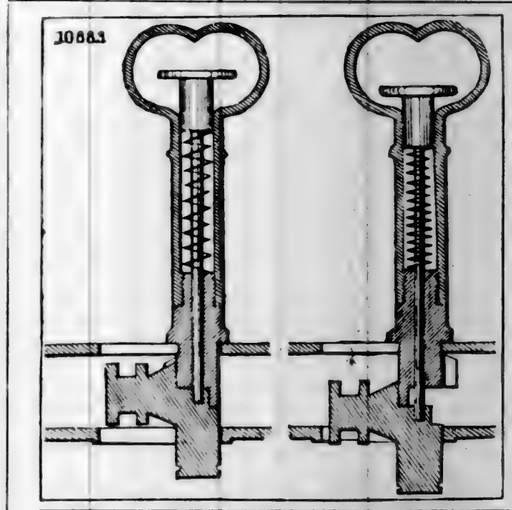
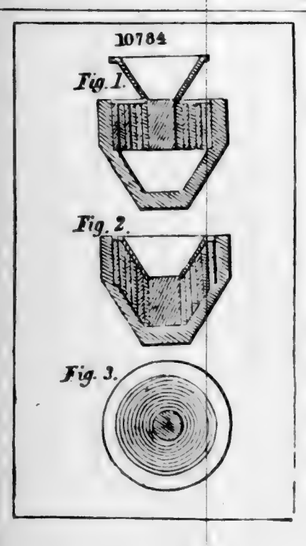
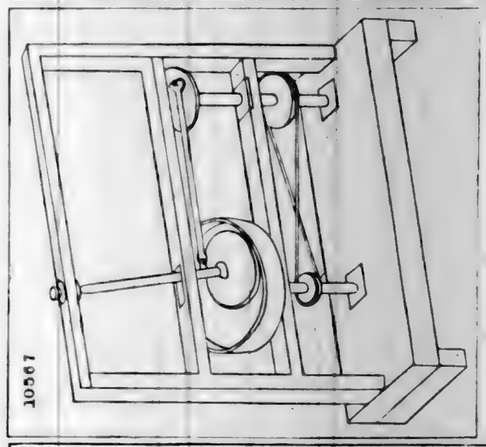
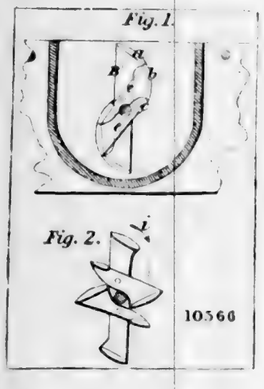

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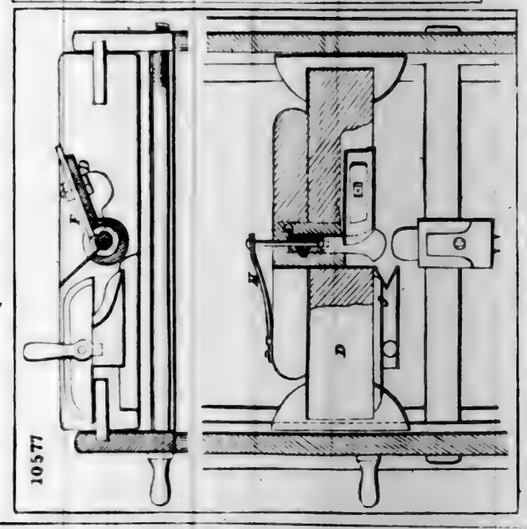
Fig 1.
Fig 3
Fig. 2.
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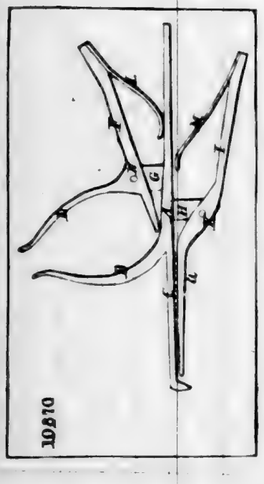

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Fig. 1.
Fig. 2.
Fig. 3.


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Fig. 1.
Fig. 2.
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Fig. 1.

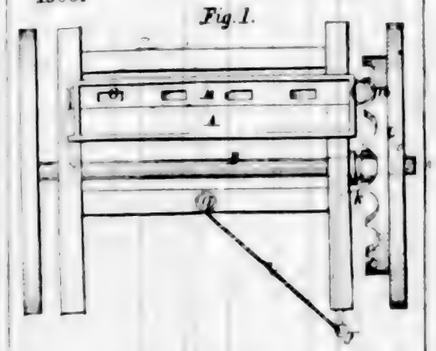


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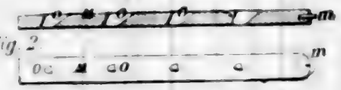


Fig. 3.



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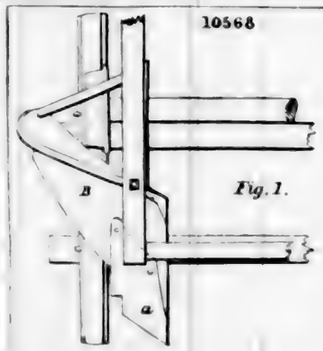
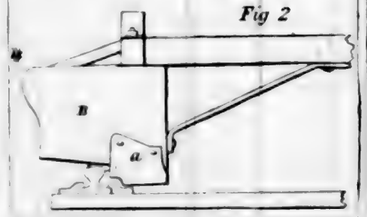
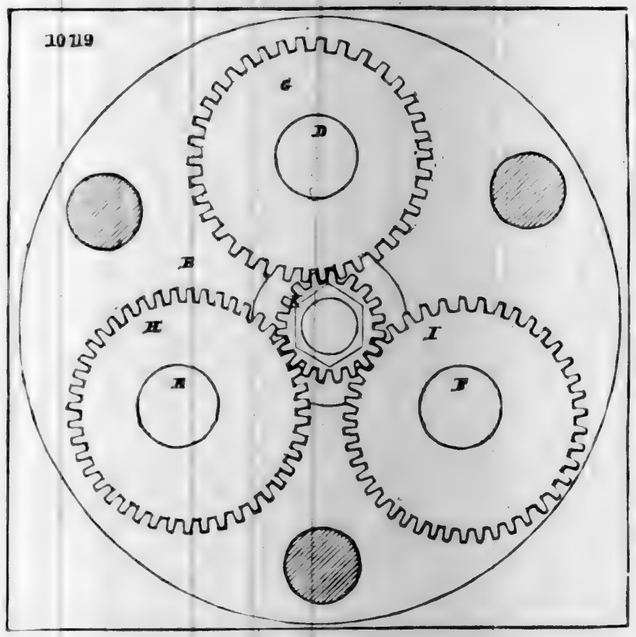


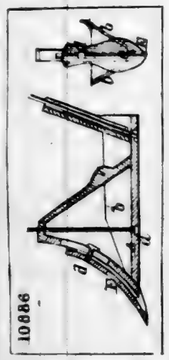
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Fig 2

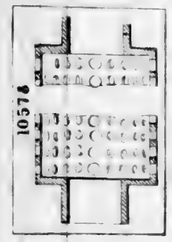


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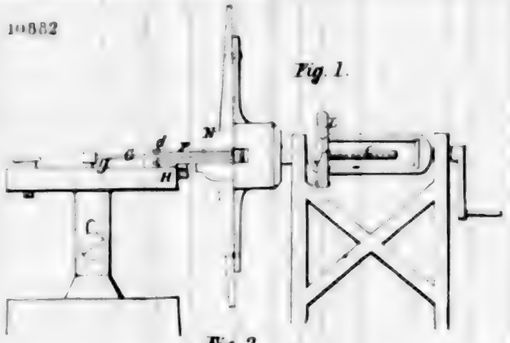
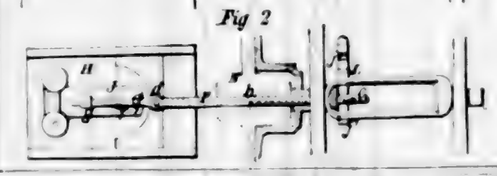
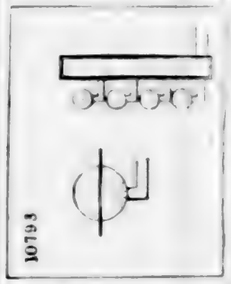


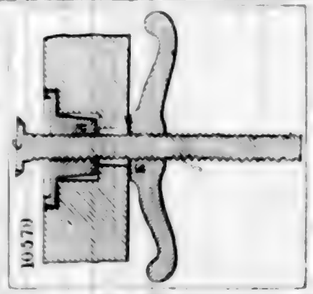
Fig 2



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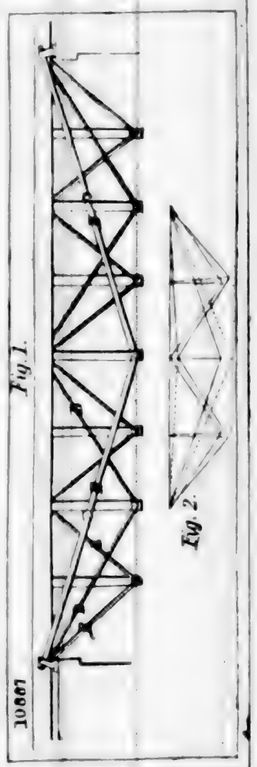
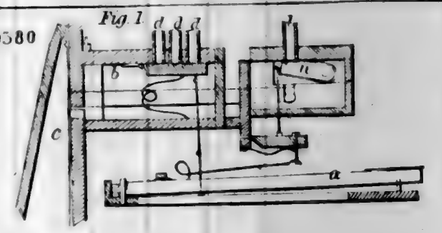


Fig. 1.

Fig. 2.

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Fig 1



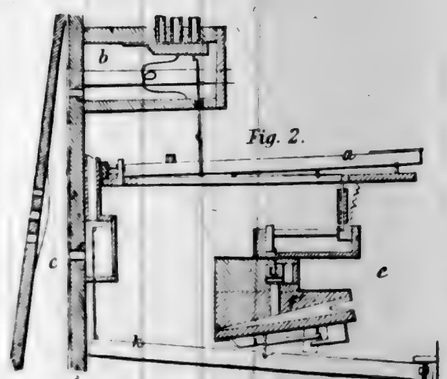
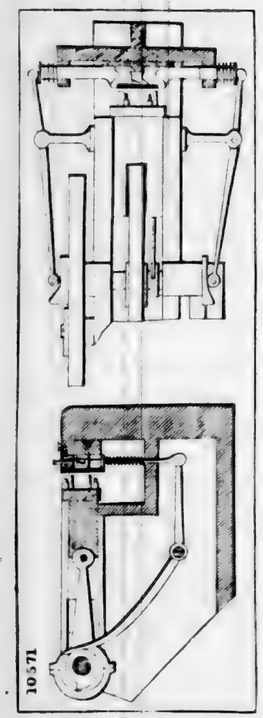


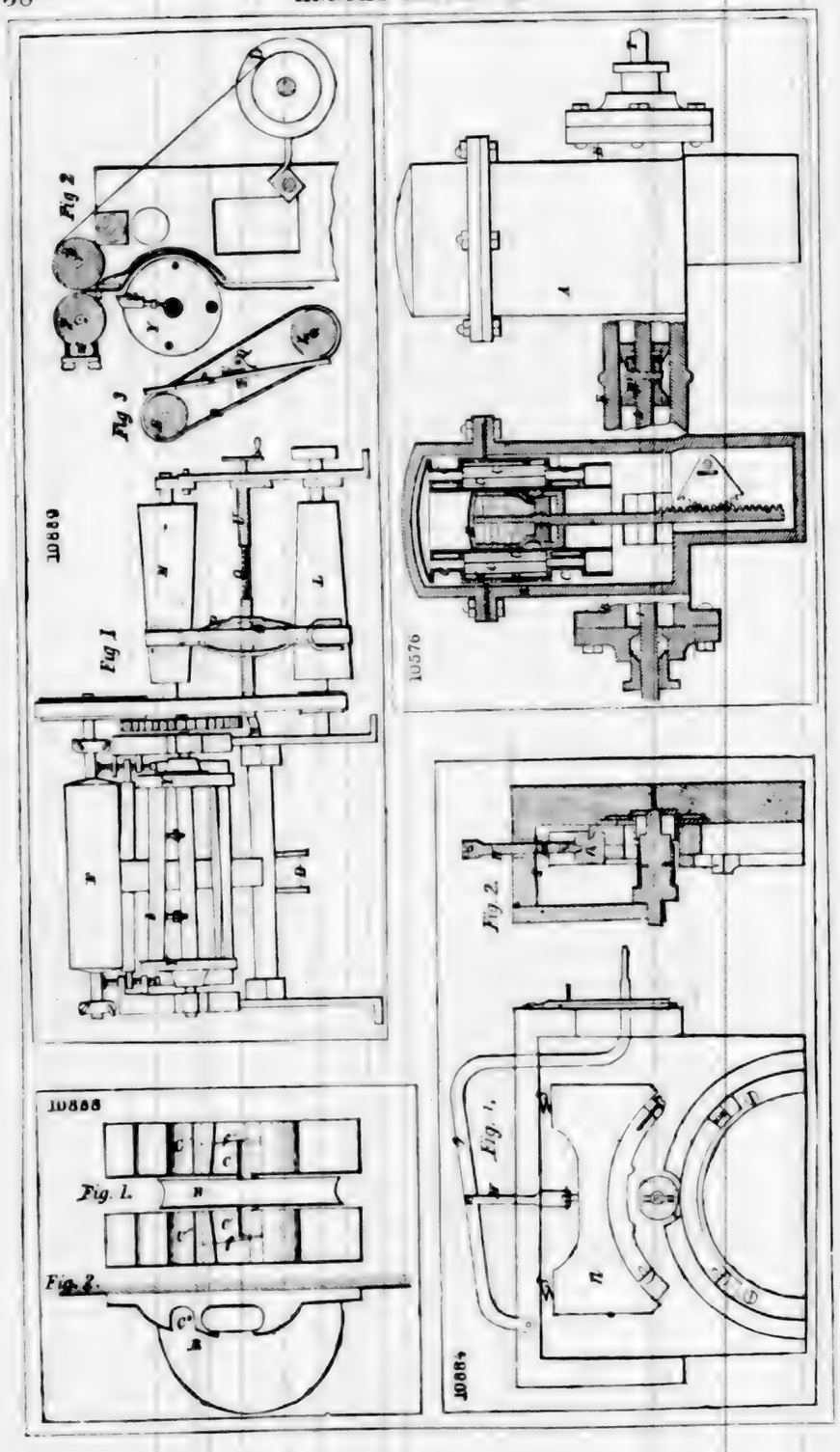
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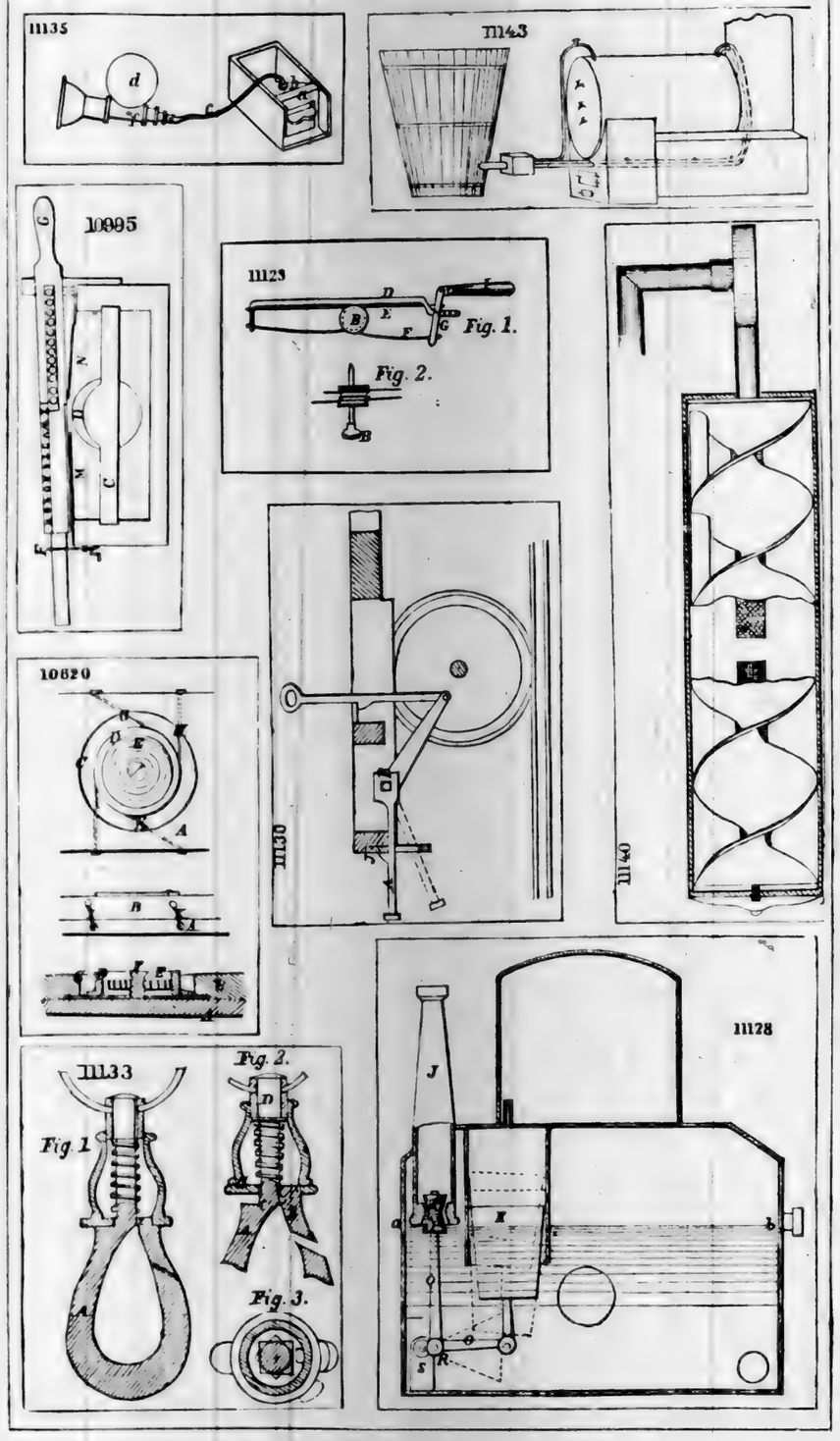
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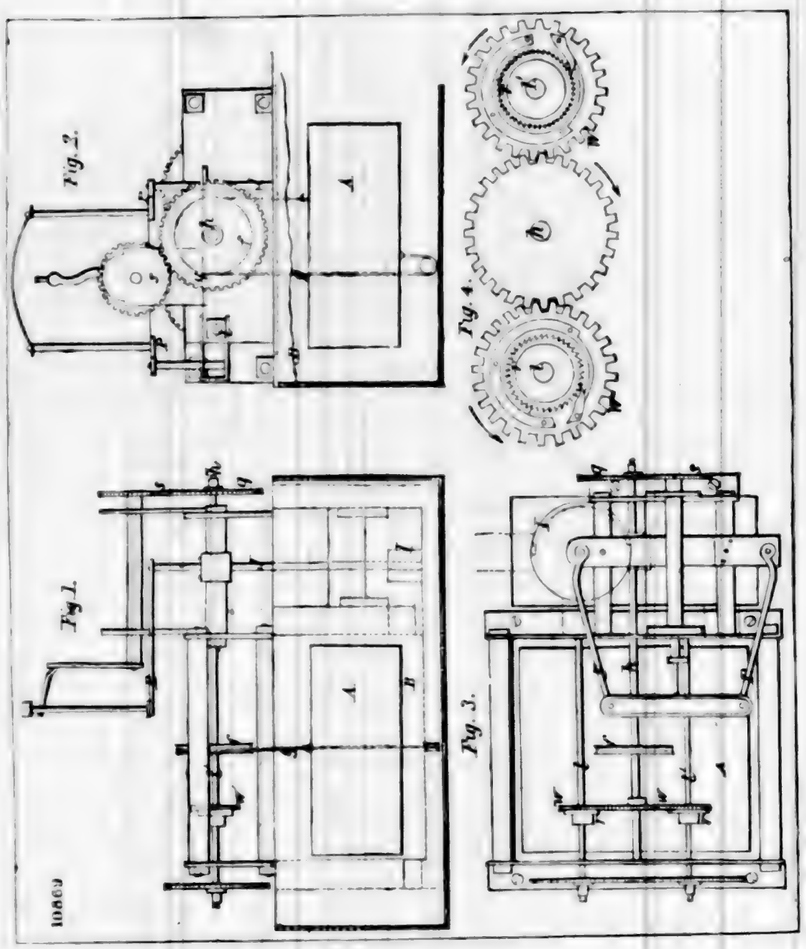


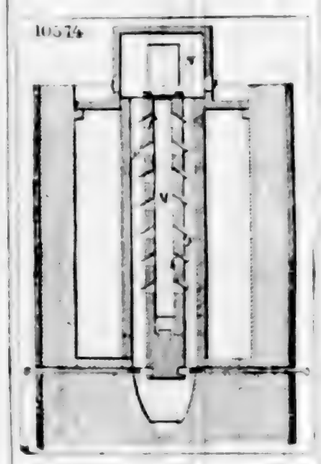


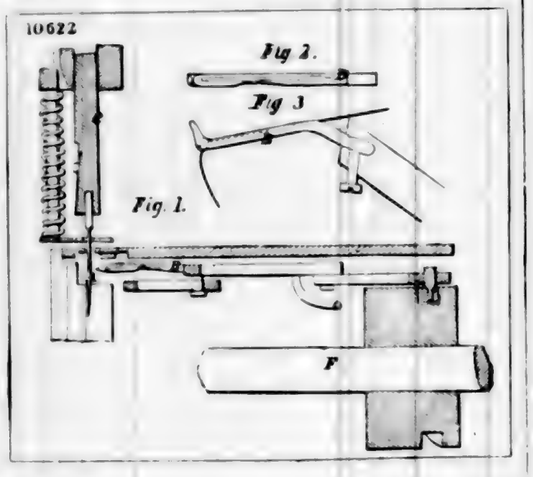
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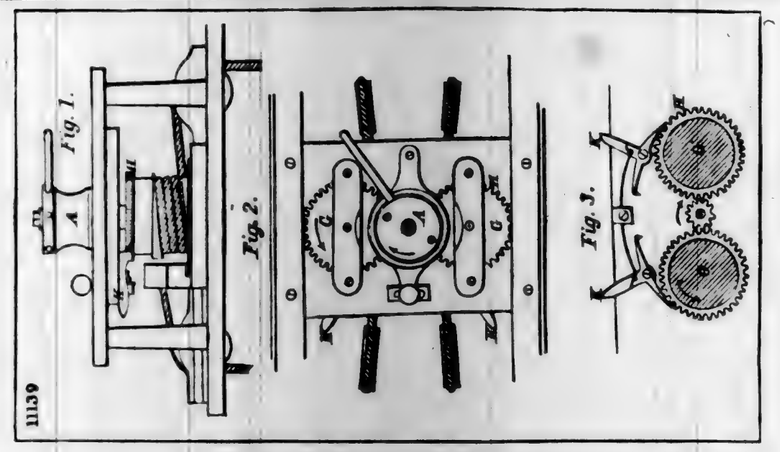

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Fig 1.
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Fig. 2.
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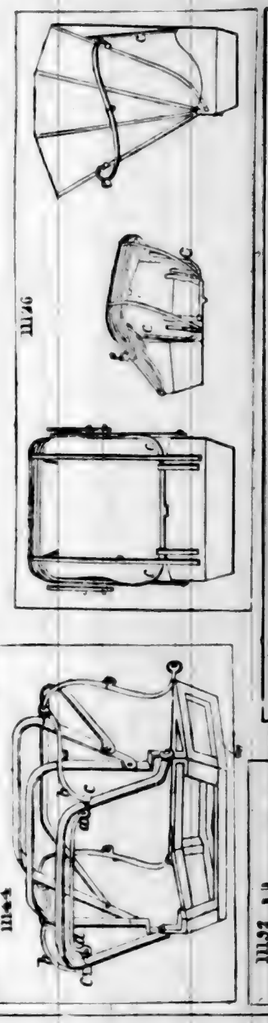

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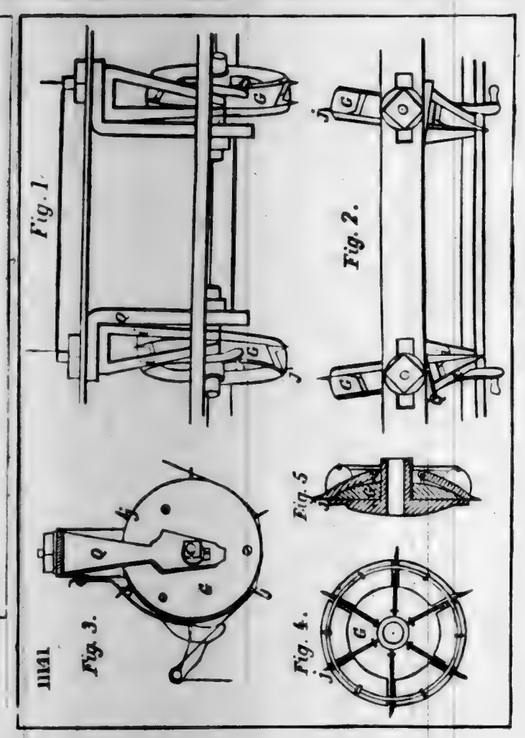

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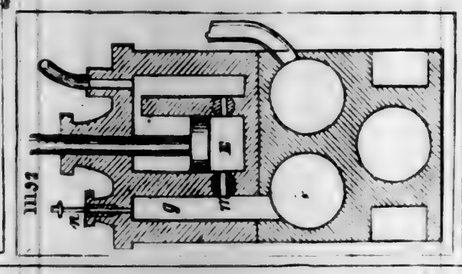

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Fig. 2.
Fig 3
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Fig. 1.
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Fig. 1
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Fig. 1. Fig. 2. Fig. 3.

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Fig. 1

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Fig. 1.

Fig. 2.

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Fig. 2.

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Fig. 1

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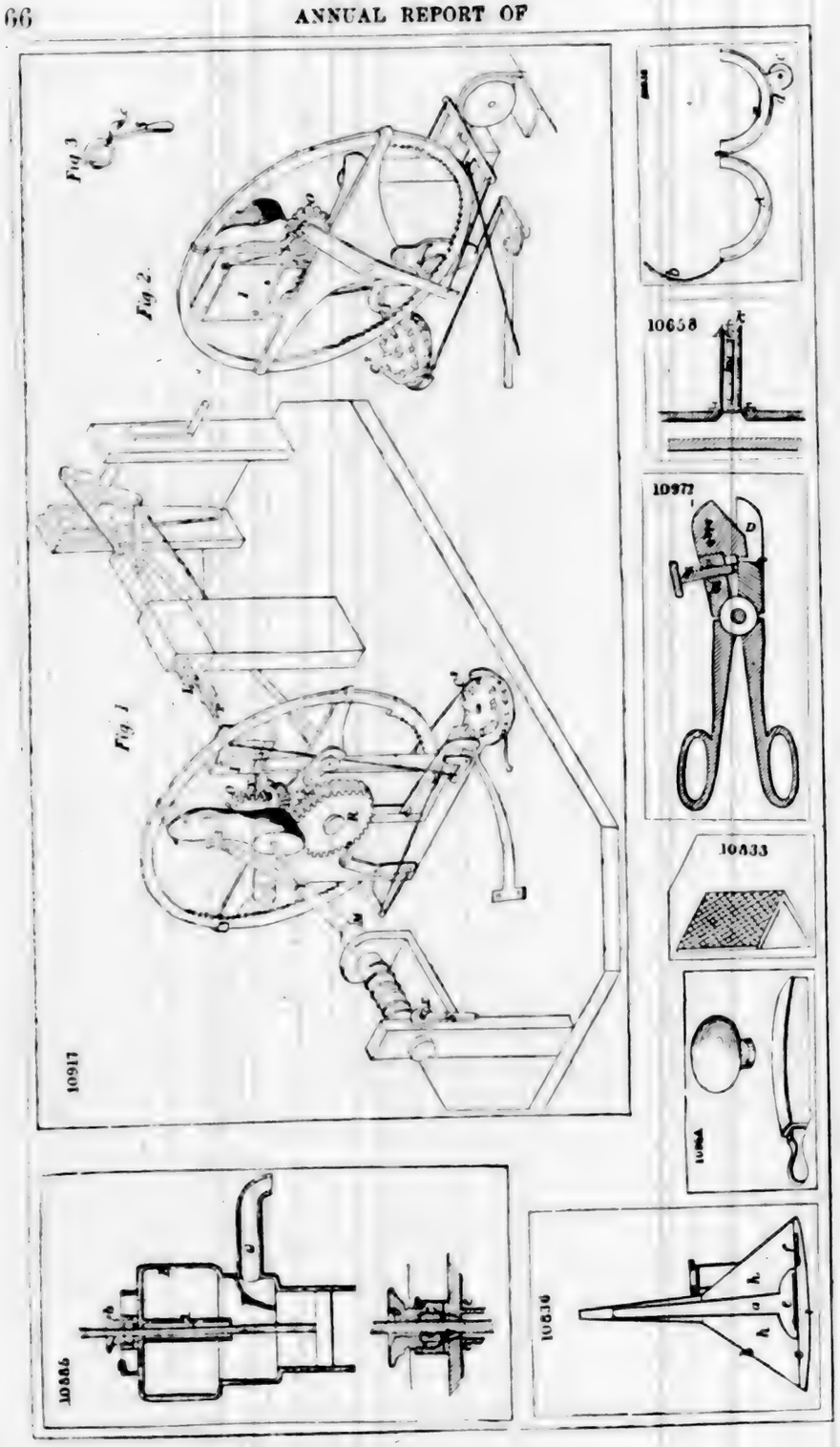
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Fig. 2.

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Fig 3
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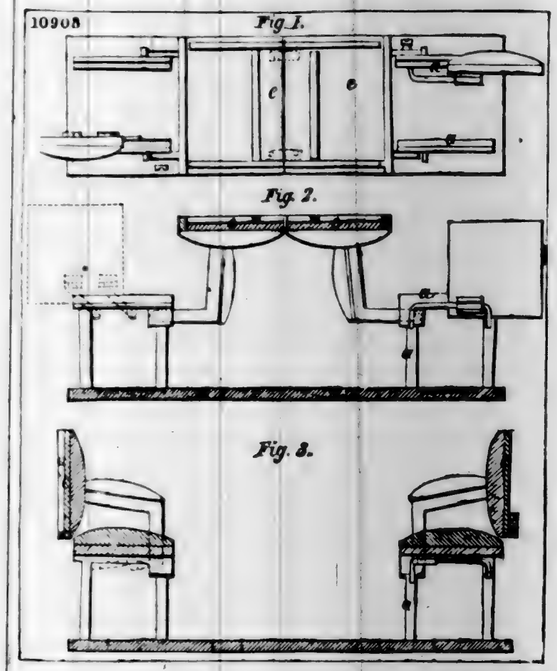
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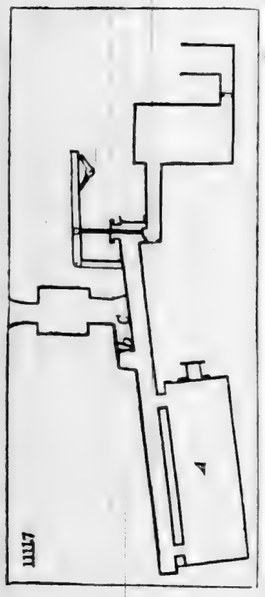
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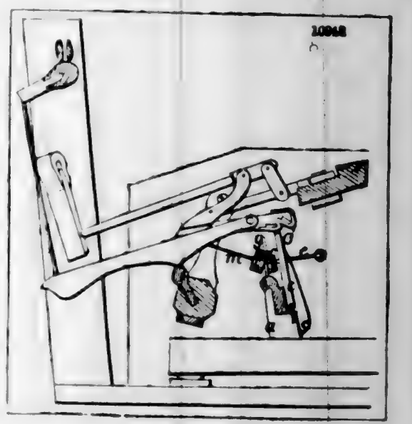
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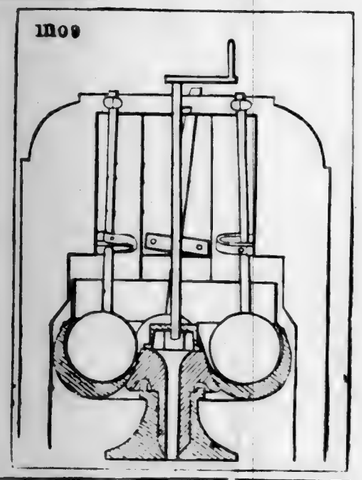
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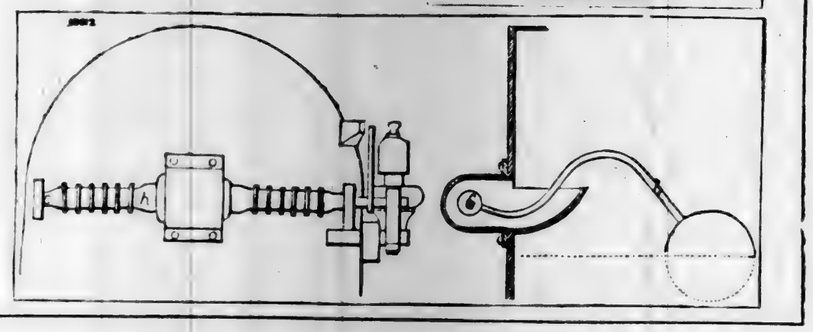
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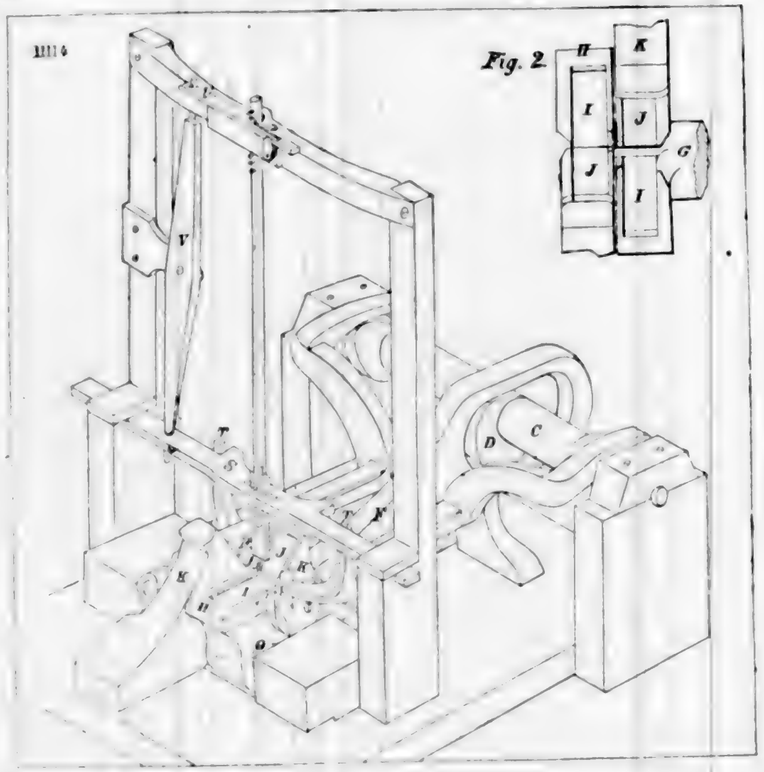

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Fig. 2.
Fig. 3.

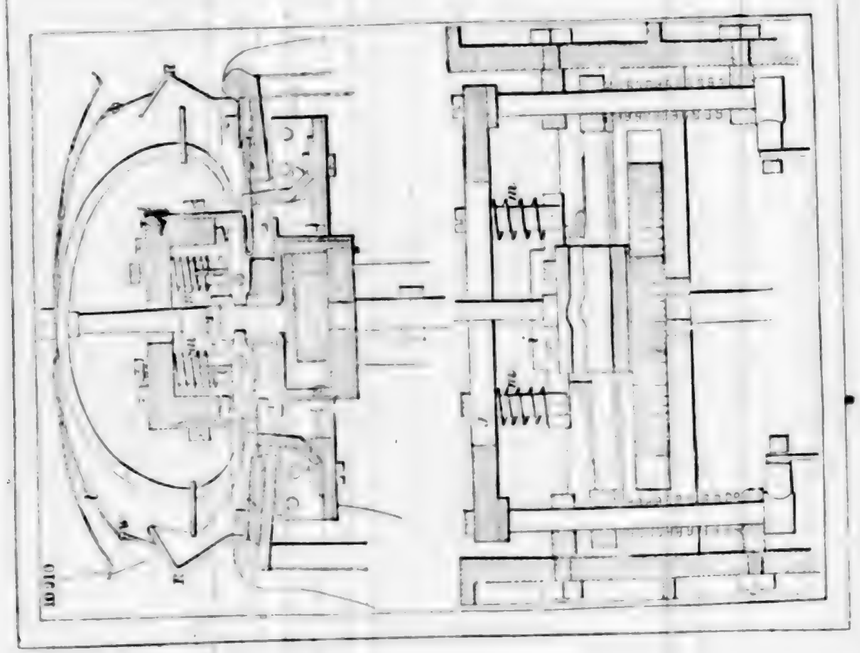

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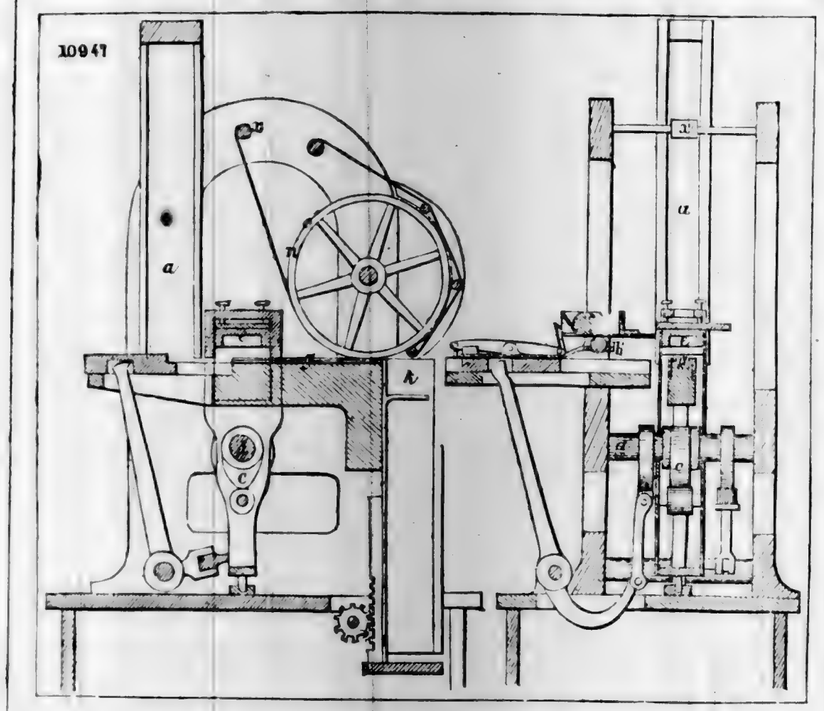

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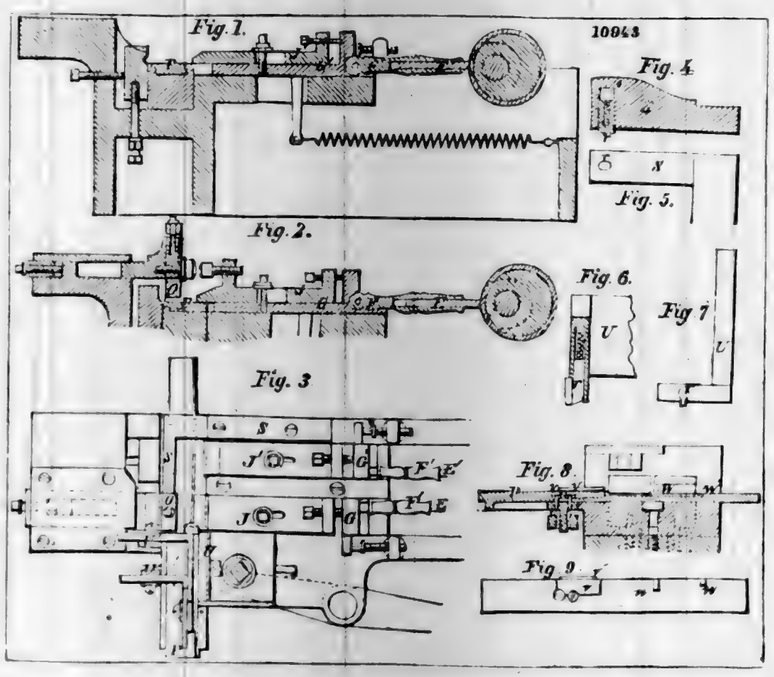

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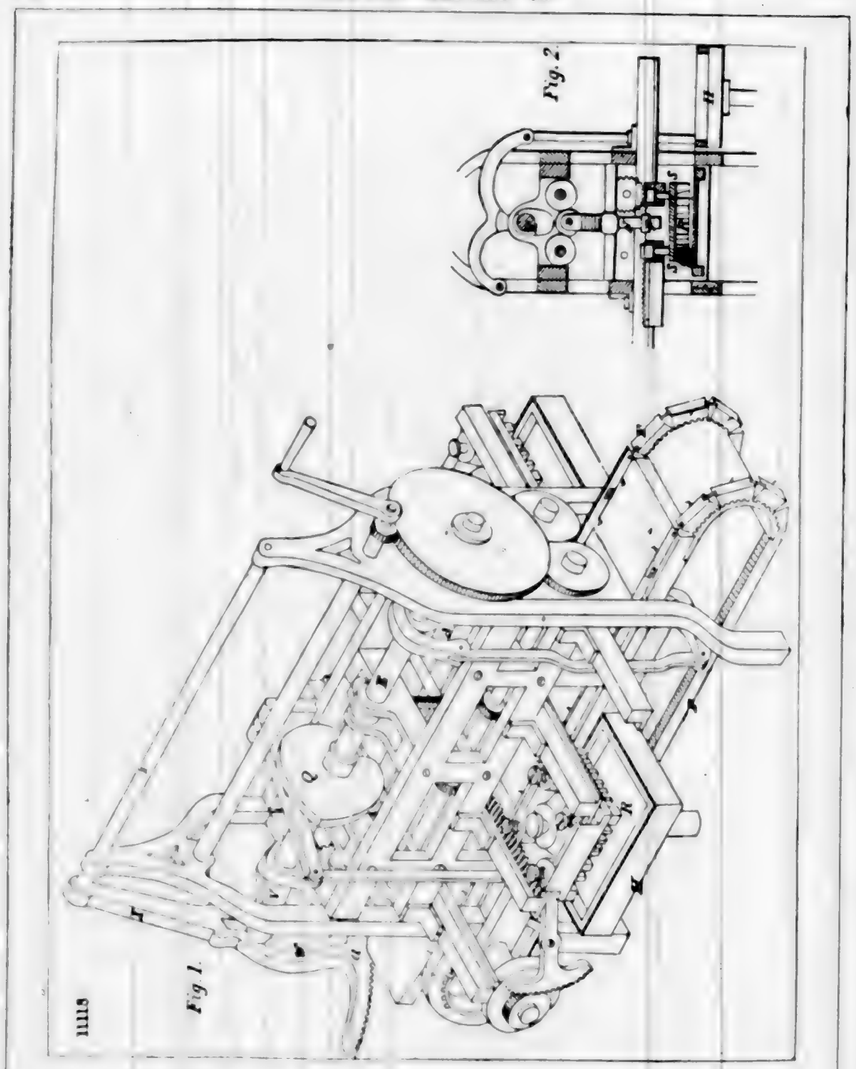


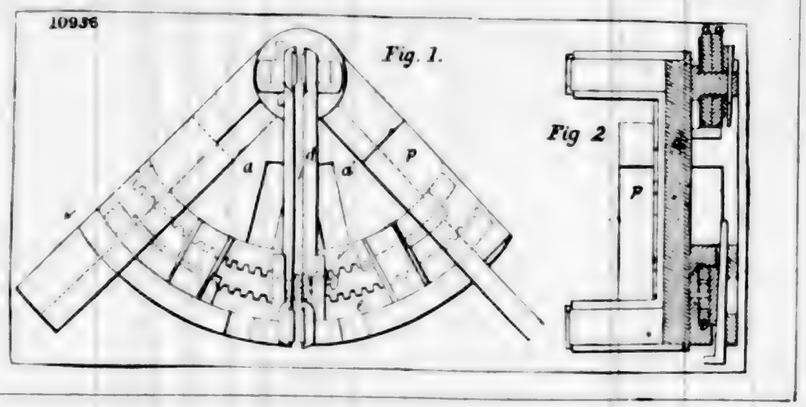

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Fig. 2.
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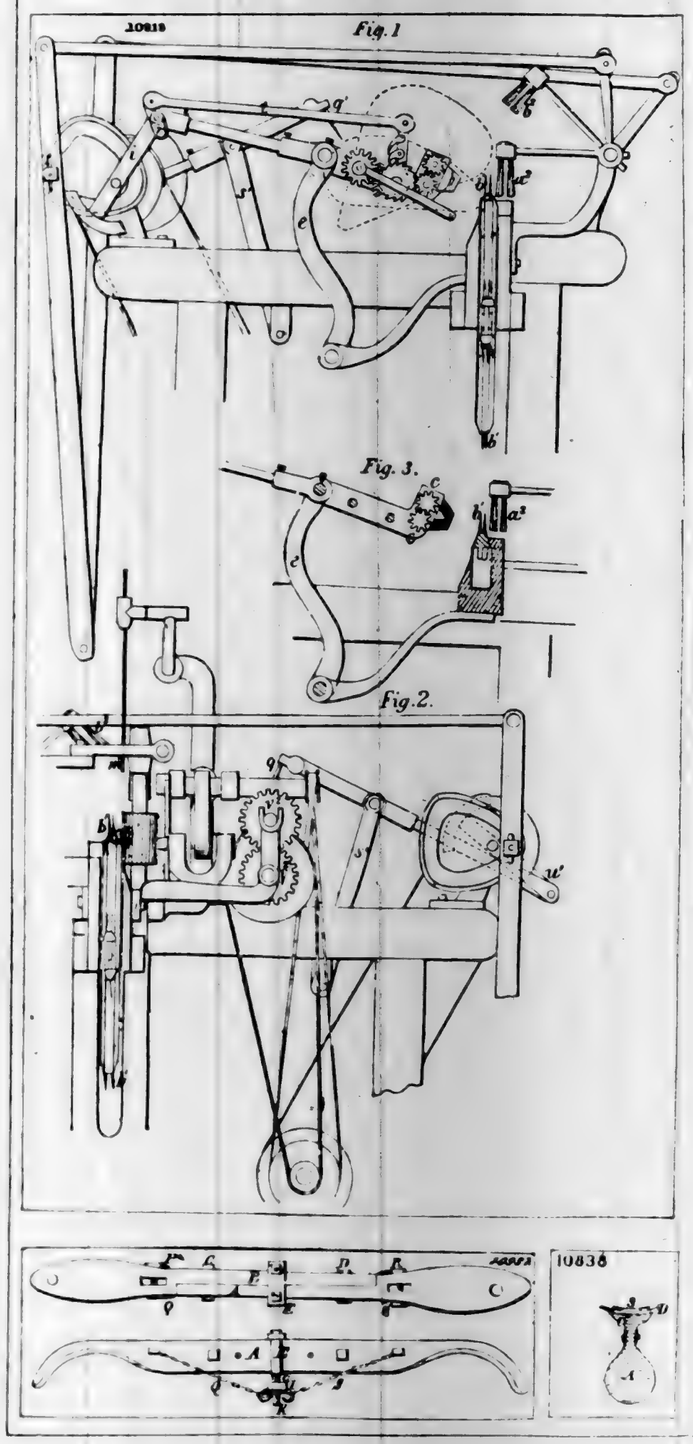

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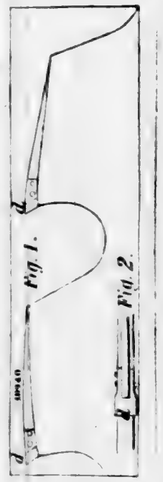

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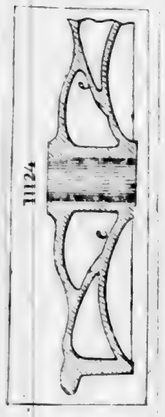

Fig. 1.
10943
Fig. 4.
Fig. 5.
S
N
Fig. 2.
Fig. 6.
Fig 7
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Fig. 8.
Fig. 9.


Fig. 2
Fig. 1.
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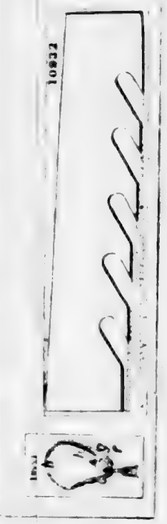

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Fig. 1.
Fig 2


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Fig. 1
Fig. 3.
Fig.2.


Fig. 1.
Fig. 2.


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11364 Fig. 2.

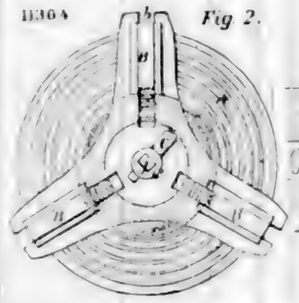
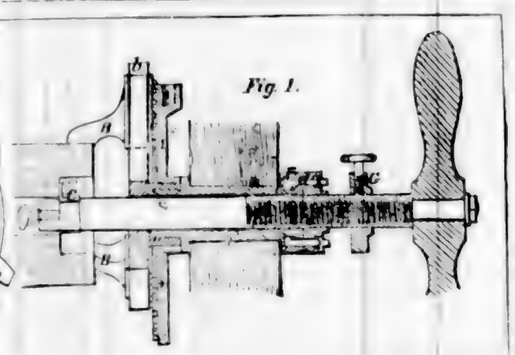


Fig. 1.



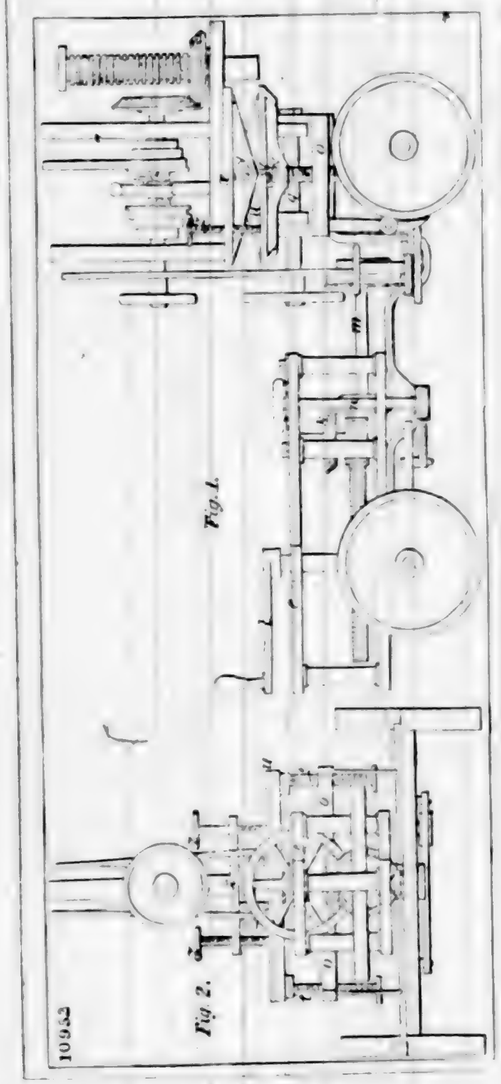
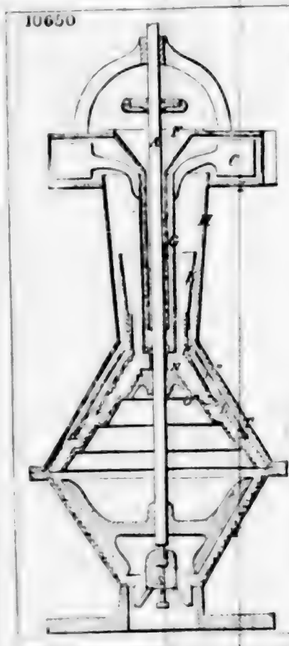


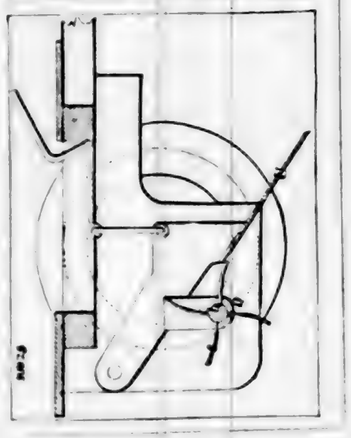
Fig. 1.

Fig. 2.

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1879

10656 Fig. 1.

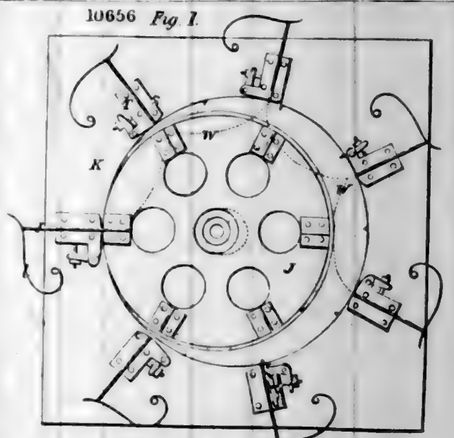
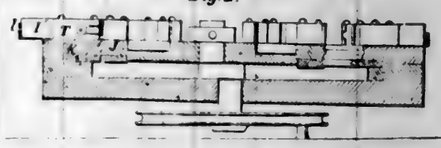
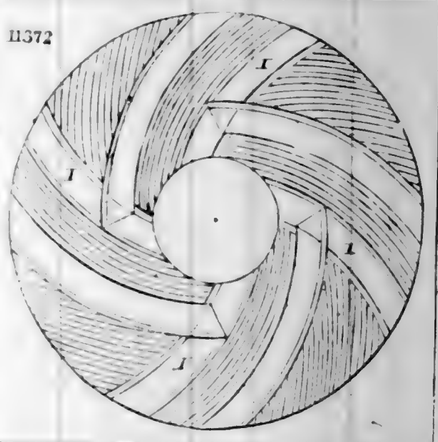


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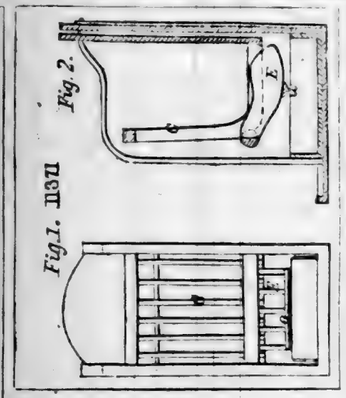


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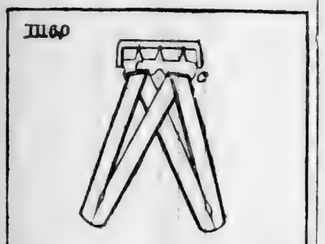


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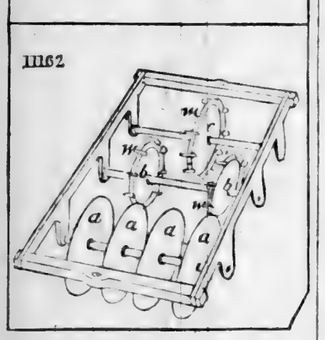
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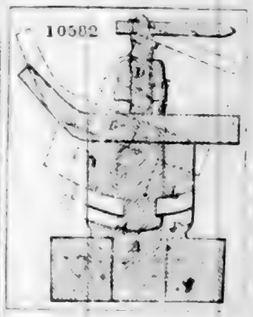
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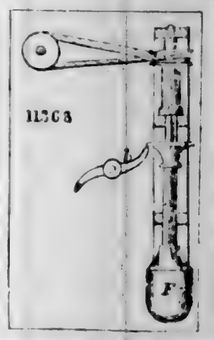
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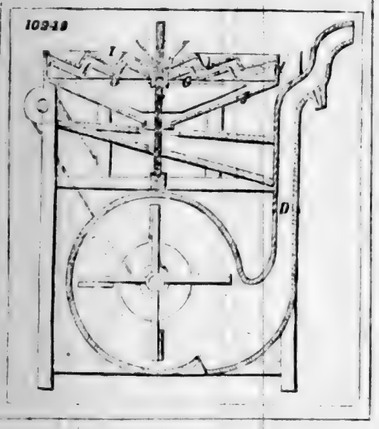
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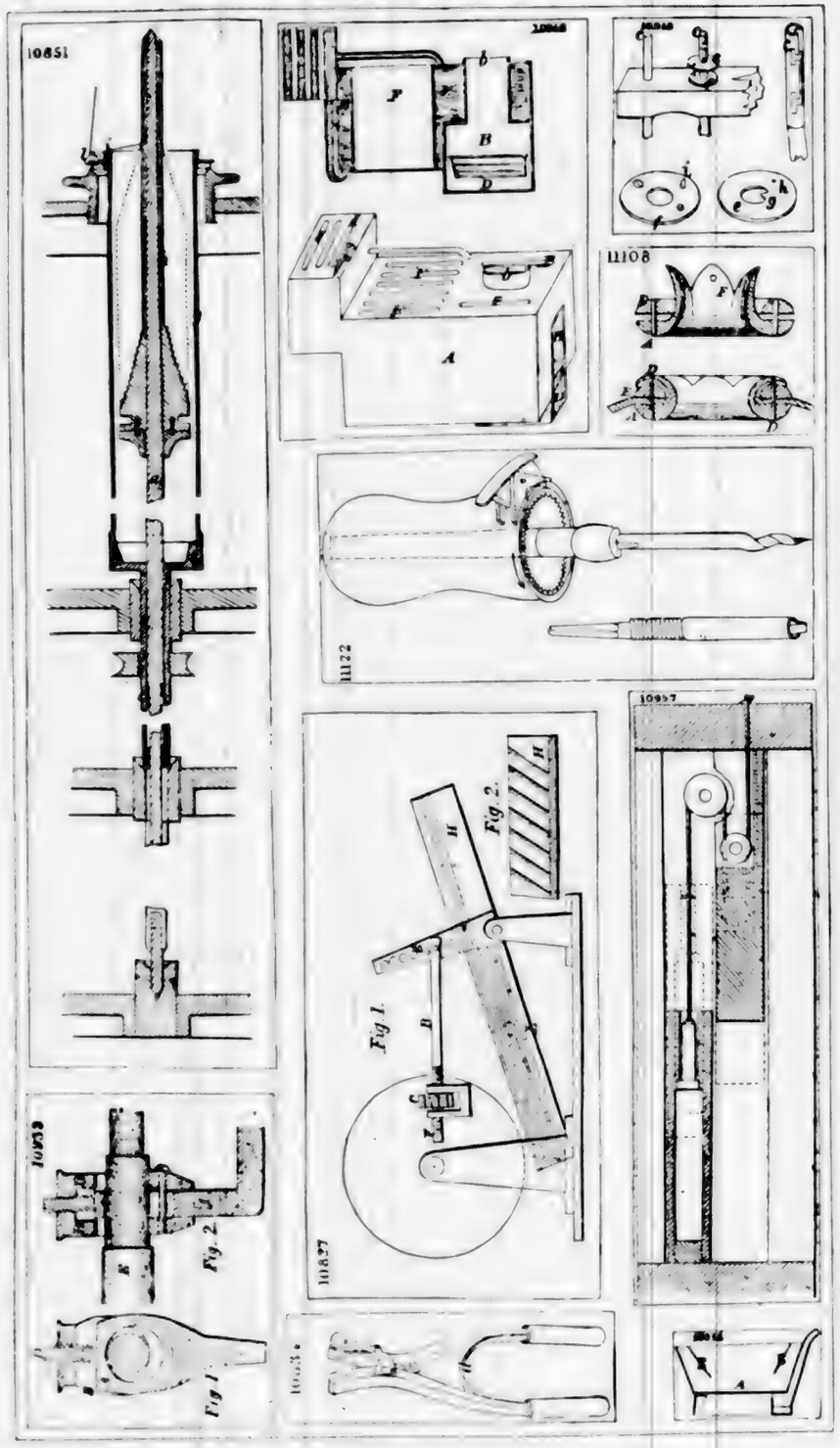


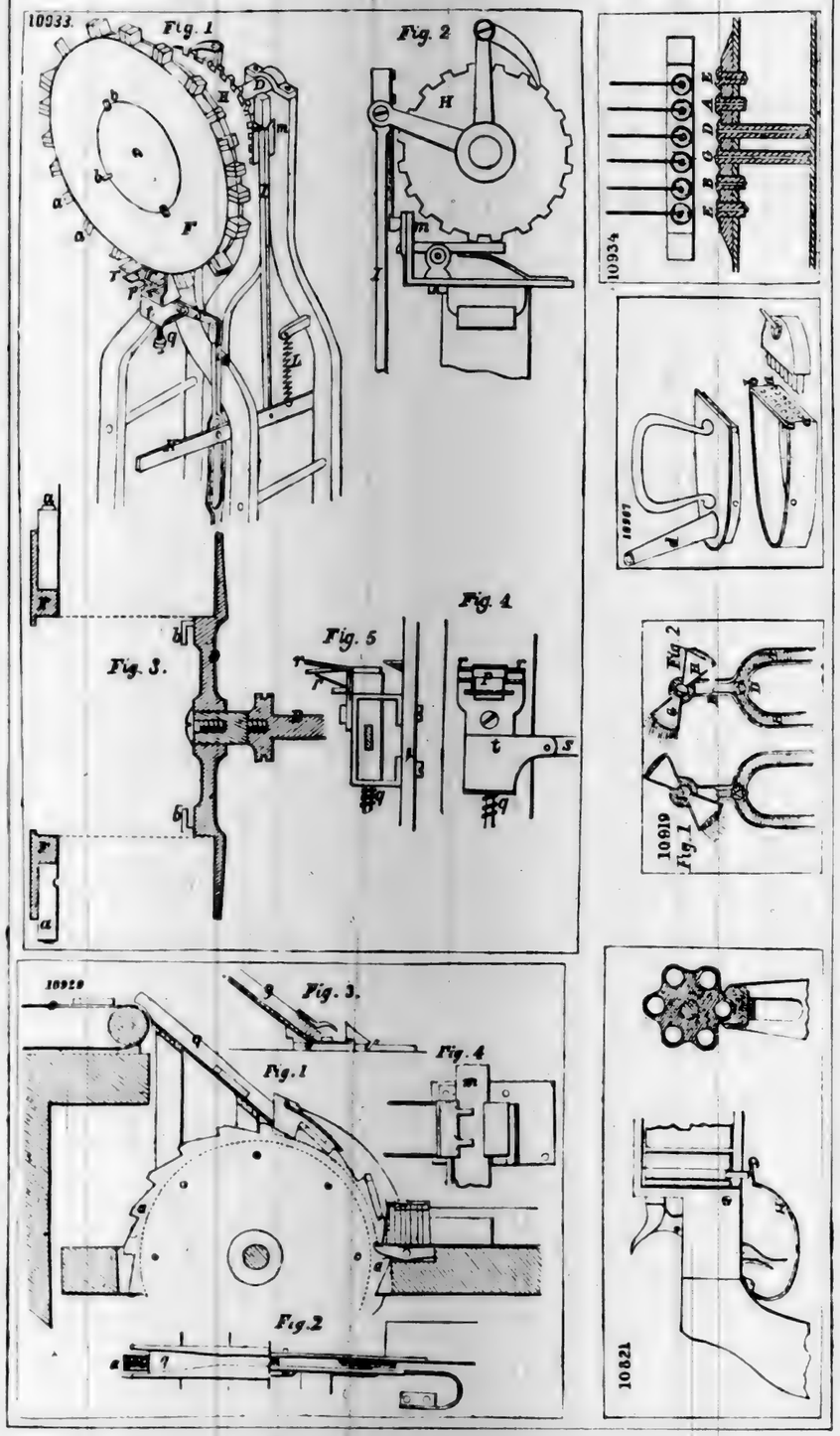
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10933.
Fig. 1
Fig. 2
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Fig. 5
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Fig. 1.

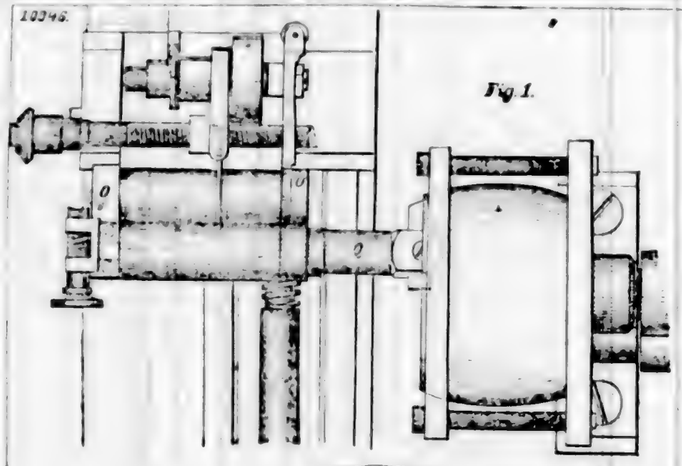


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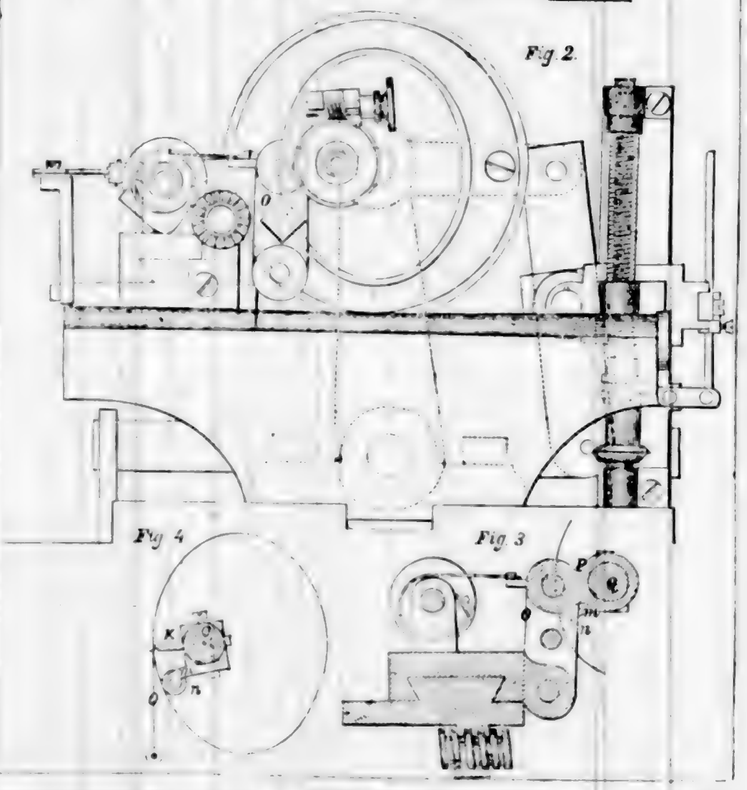
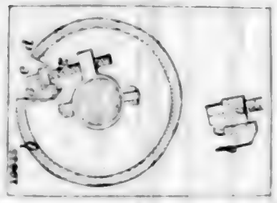


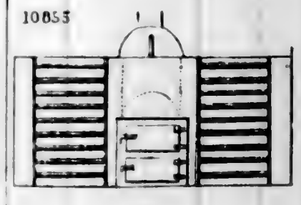
Fig. 4

Fig. 3

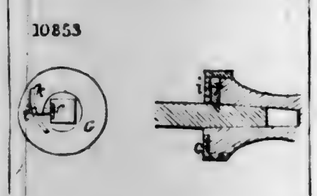




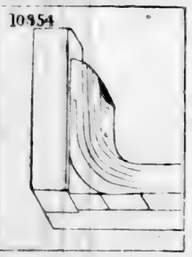
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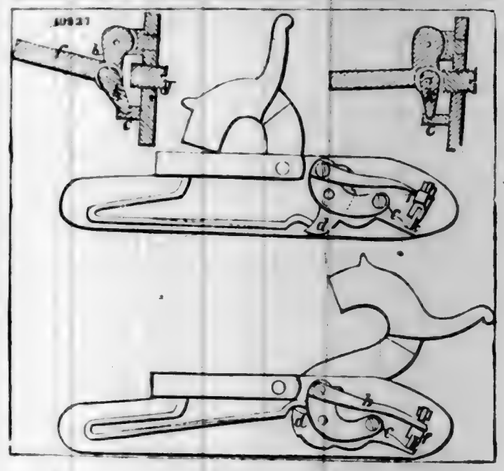
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Fig. 1

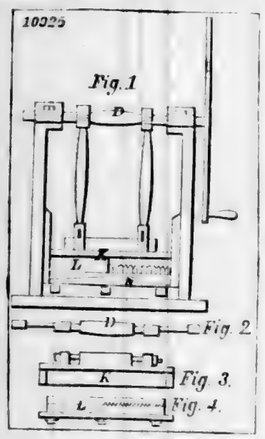


Fig. 2

Fig. 3

Fig. 4

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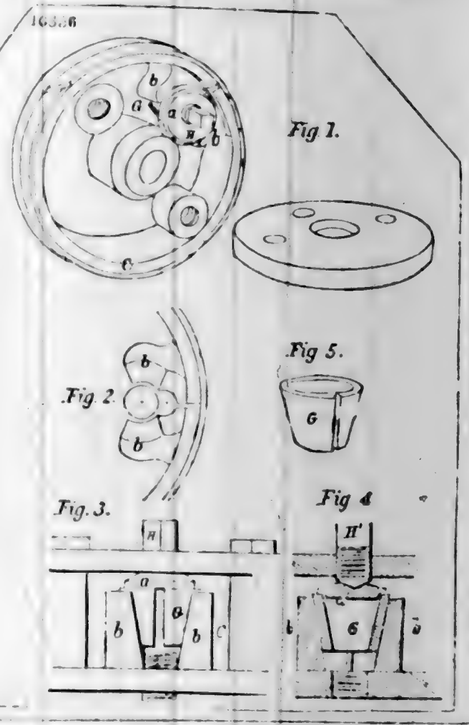


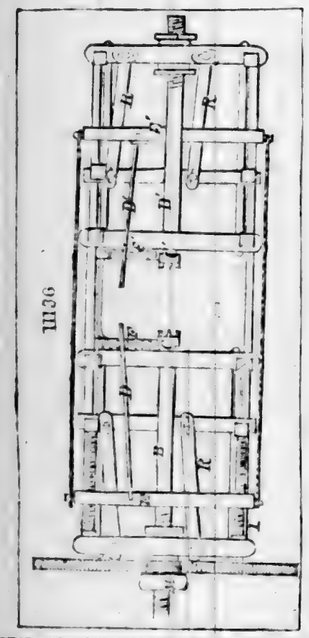
Fig 1.

Fig 2.

Fig 5.

Fig. 3.

Fig 4



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Fig. 1.

Fig. 2.

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Fig. 1.

Fig. 2.

Fig. 3.

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Fig. 1

Fig. 2.

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Fig. 1

Fig. 2.

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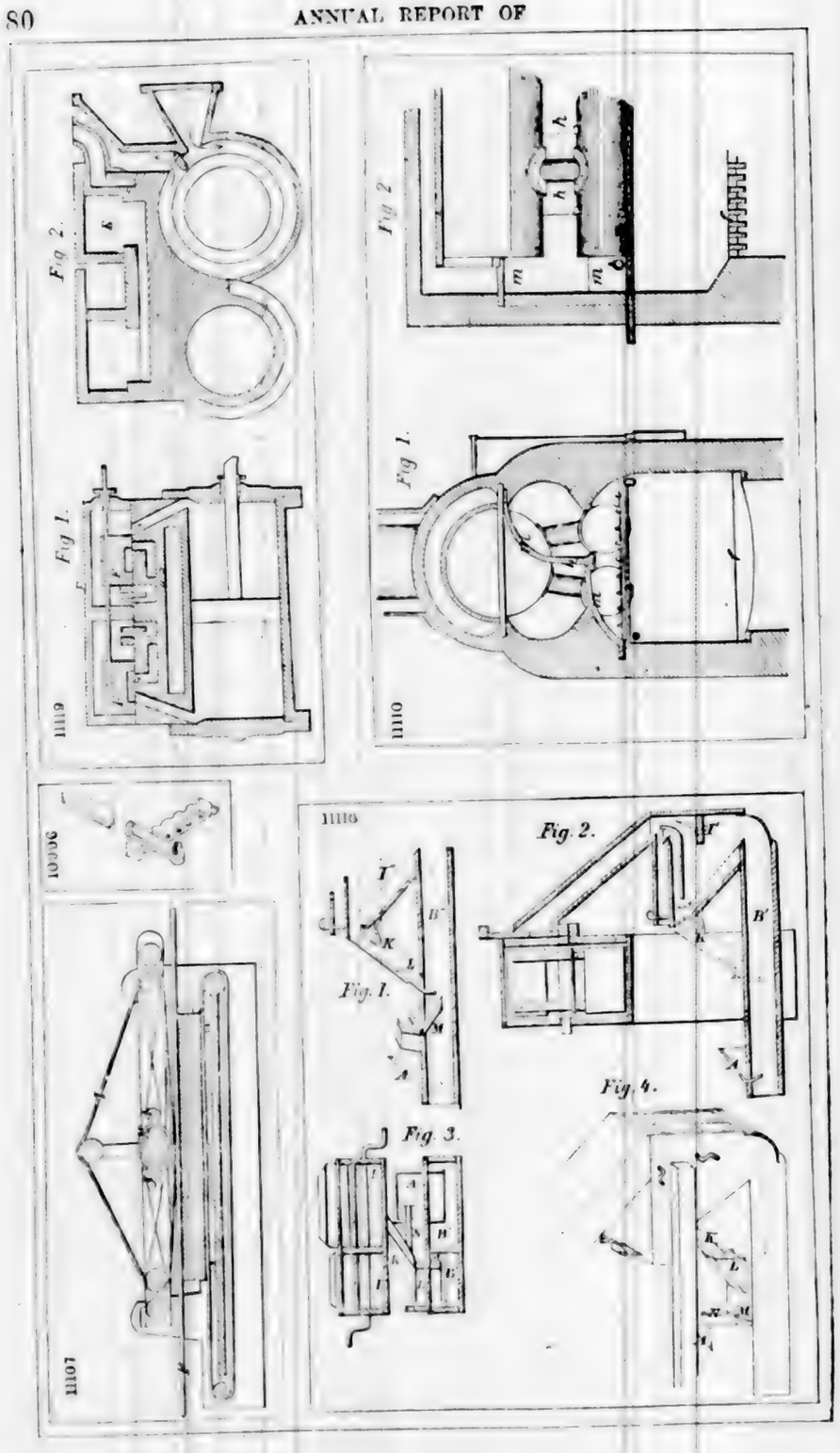
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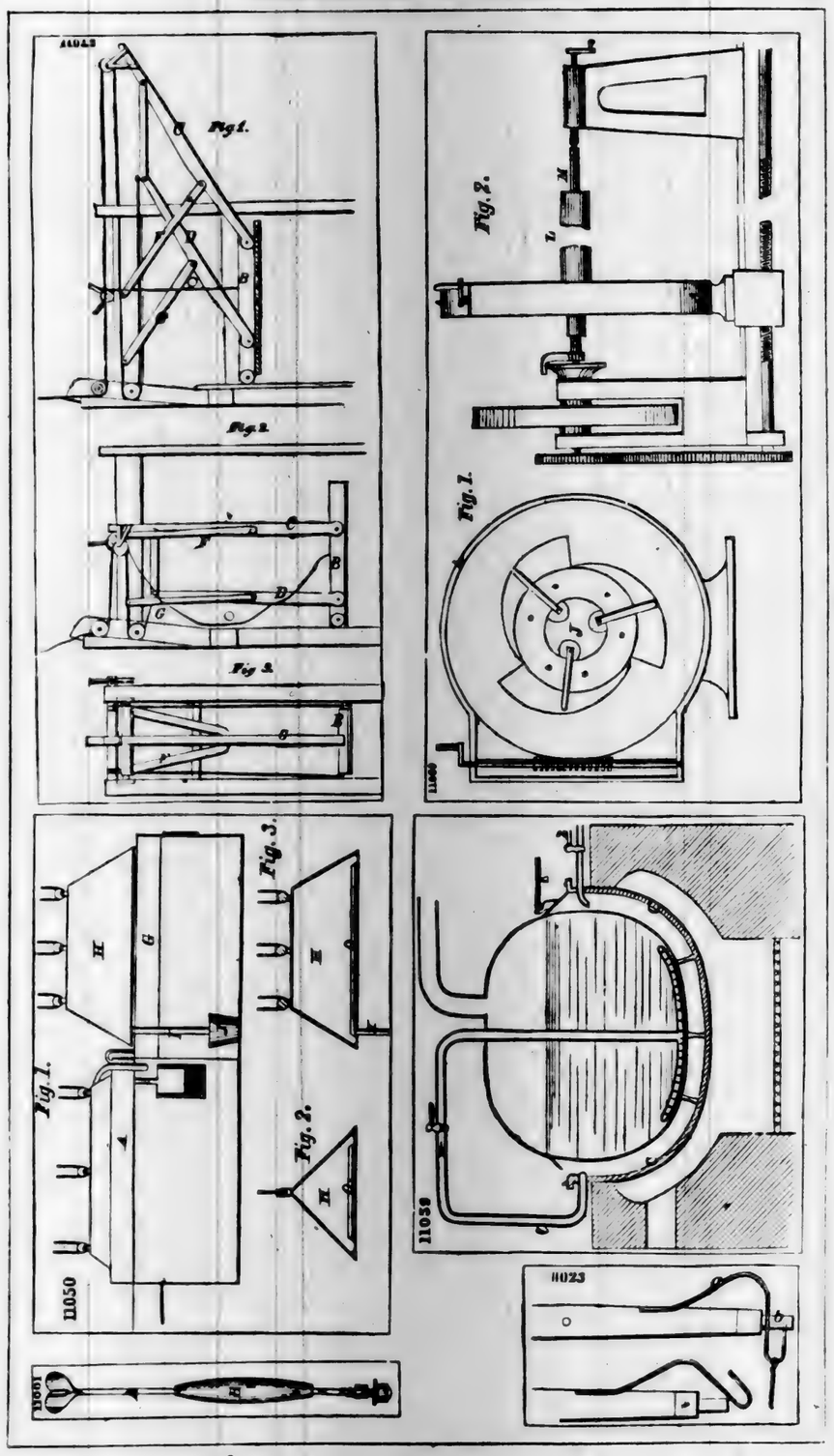
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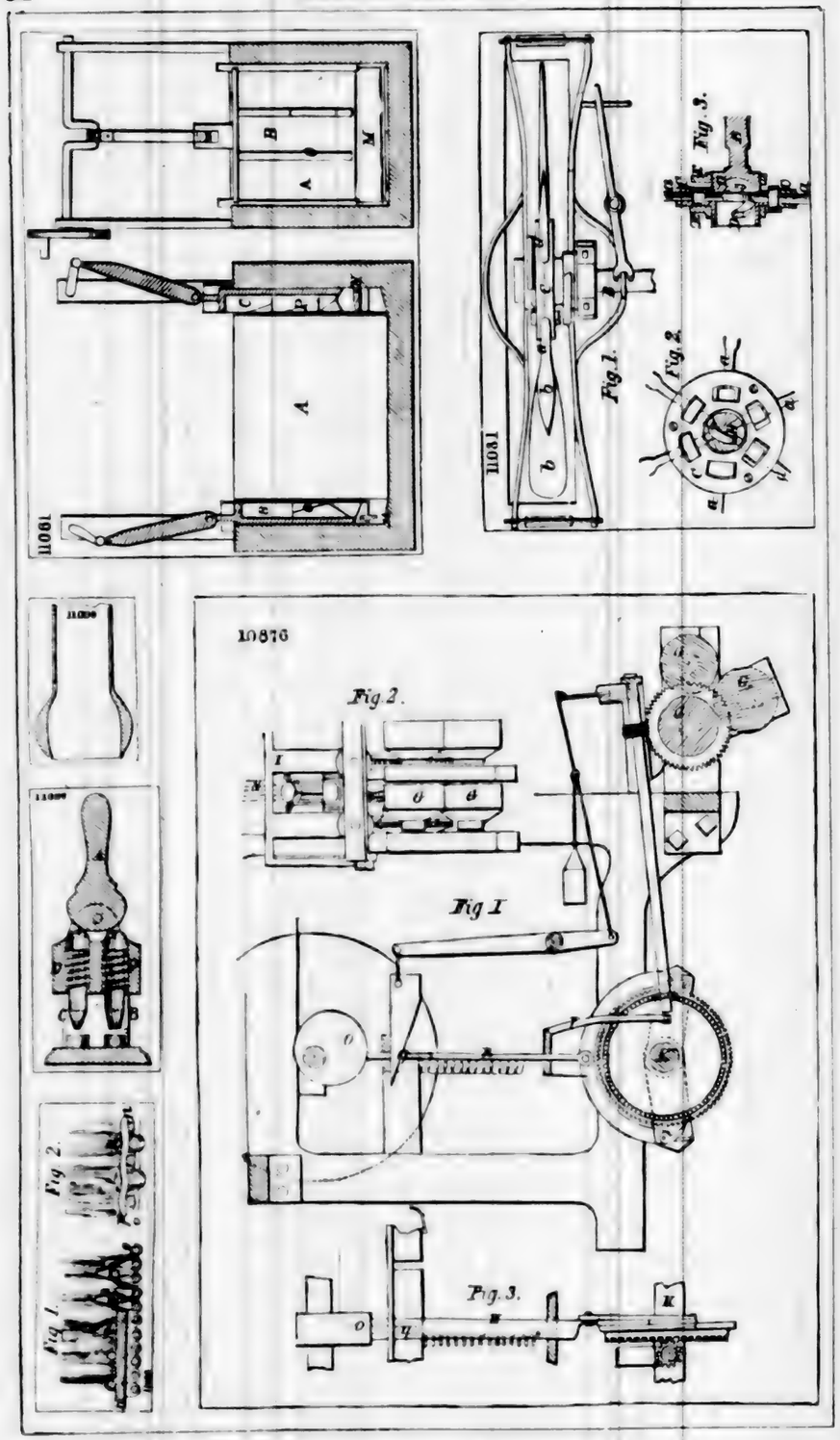
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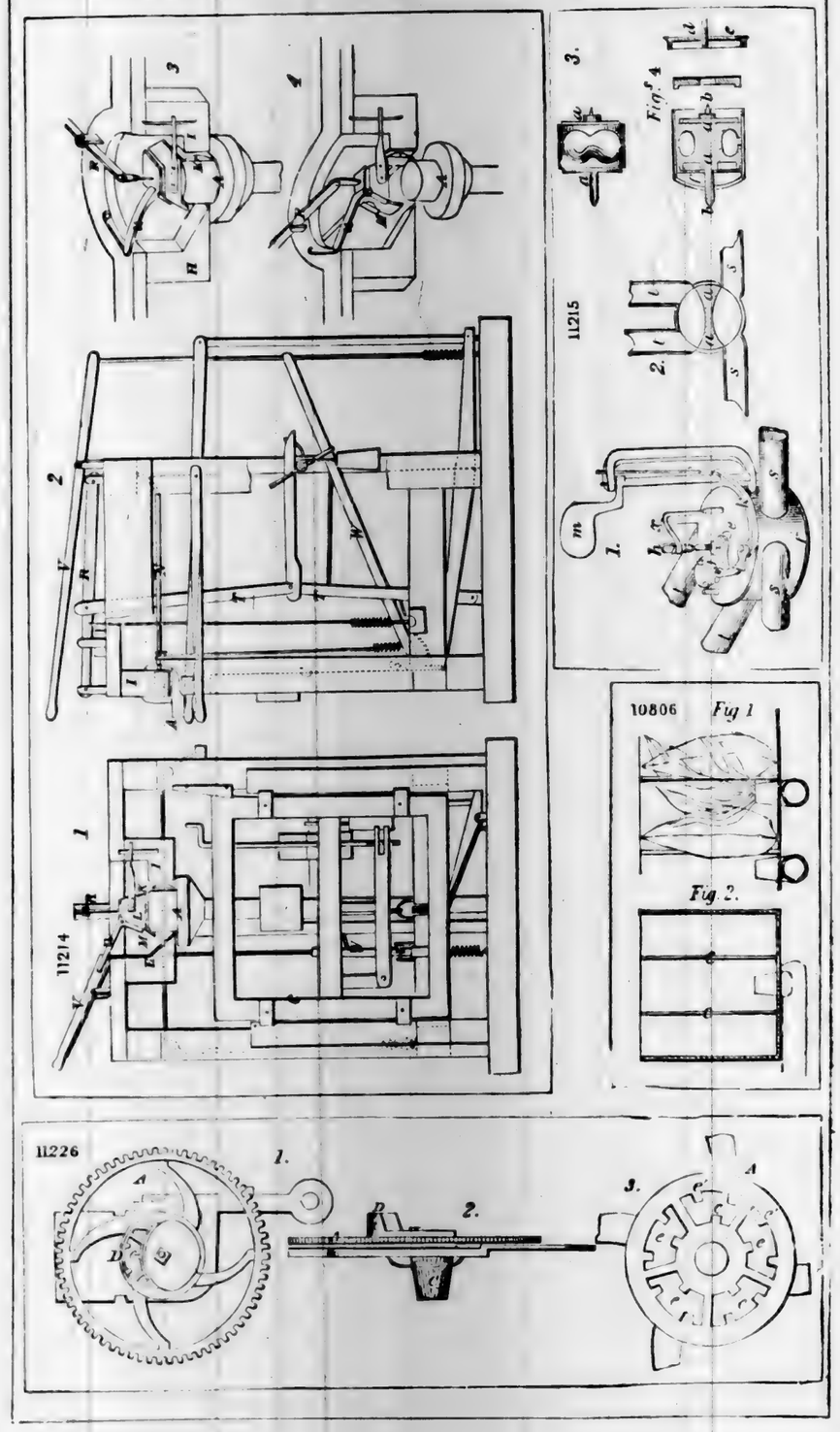
Fig. 2

Fig. 3.


Fig 2.
Fig 1.
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Fig 2
Fig 1.
11110
10006
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11116
Fig. 2.
Fig. 1.
Fig. 3.
Fig. 4.
11107


ATLAS
Fig 1.
Fig 2.
Fig 3.
11050
Fig. 1.
Fig. 2.
11056
8023
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11061
A
B
M
C
a
11011
Fig. 1.
Fig. 2.
Fig. 3.
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Fig 2.
Fig 1
Fig. 3.
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Fig 1
Fig. 2.
11226

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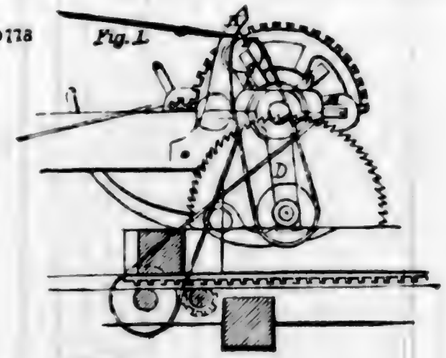


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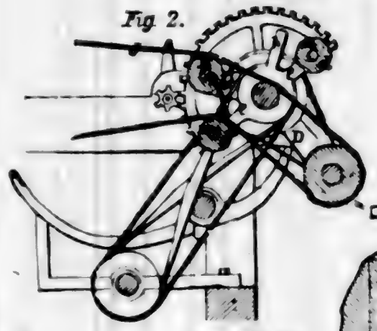


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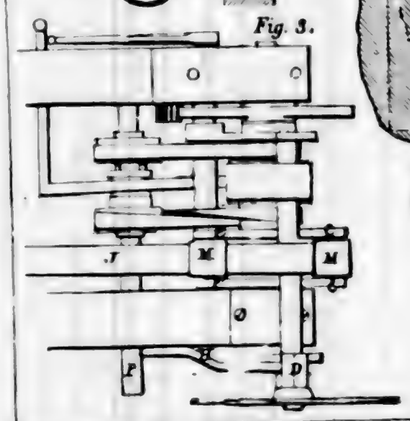
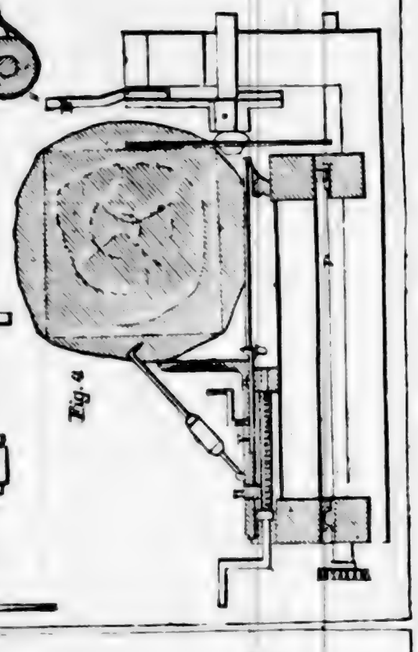
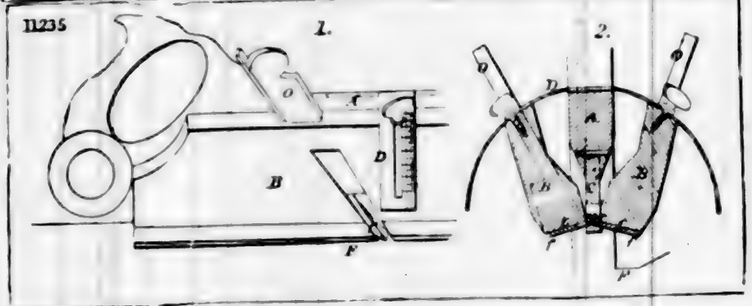


Fig. 4.



11235 1. 2.



10777 Fig. 1

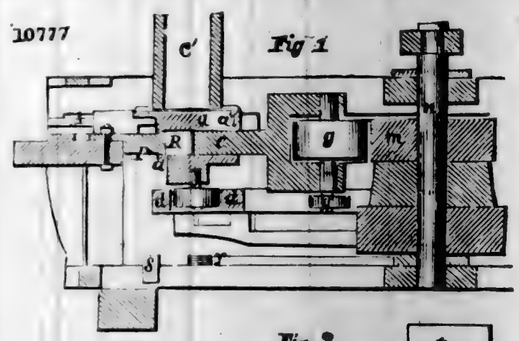


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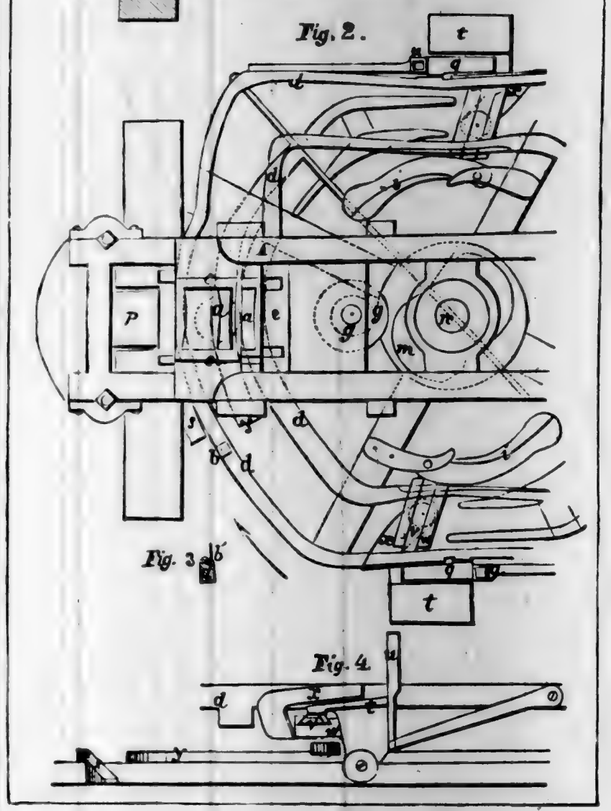
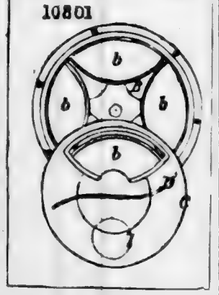


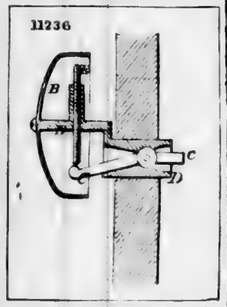
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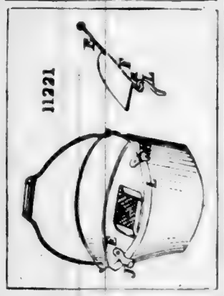
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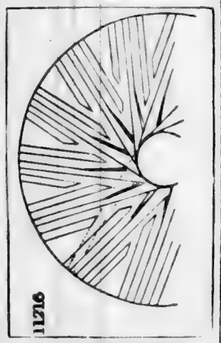
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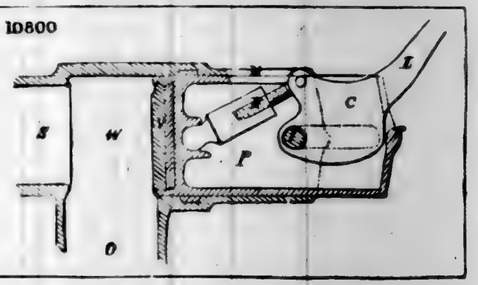
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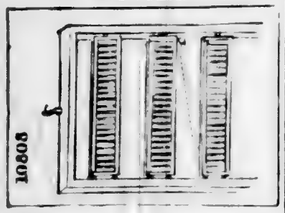
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Fig. 1

Fig 2

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Fig. 1

Fig. 2.

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Fig. 4.

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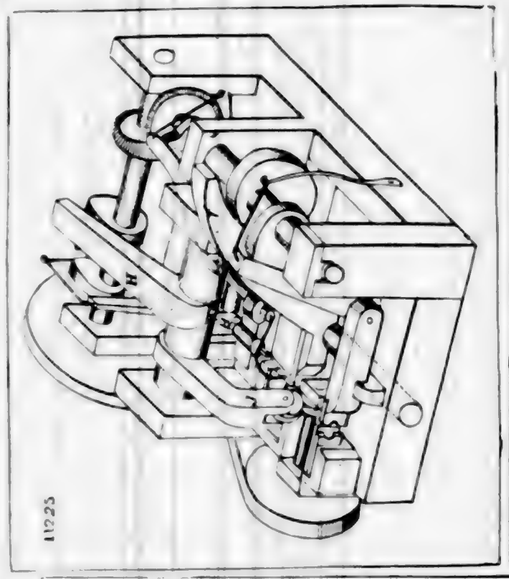
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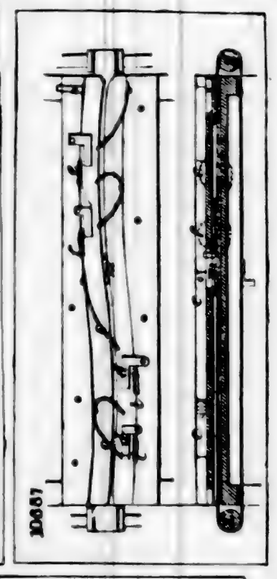
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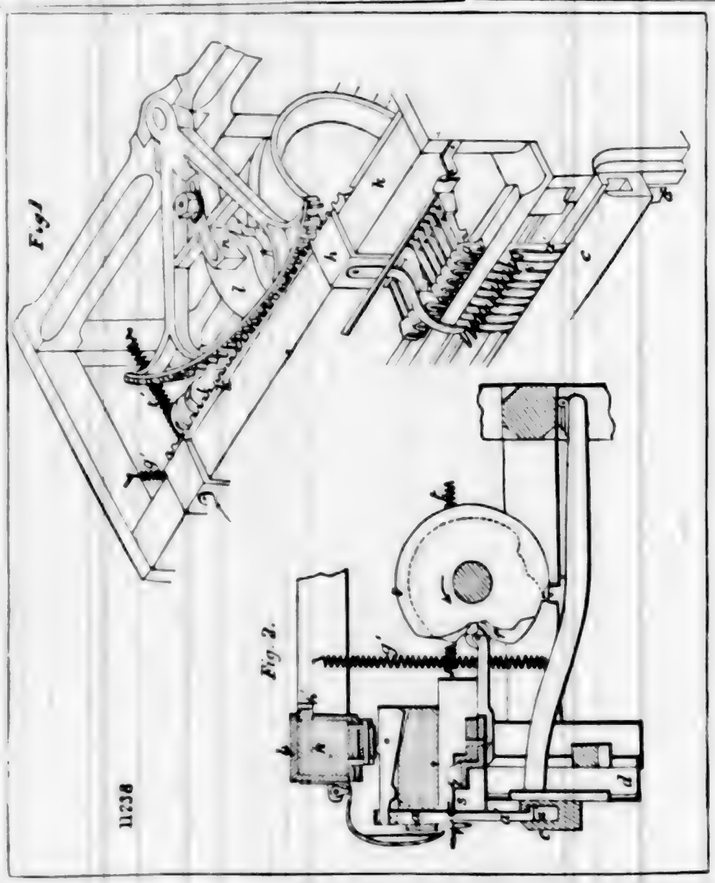
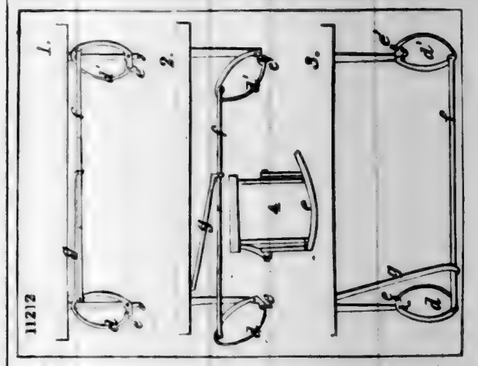
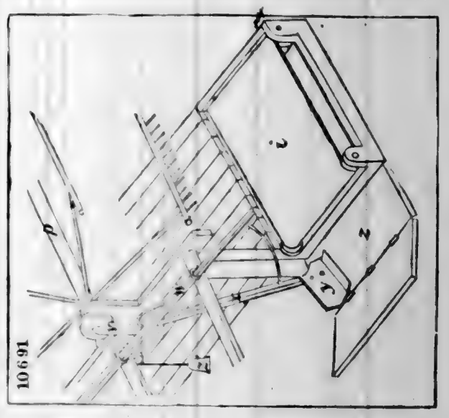
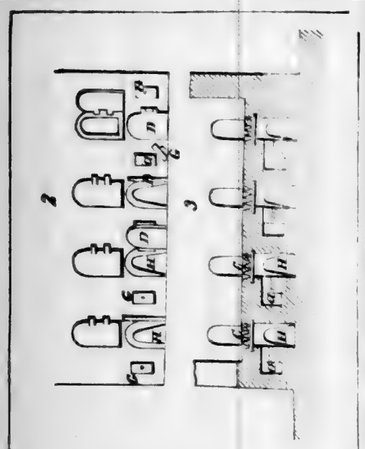

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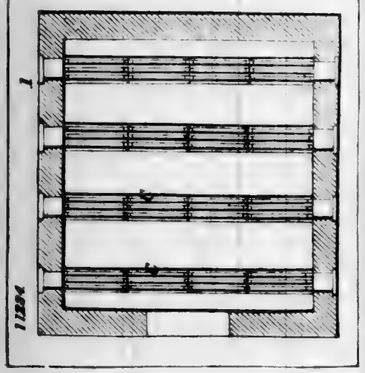
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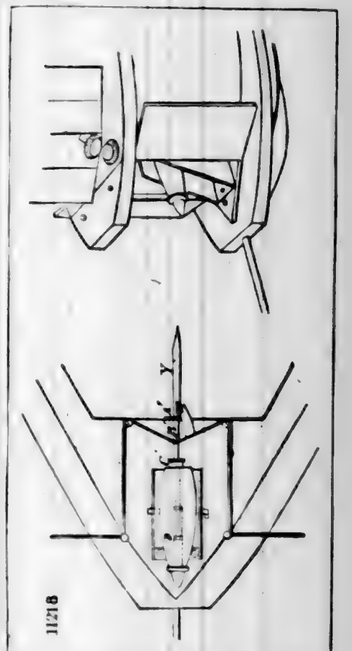
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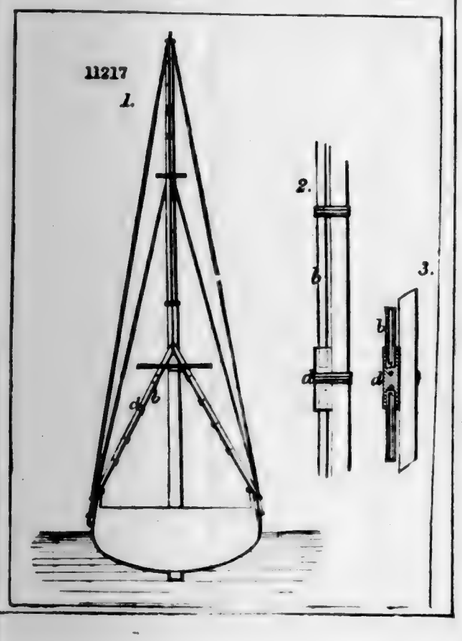

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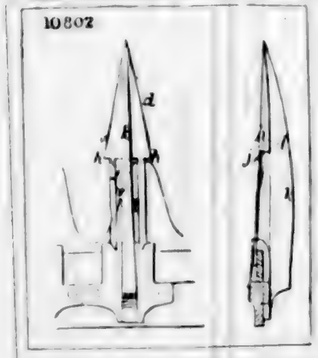



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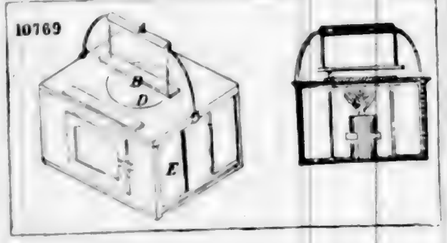

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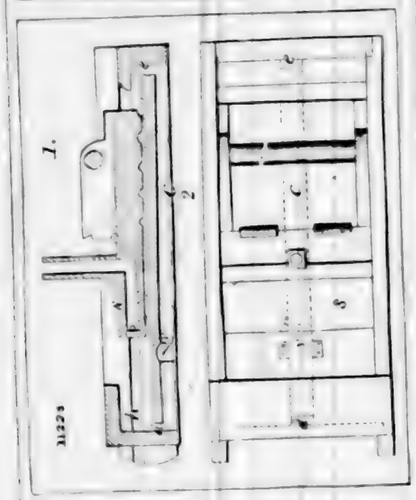


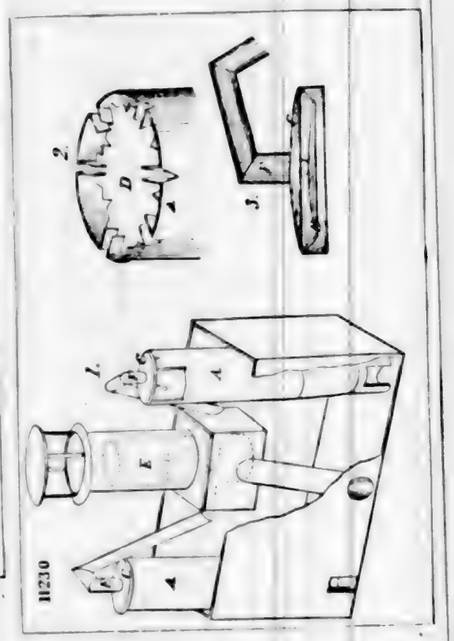
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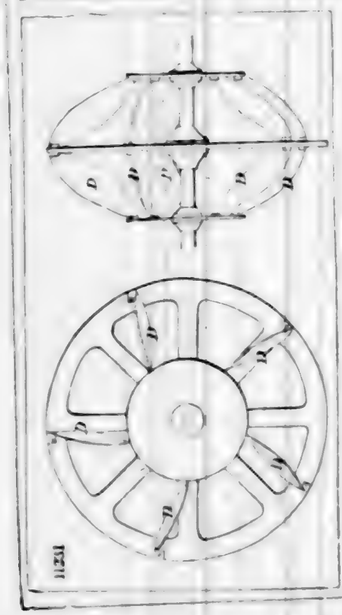


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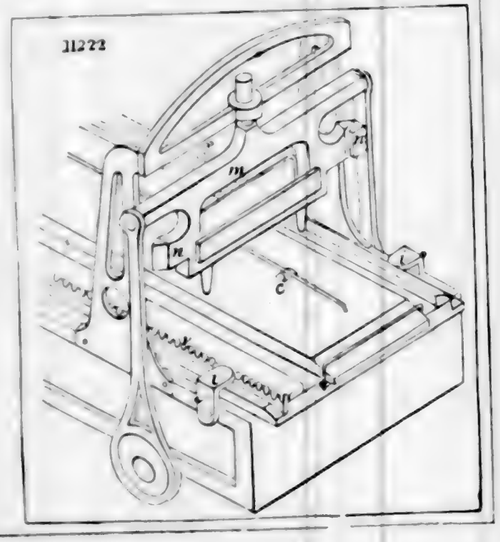


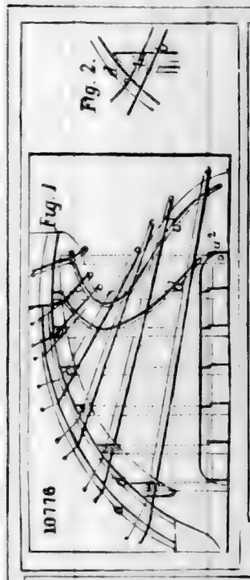




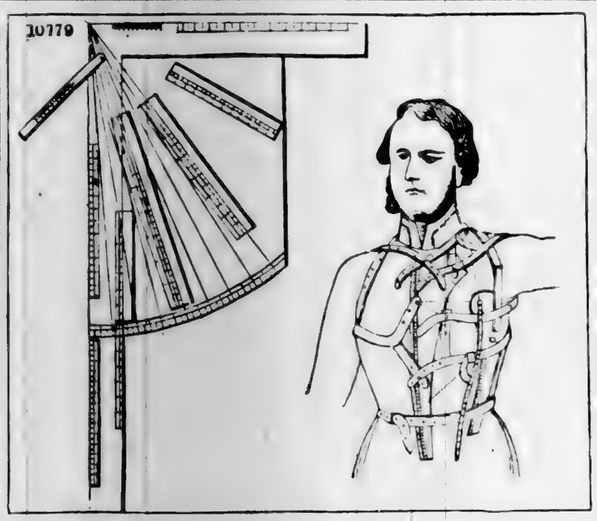


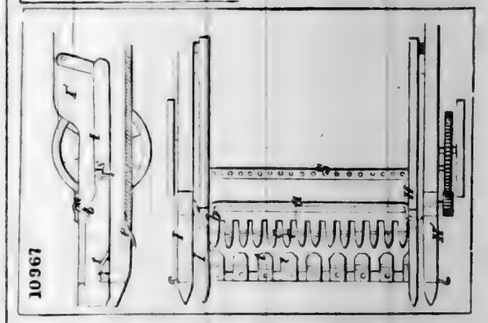
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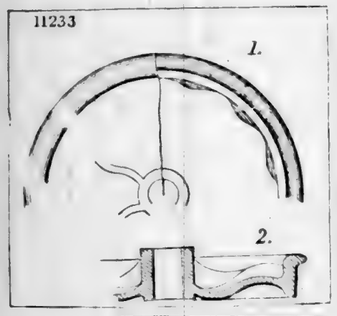


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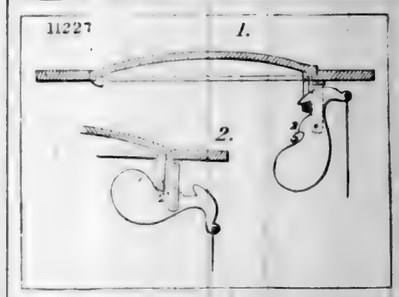




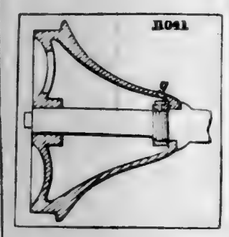
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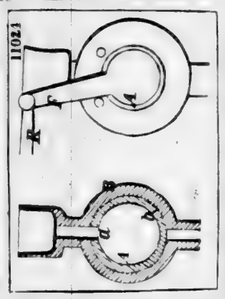
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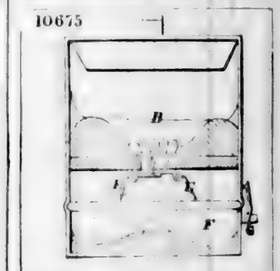
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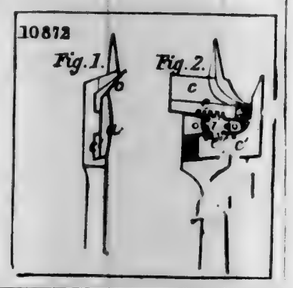
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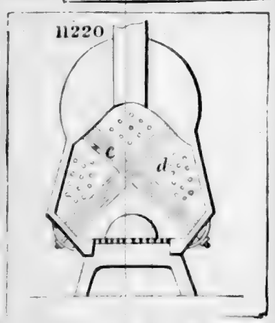
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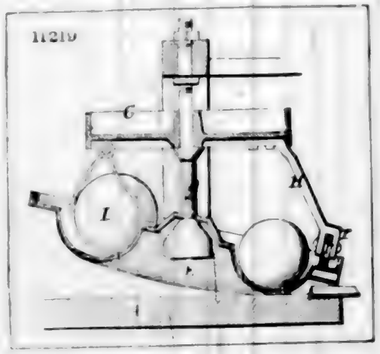
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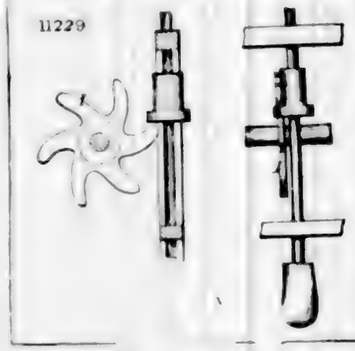
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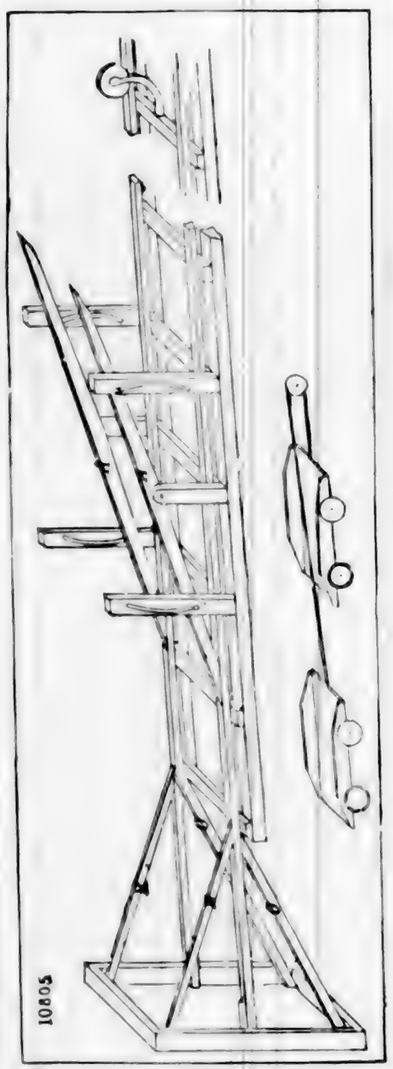
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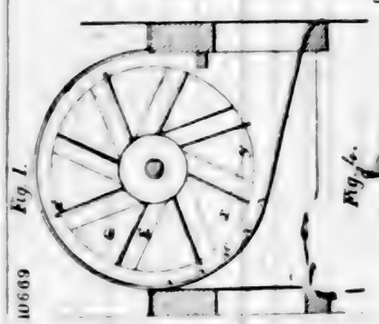


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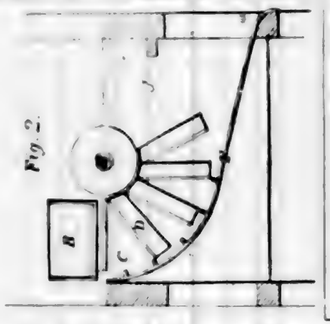


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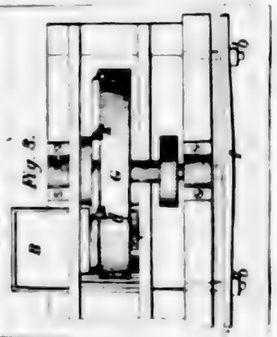


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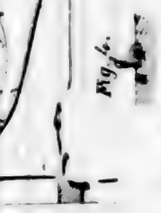


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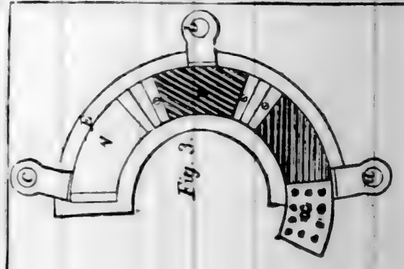


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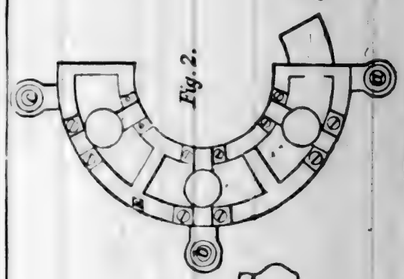


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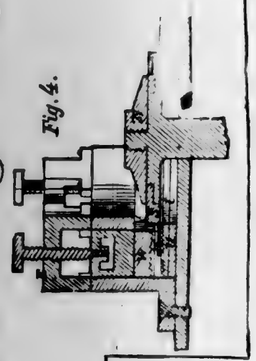
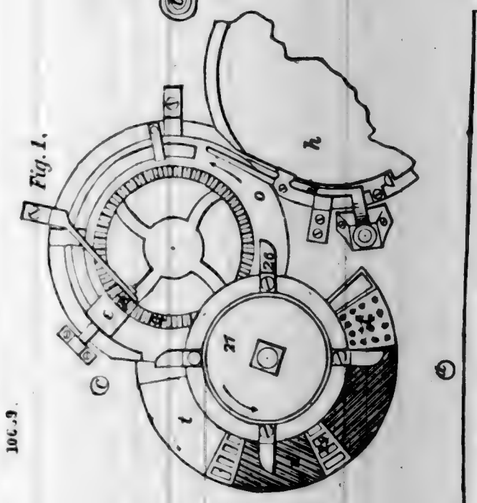


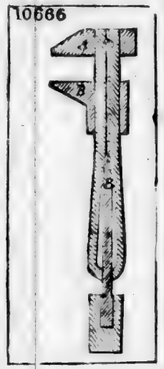
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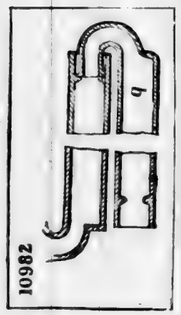
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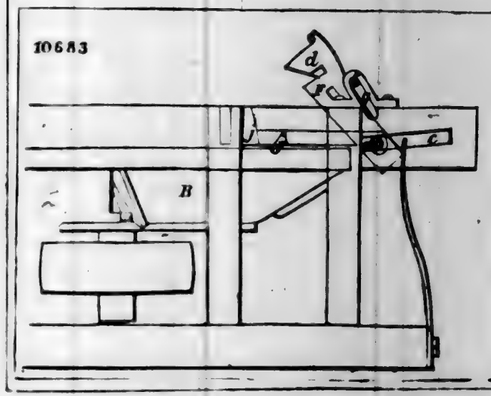
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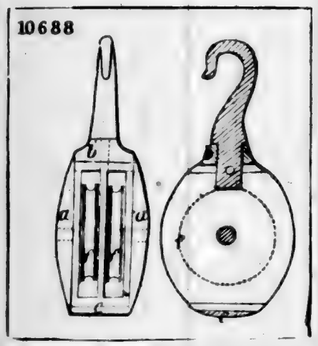
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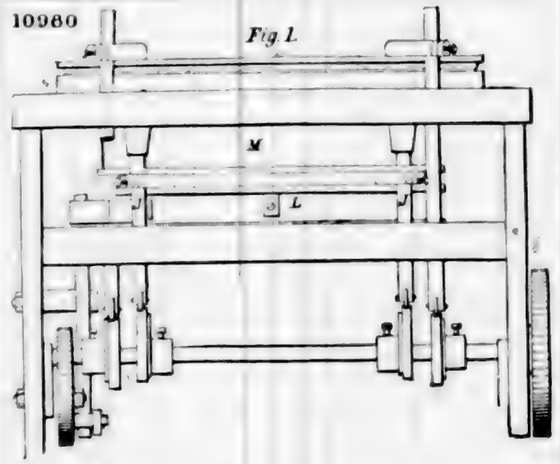


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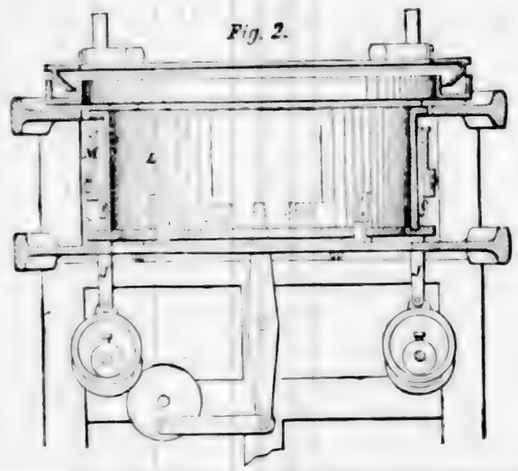
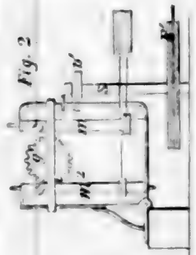


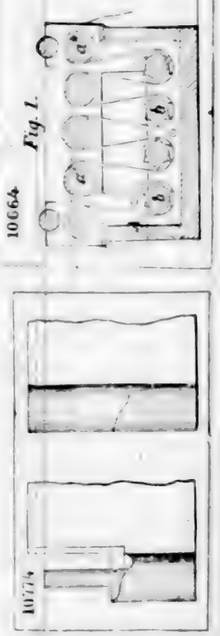
Fig. 3.



Fig. 2



10664 Fig. 1.



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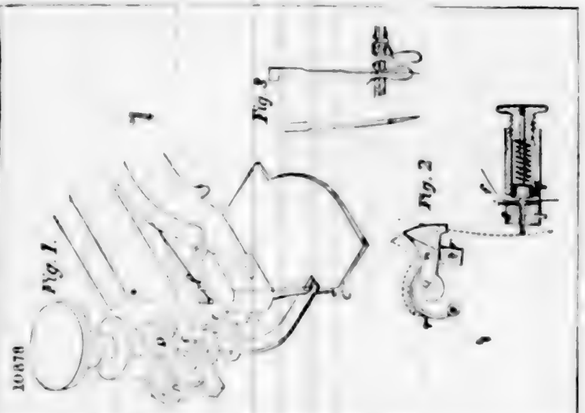
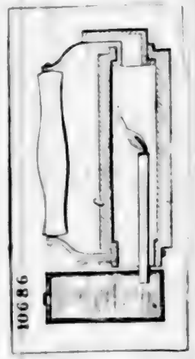


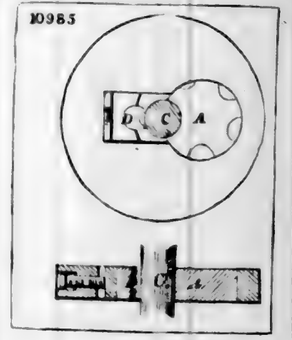
Fig. 3

Fig. 2

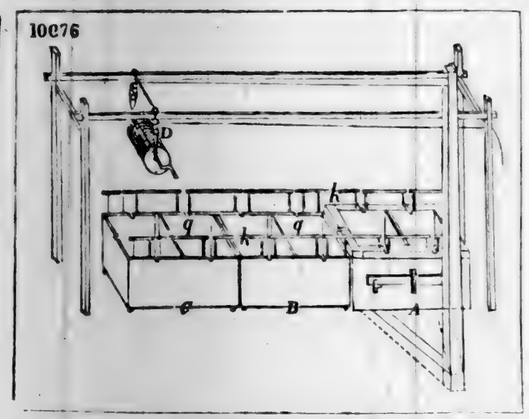
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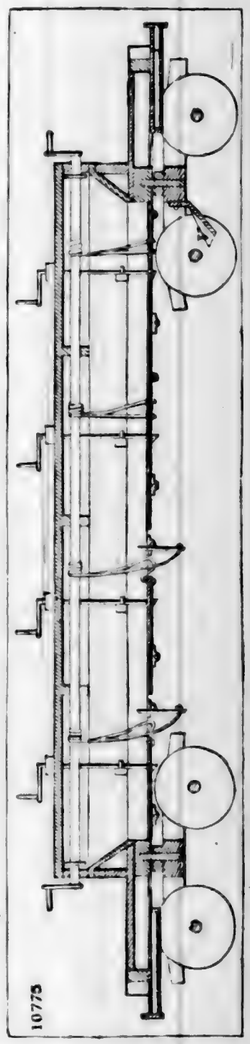


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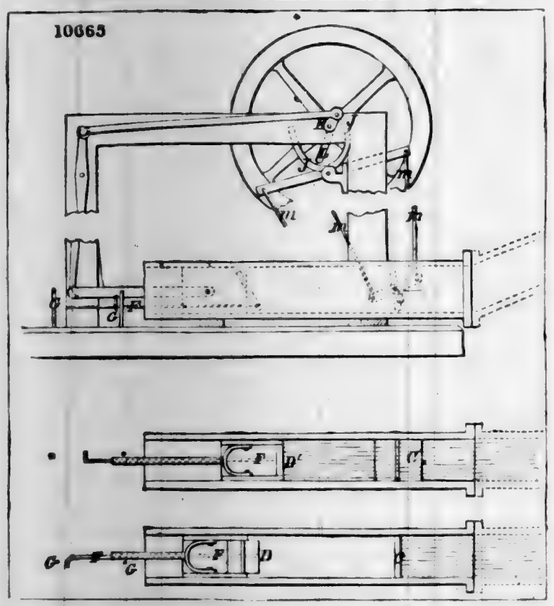


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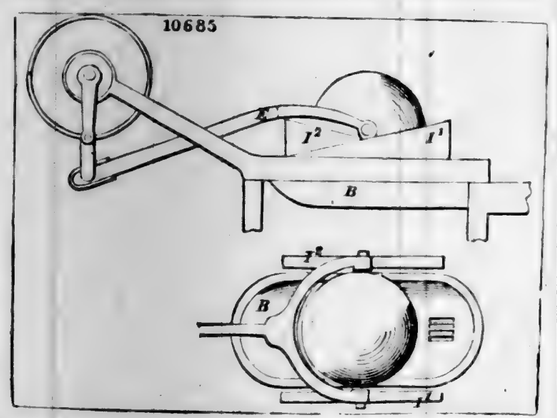




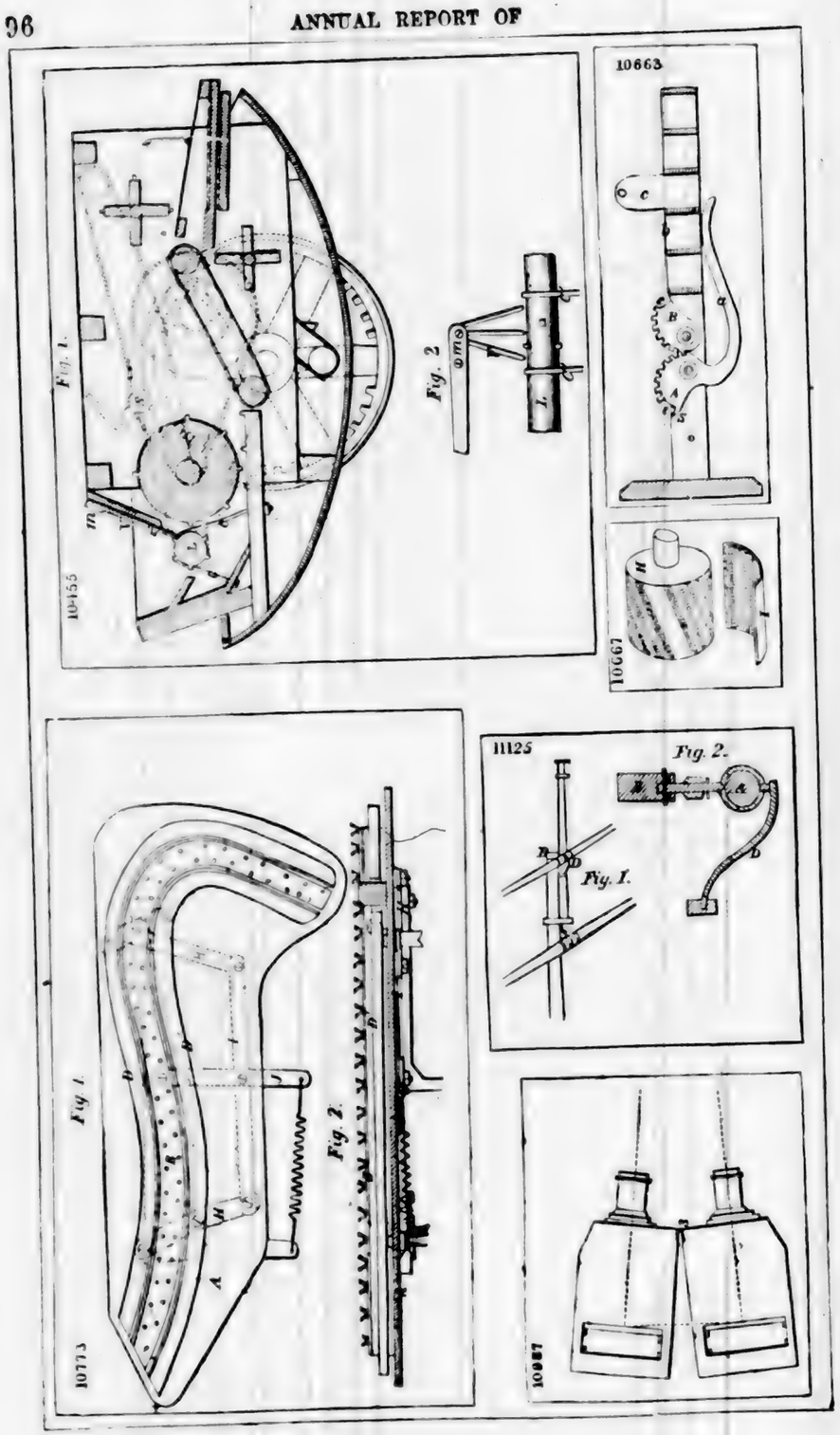
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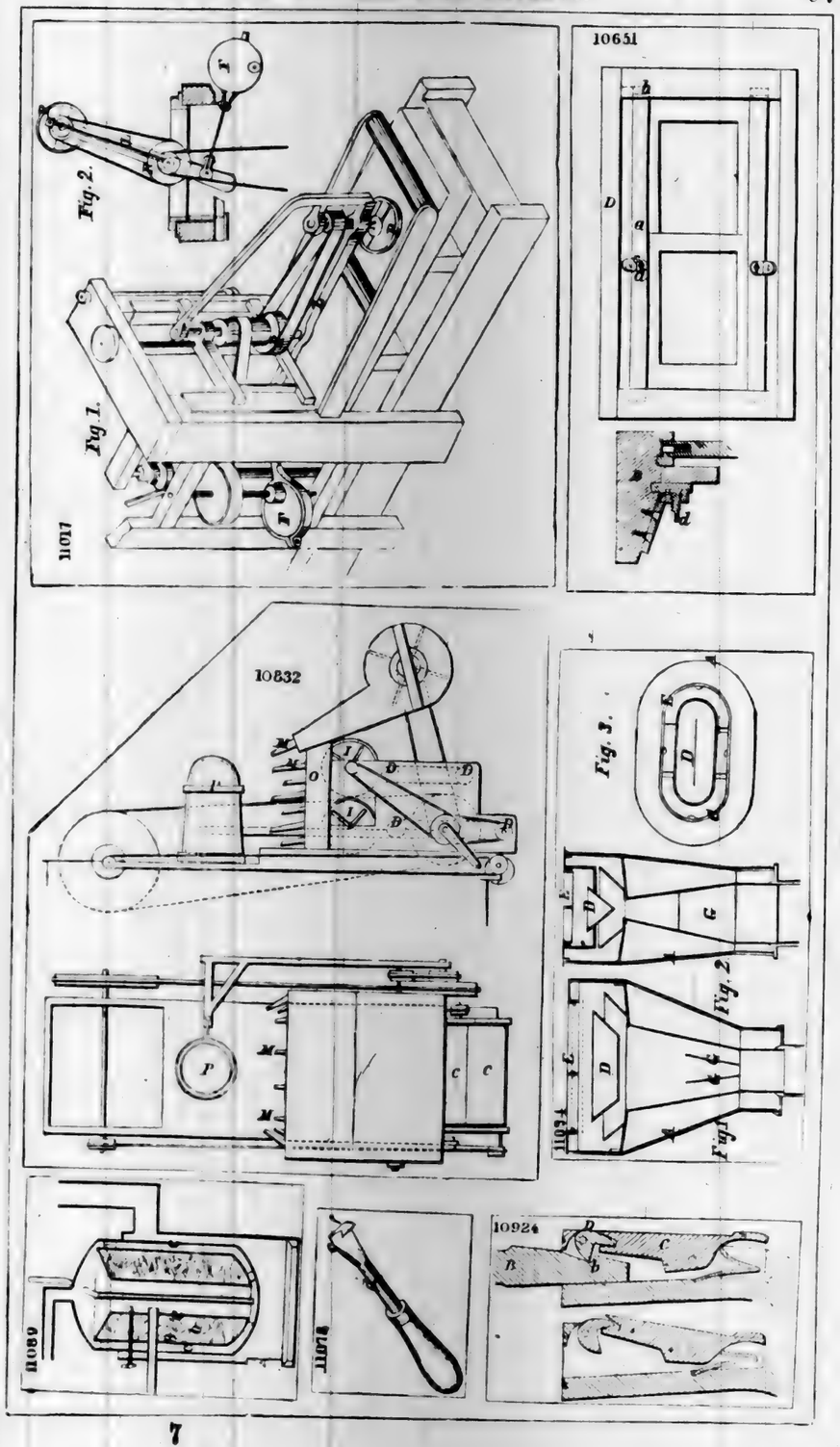


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Fig. 1.
Fig. 2
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Fig 1
Fig. 2.
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Fig. 2.
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Fig. 2.
Fig. 1.
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Fig. 3.
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Fig. 1

Fig. 3.

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Fig. 1.

Fig. 2.

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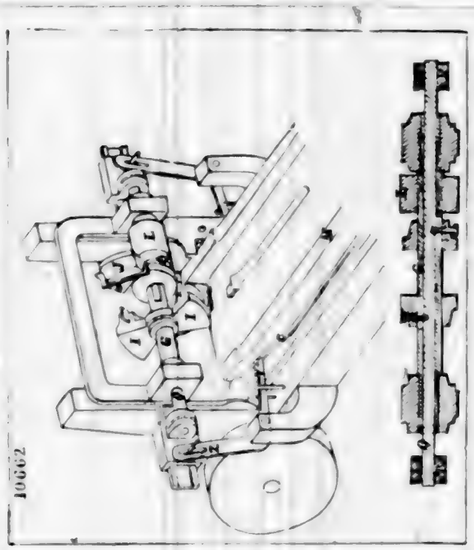
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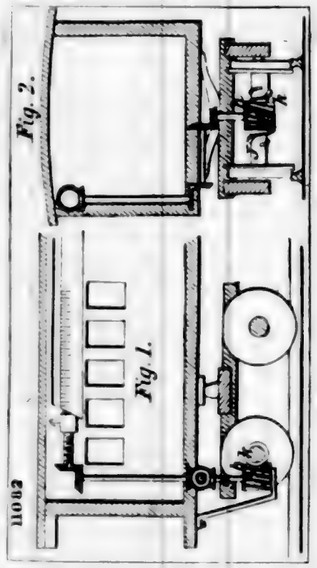
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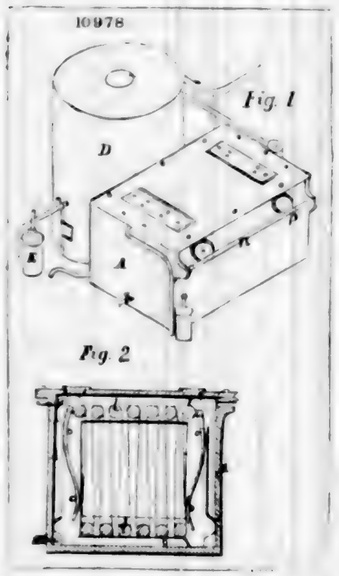
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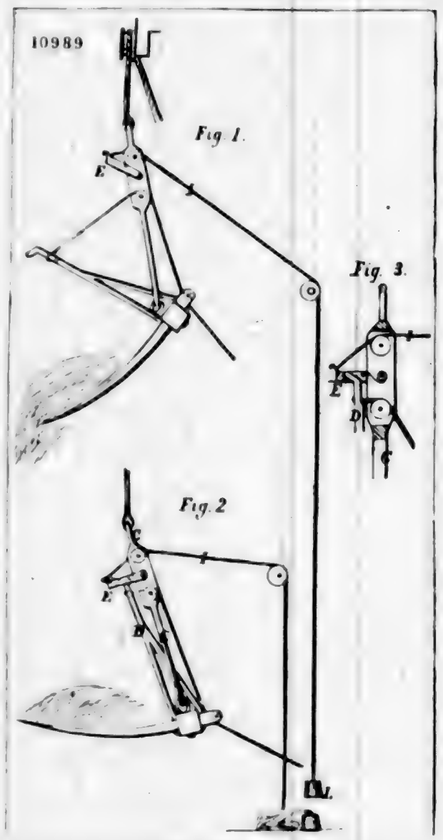
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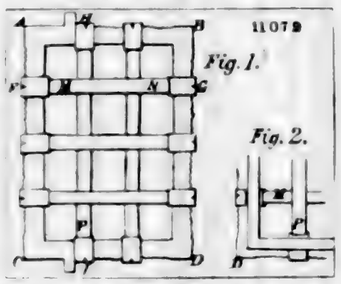
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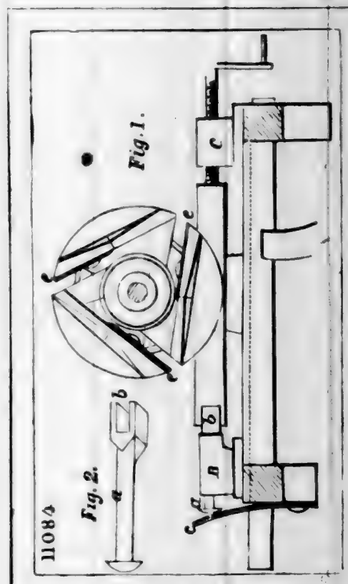

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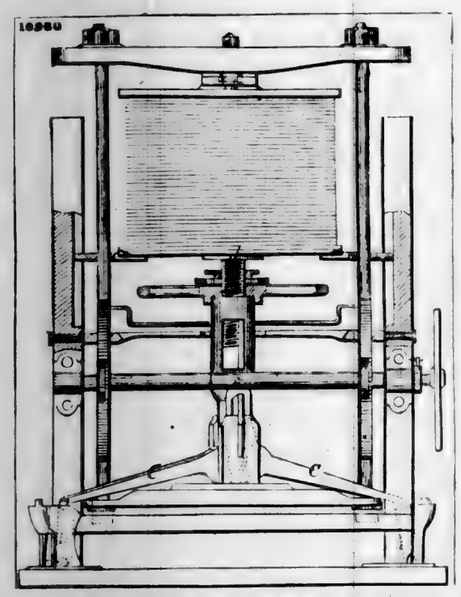

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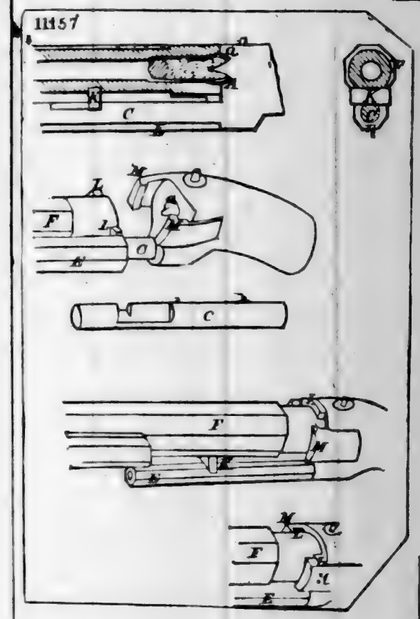

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Fig. 1
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Fig. 2

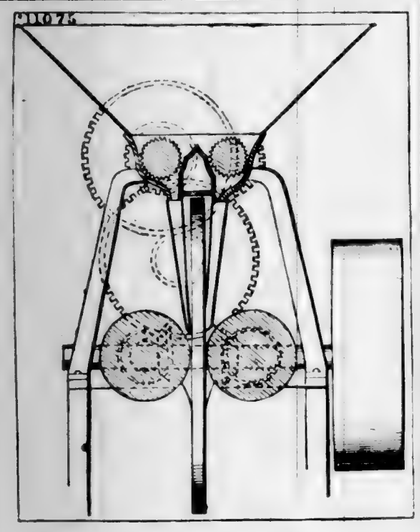

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Fig. 3.
Fig. 2

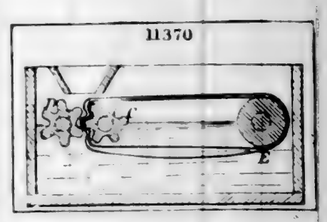

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Fig. 1.
Fig. 2.

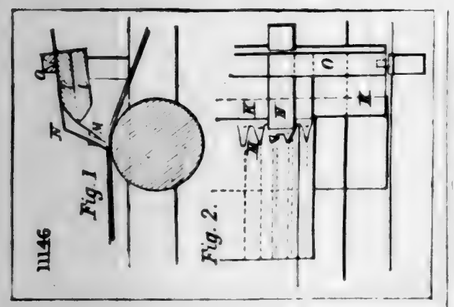

Fig. 1.
Fig. 2.
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Fig. 1
Fig. 2.

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Fig. 1.

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Fig. 3

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Fig. 1.

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Fig. 1.

Fig. 2.

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Fig. 1.

Fig. 2.

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Fig. 2

Fig. 1.

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Fig. 2. Fig. 3.

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Fig. 2.

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Fig. 2.

Fig. 2.

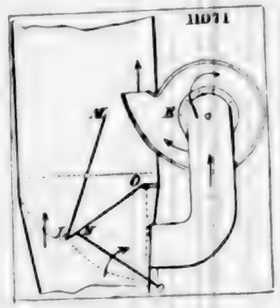
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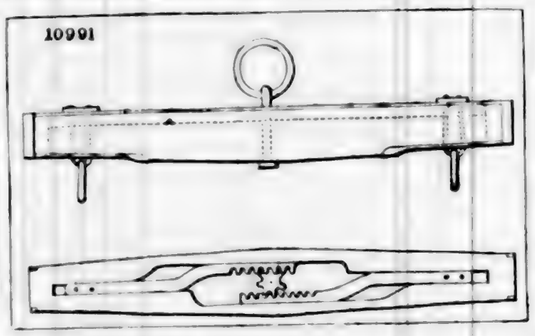
Fig. 3.

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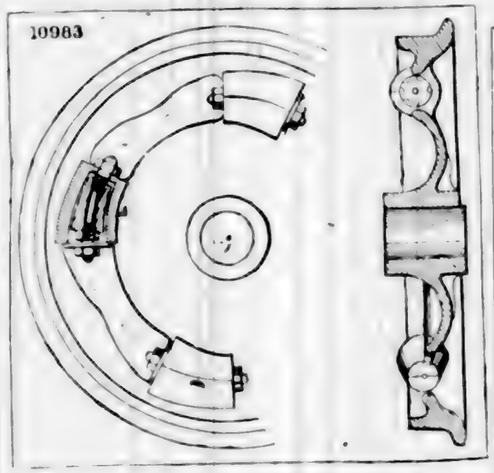


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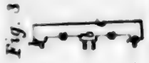


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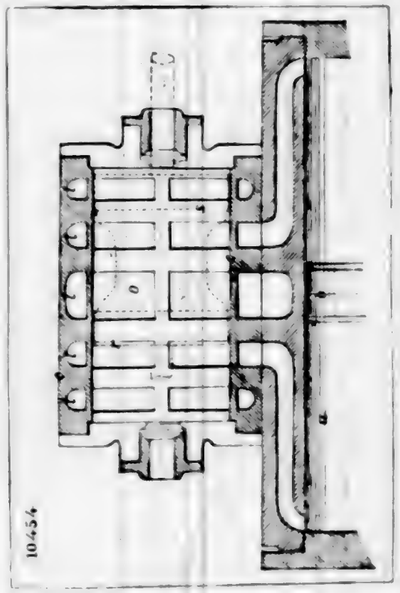


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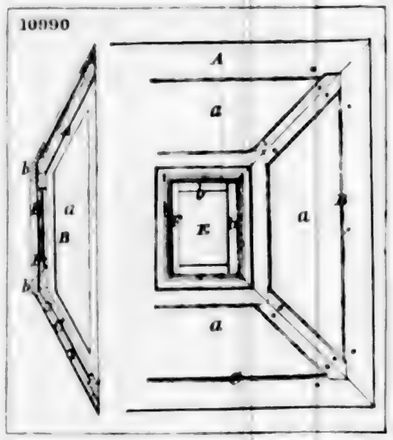


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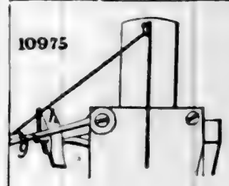
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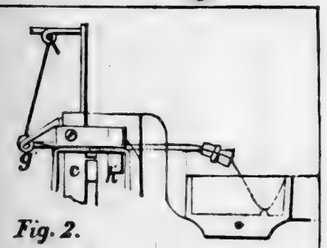
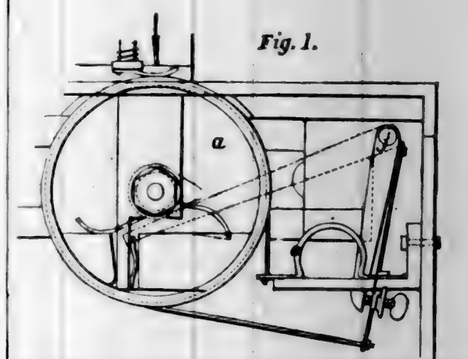
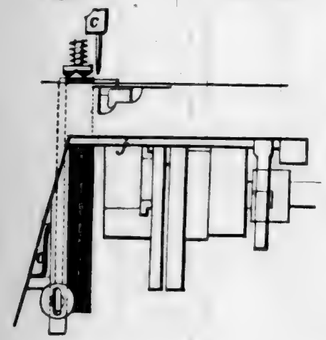


Fig. 2.

Fig. 1.





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Fig. 1.

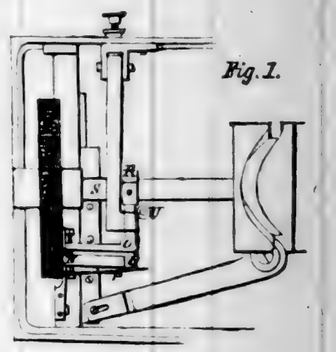


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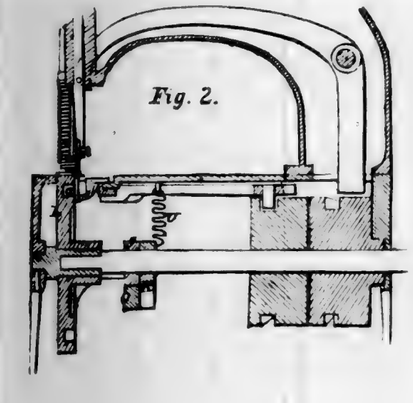


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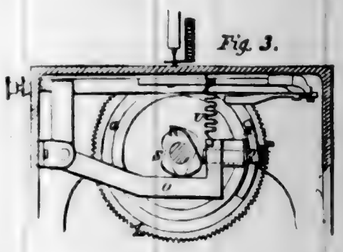


Fig. 4.



Fig. 5.

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Fig. 2.

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Fig 1

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Fig. 1.

Fig. 2.

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Fig. 2.

Fig. 3.

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11026 Fig. 1. Fig. 2. Fig. 3.

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11049 Fig. 1.

Fig. 2.

Fig. 3

Fig. 4.

Fig 5

Fig. 6.

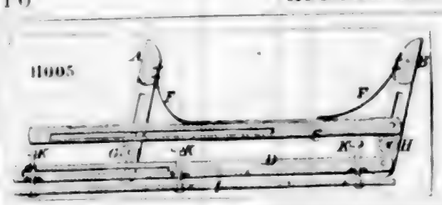
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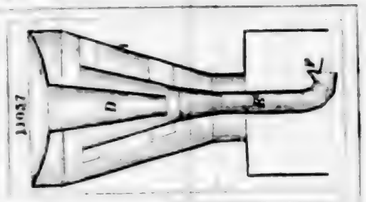
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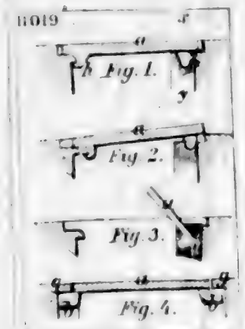
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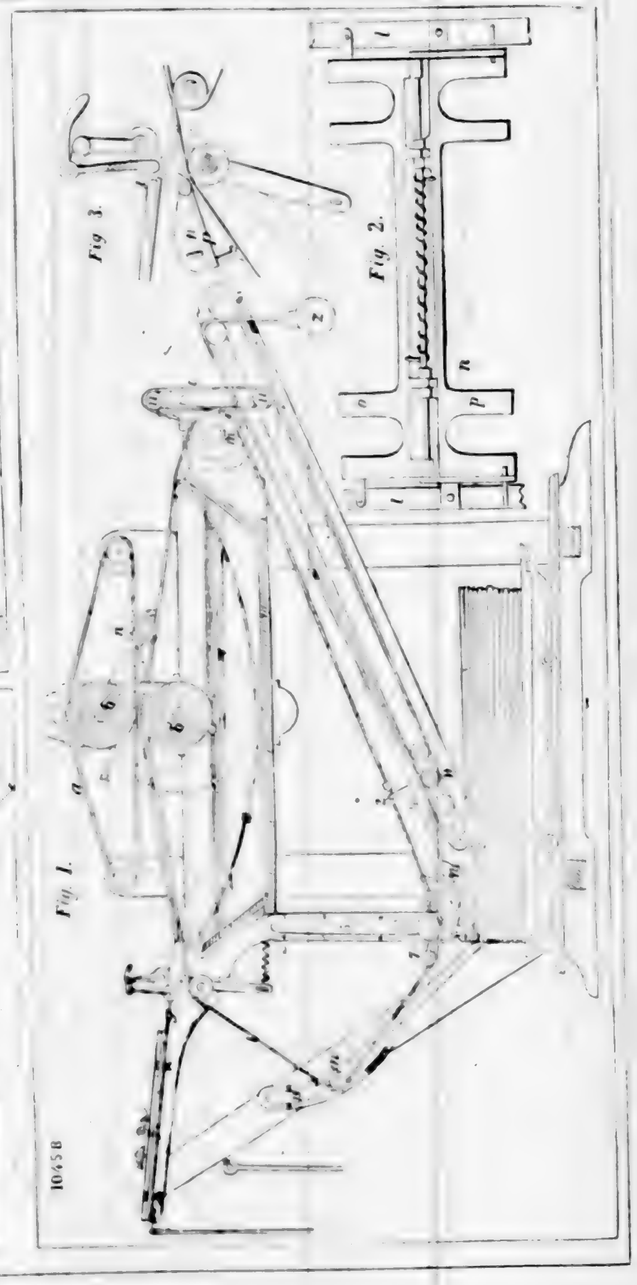
Fig 11


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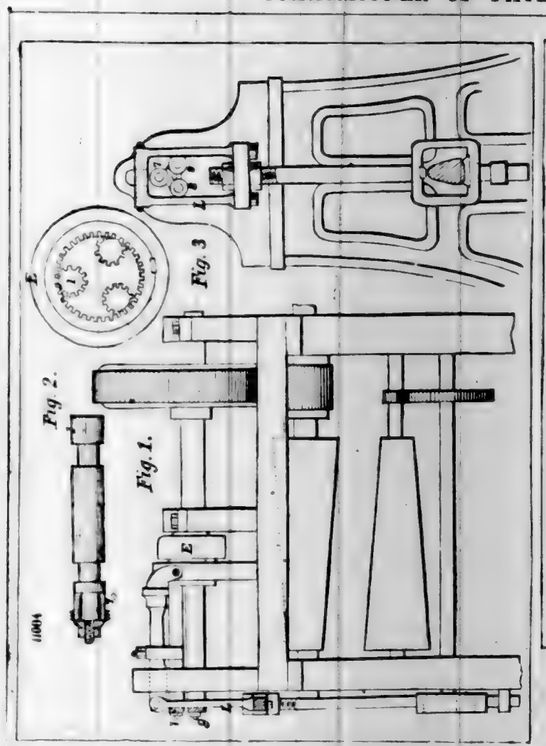

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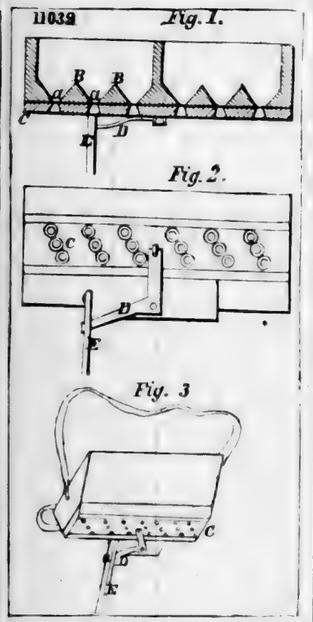

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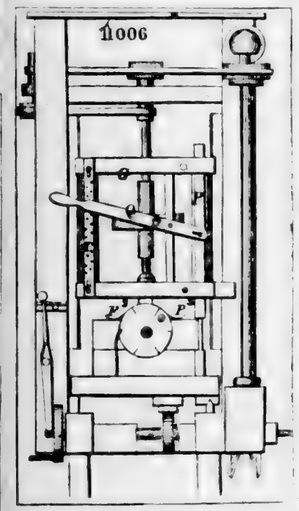

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Fig. 2.
Fig. 3.
Fig. 4.

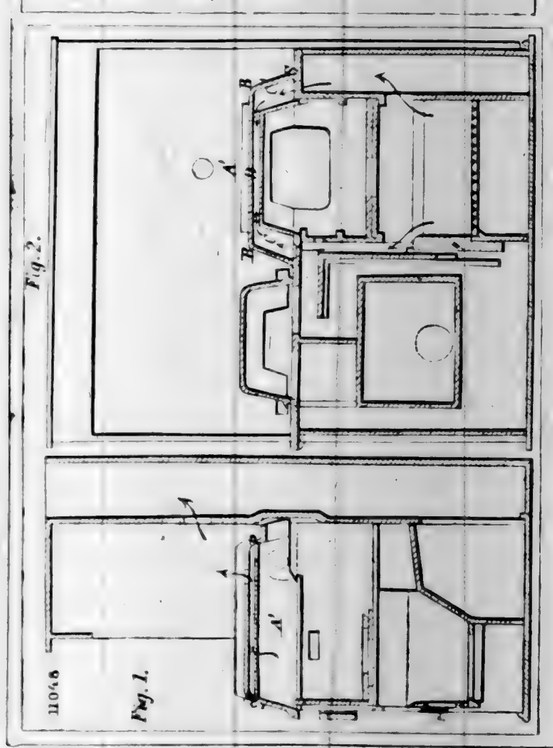

Fig. 3.
Fig. 2.
Fig. 1.
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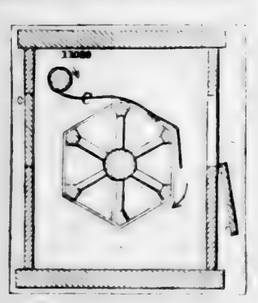

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Fig. 3
Fig. 2.
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Fig. 1.
Fig. 2.
Fig. 3


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Fig. 2.
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Fig. 1.

Fig. 2.

Fig. 3.

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Fig. 2.

Fig. 1.

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Fig. 1.

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Fig. 1.

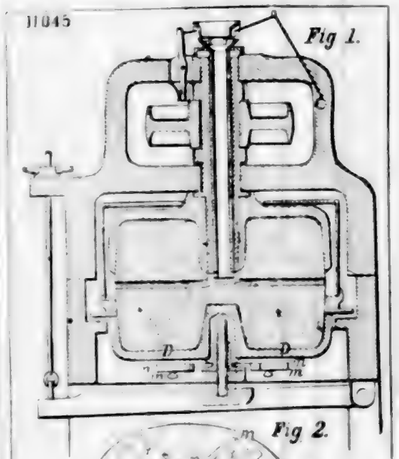
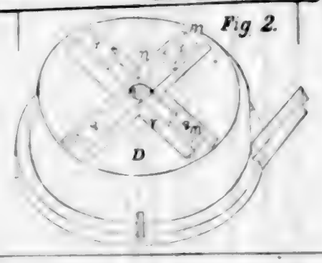


Fig. 2.



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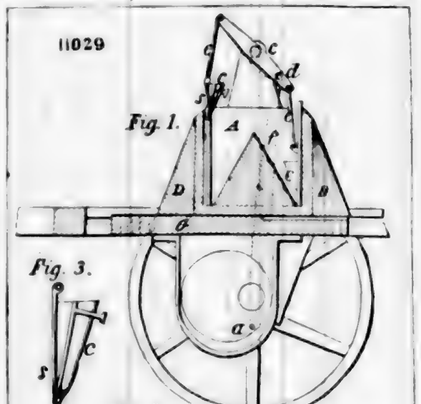
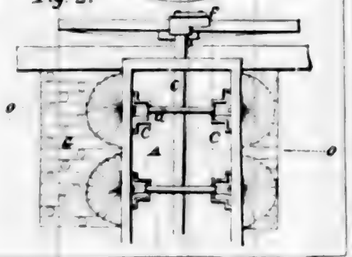


Fig. 3.



Fig. 2.



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Fig. 3.

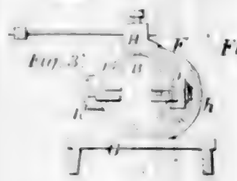


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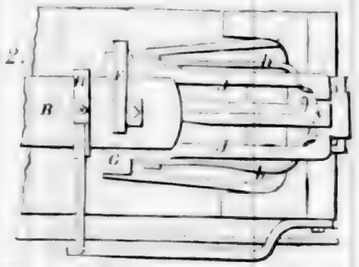
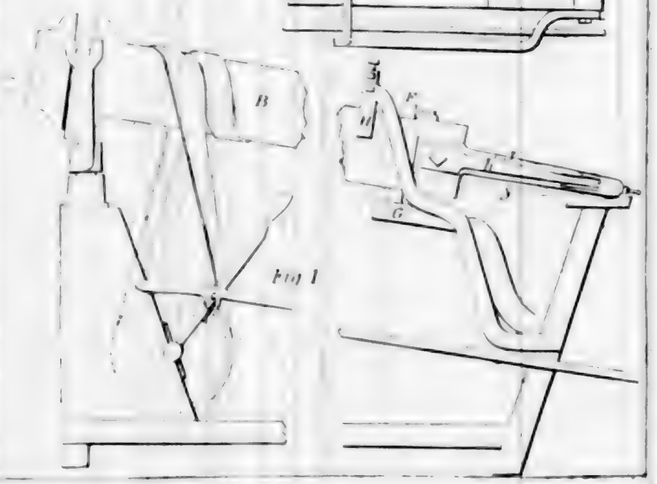
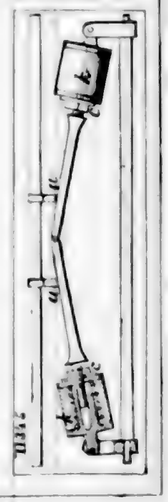


Fig 1







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Fig. 1.

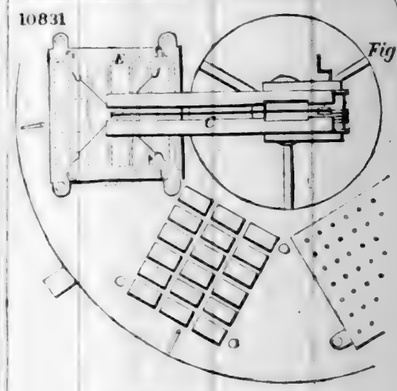


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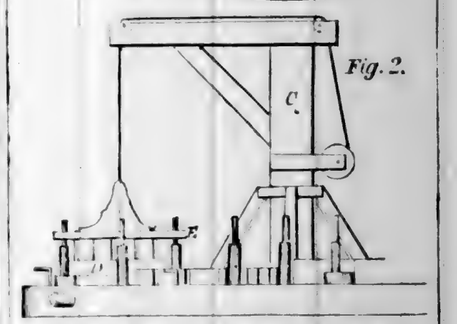


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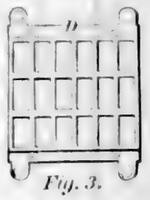


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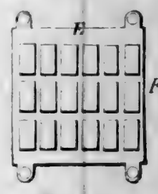
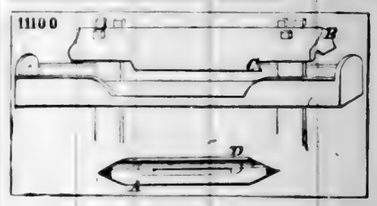


Fig. 5.



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Fig. 1.

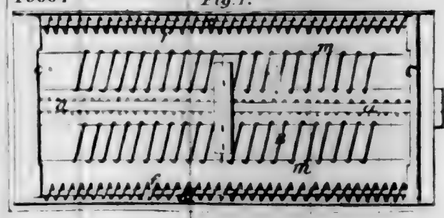


Fig. 2.



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Fig. 3.

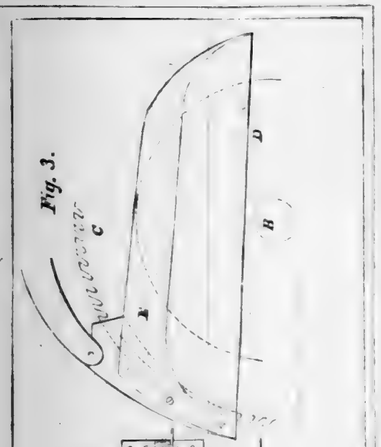
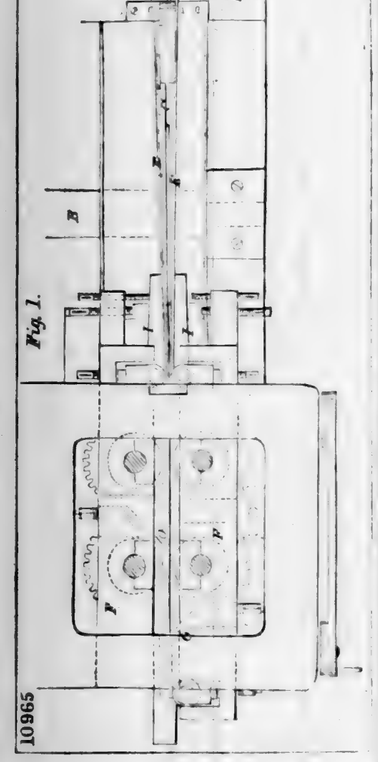
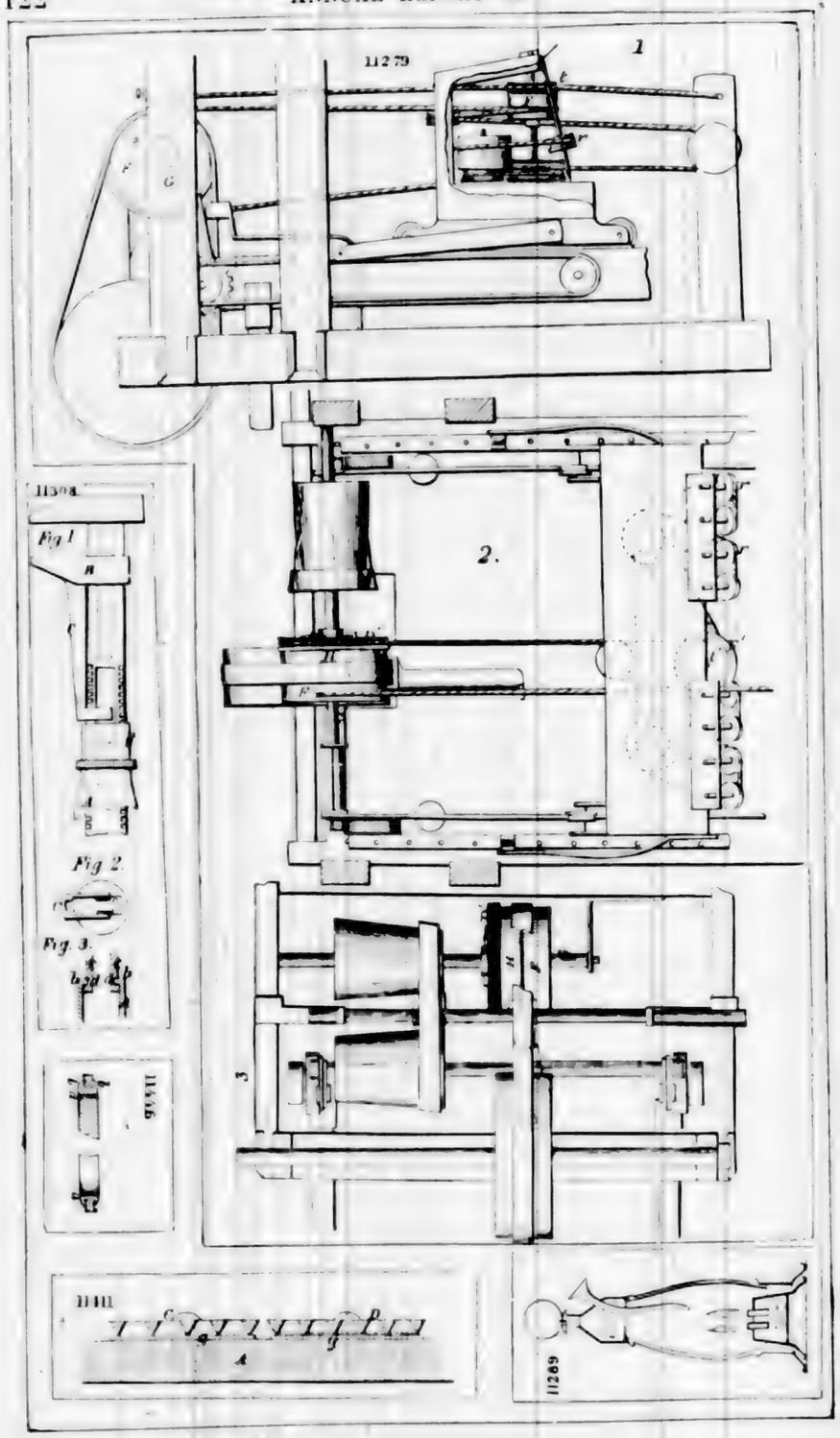
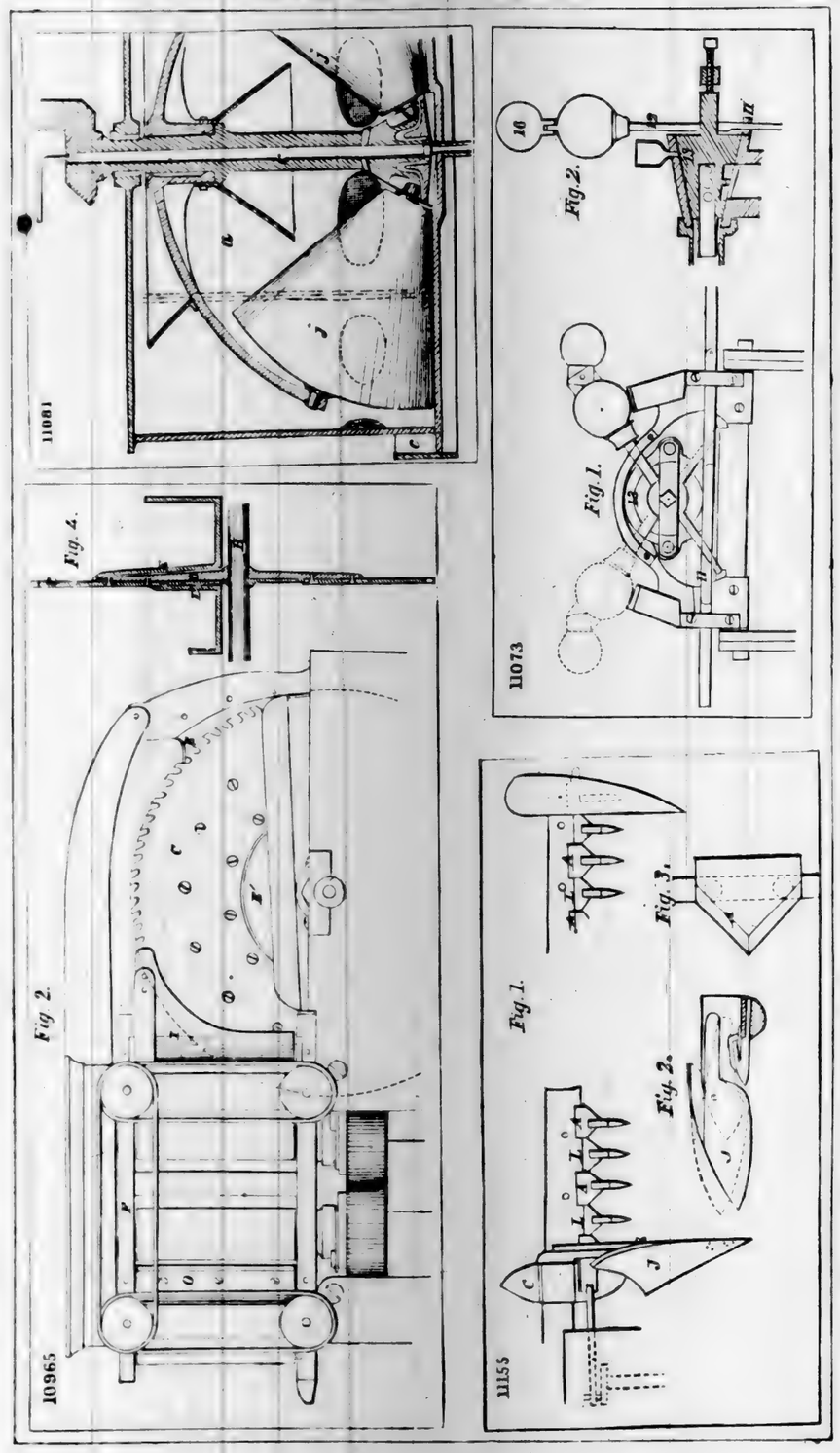


Fig. 1.




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Fig 1
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Fig. 2.
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Fig. 4.
Fig 2.
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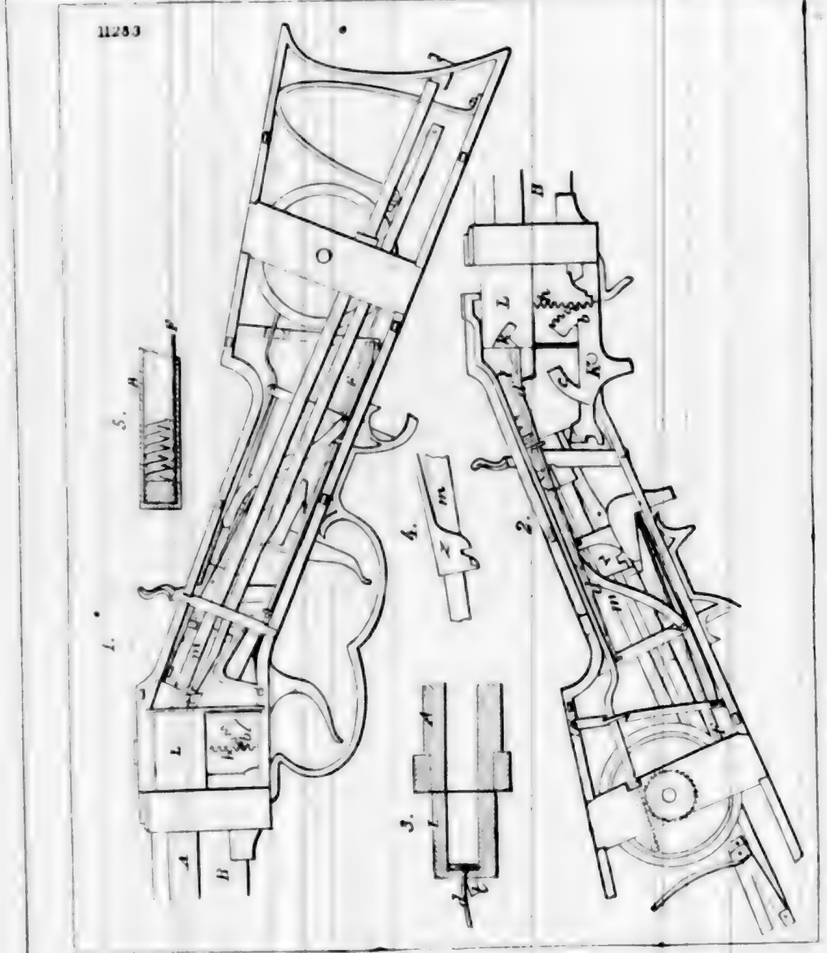
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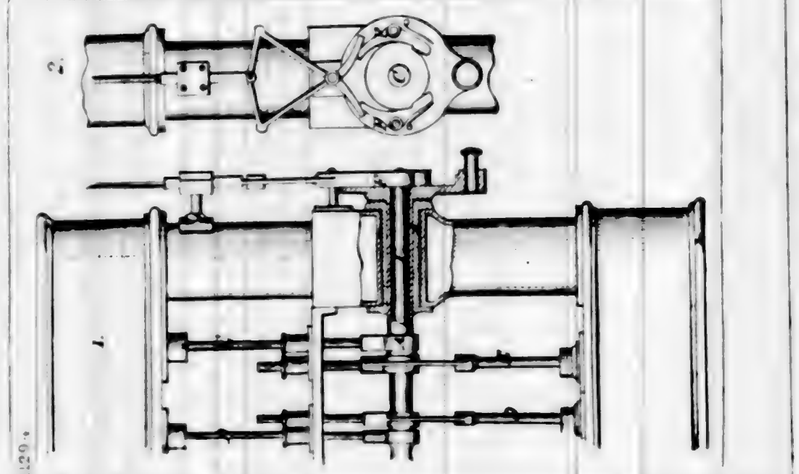
11077 Fig. 1.

Fig. 2

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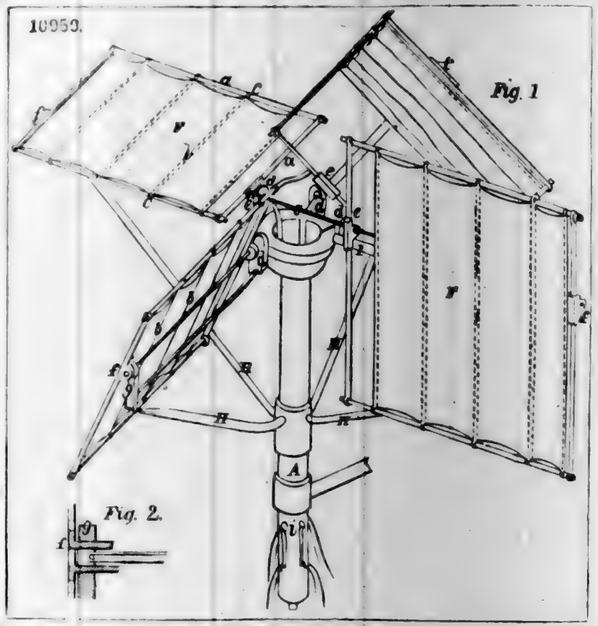
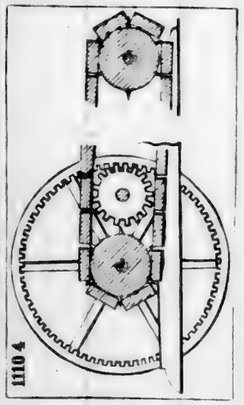


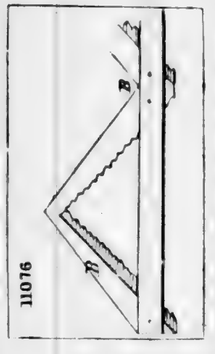
Fig. 1

Fig. 2.

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Fig. 1.

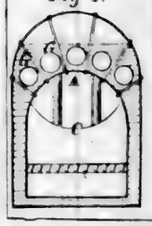


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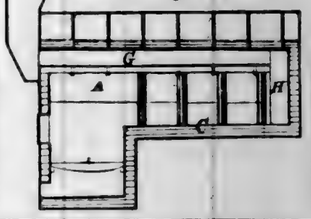


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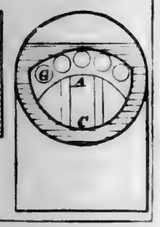
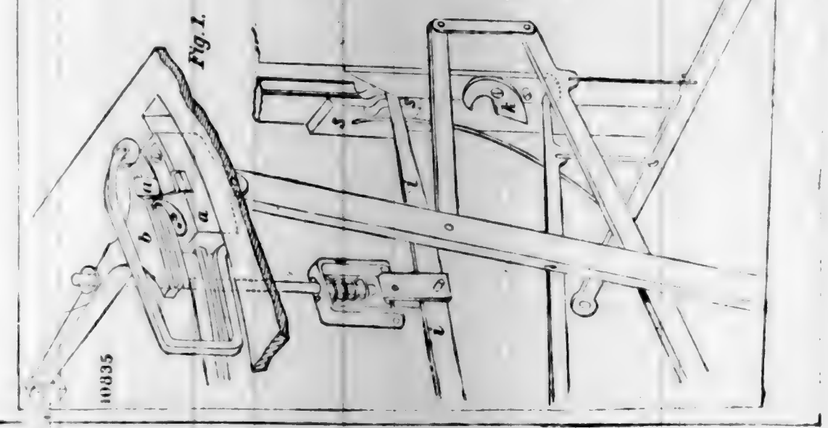


Fig. 2.



Fig. 1.



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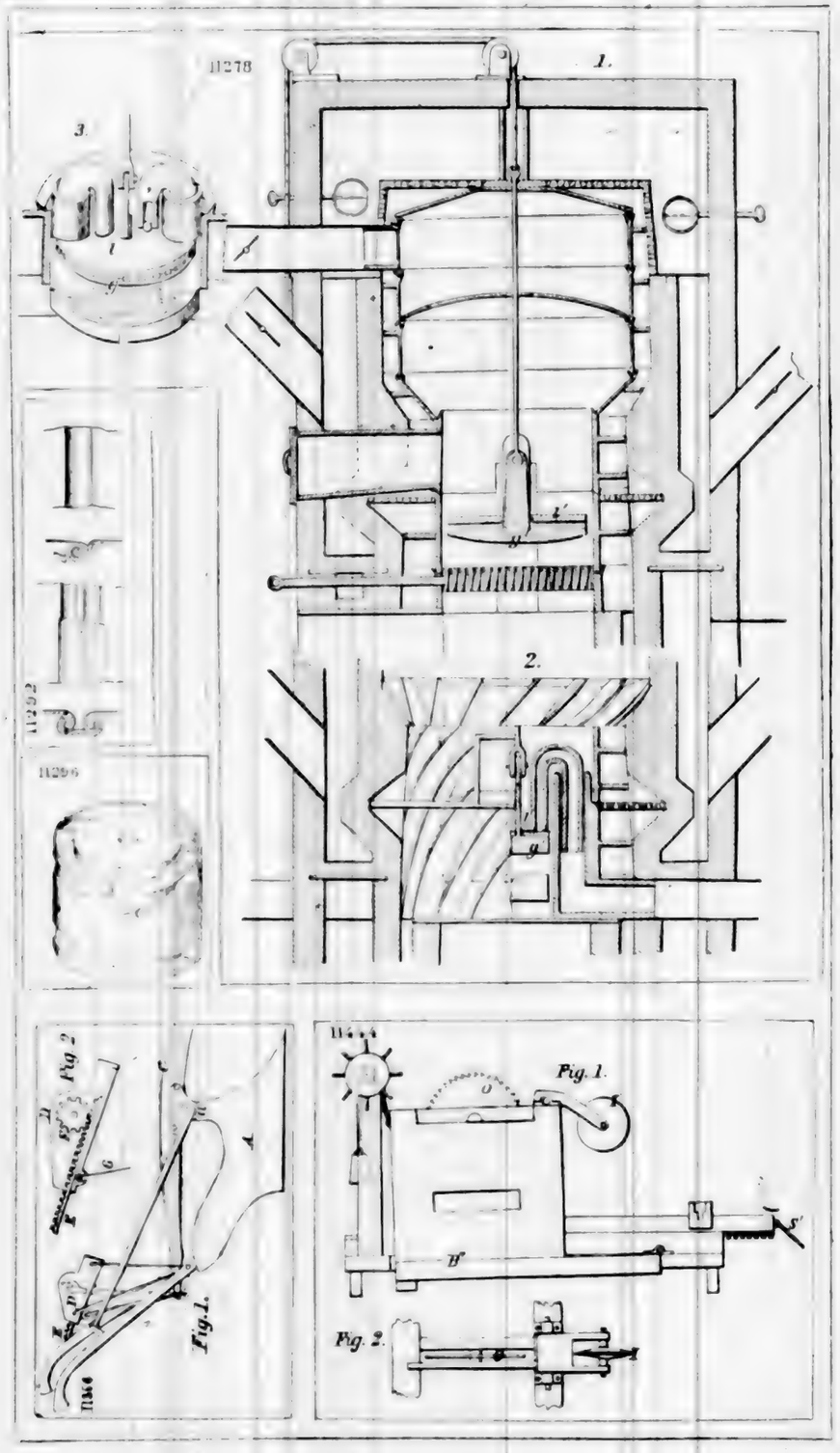
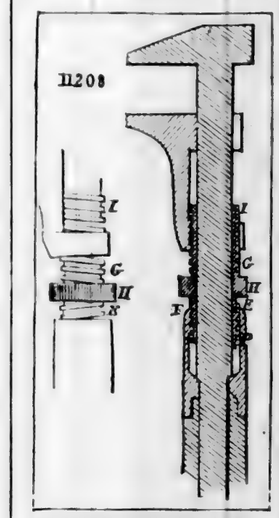
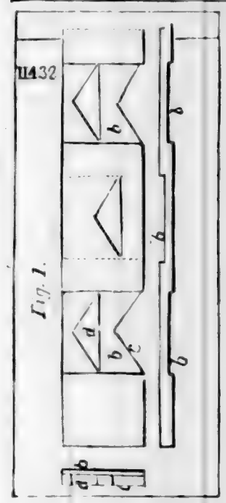
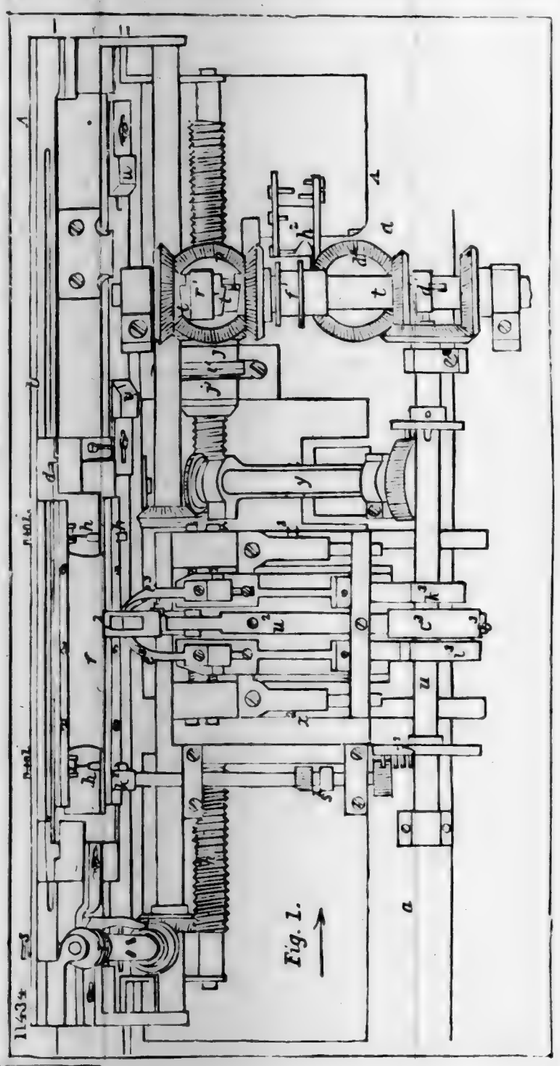

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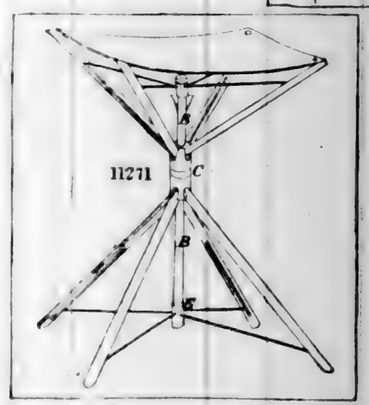
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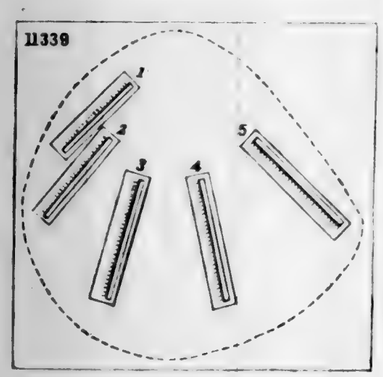
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Fig. 2.


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Fig. 1.


Fig. 1.
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Fig. 4.

Fig. 8.

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Fig. 5.

Fig. 6.

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Fig. 1.

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11440 Fig. 1.

Fig. 2.

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Fig. 3.

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Fig 1.

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Fig 2.

Fig 1.

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Fig 3

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Fig 2.

Fig 3.

Fig 1.

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Fig 1

Fig 2.

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Fig. 1.

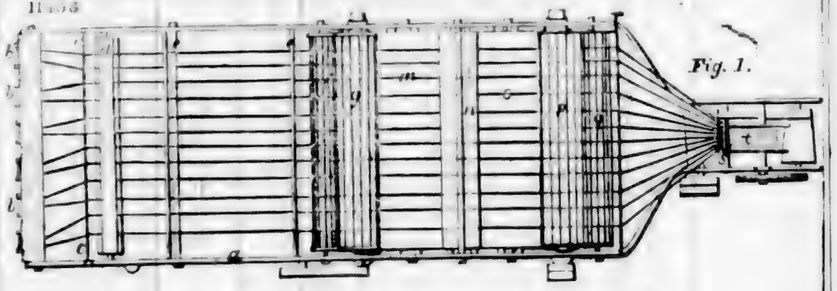
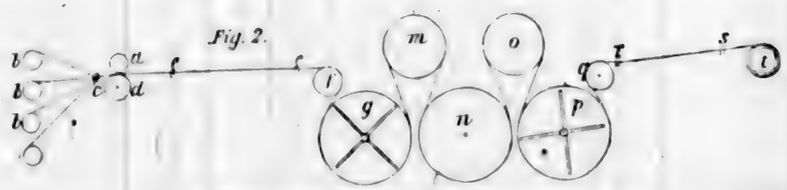
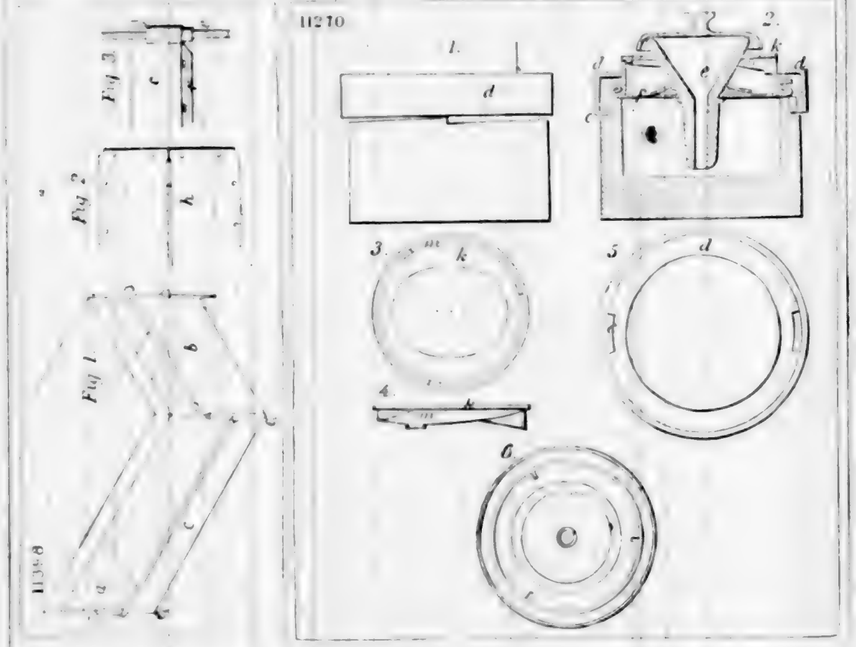


Fig. 2.



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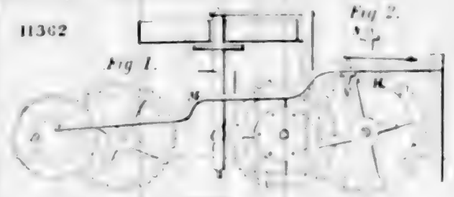
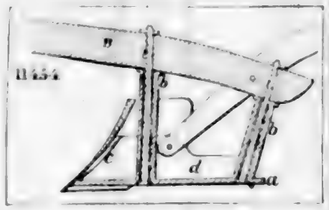


Fig. 2.



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Fig. 2

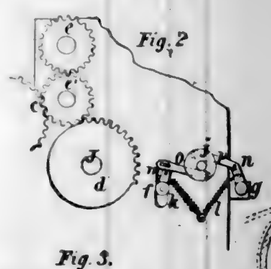


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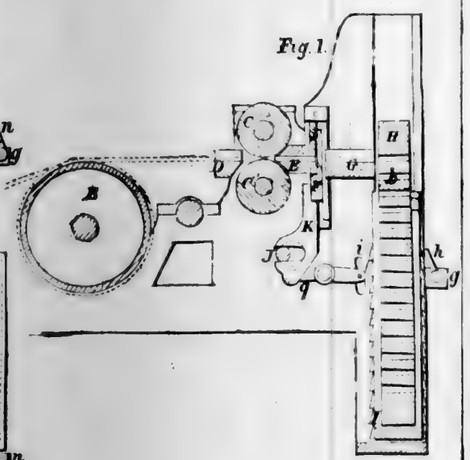
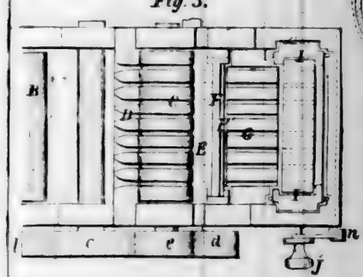


Fig. 3.



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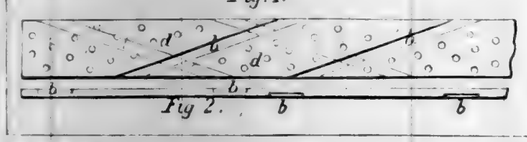


Fig 2.

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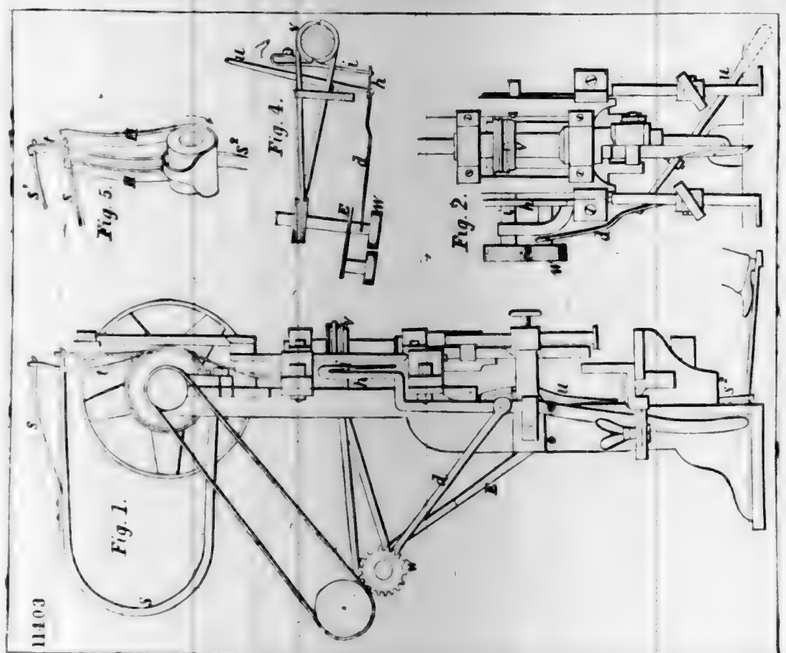
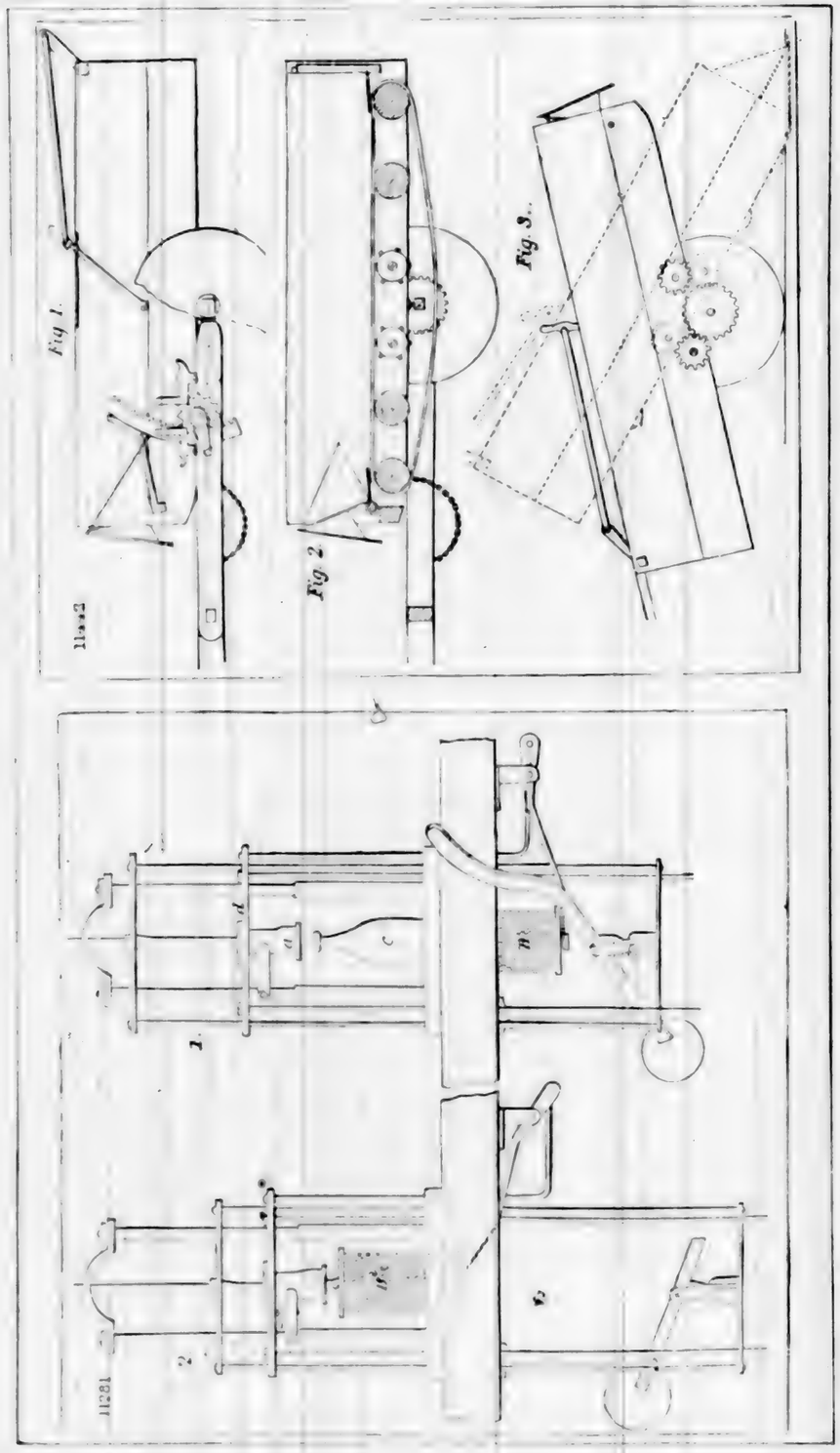
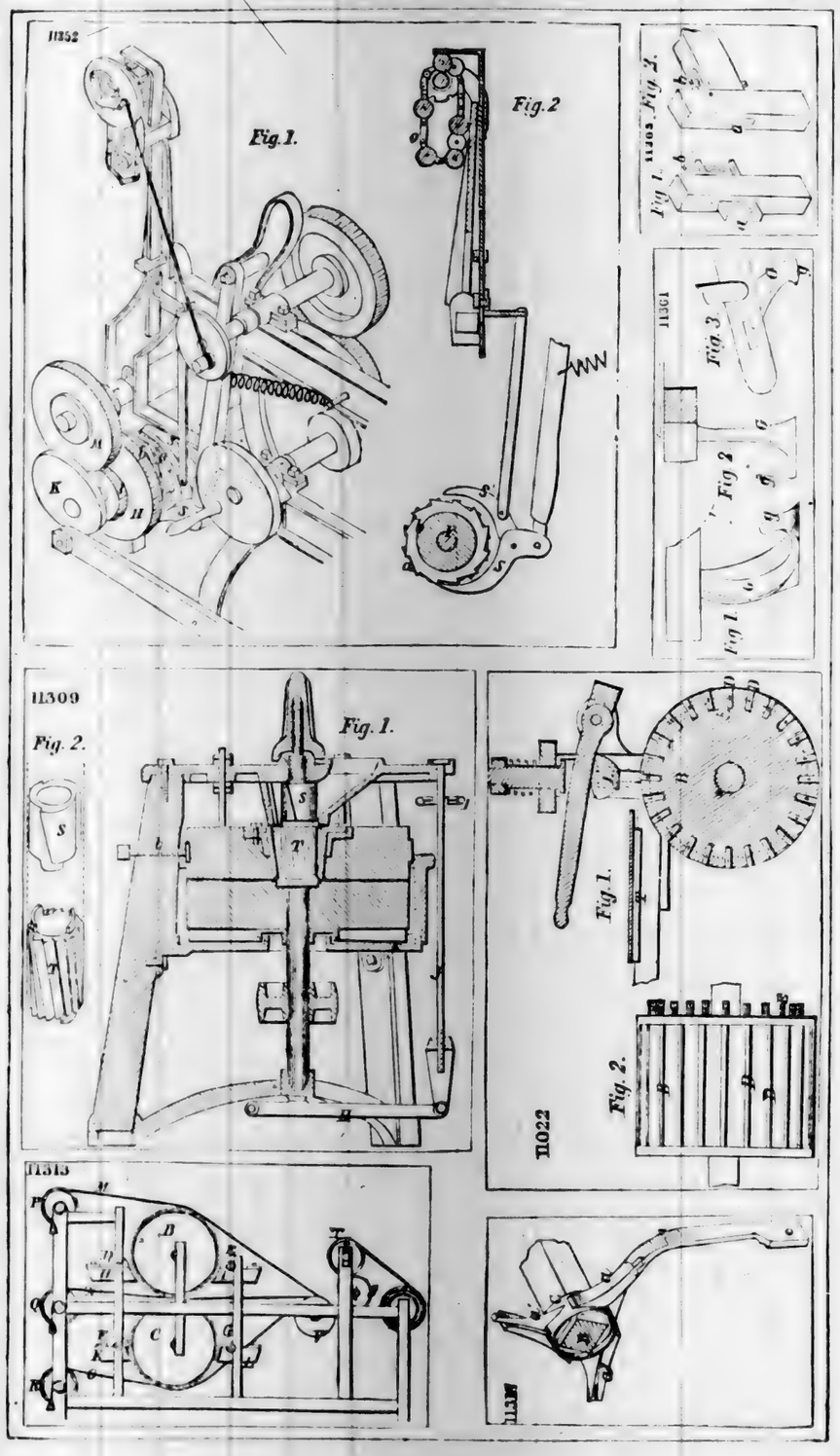


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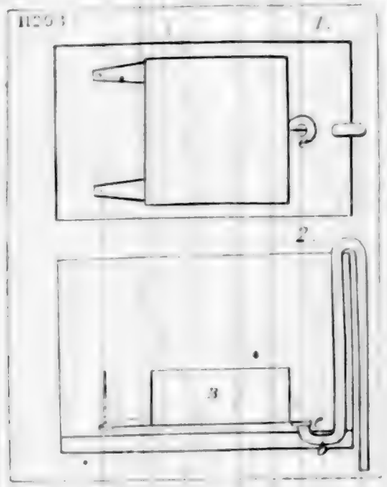
Fig 5.

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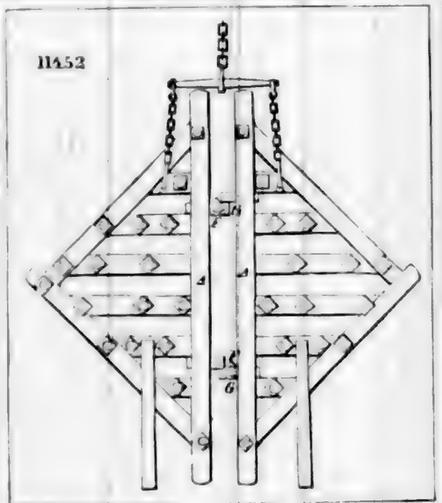

Fig. 1.
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Fig. 1.
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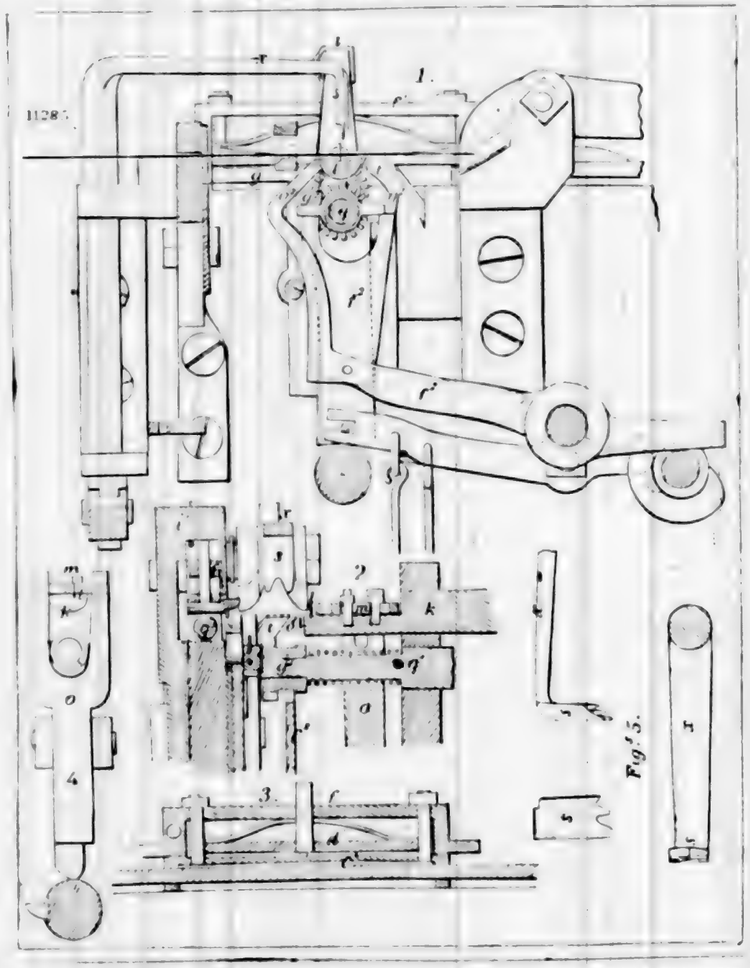


Fig. 5.

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Fig 3

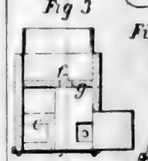


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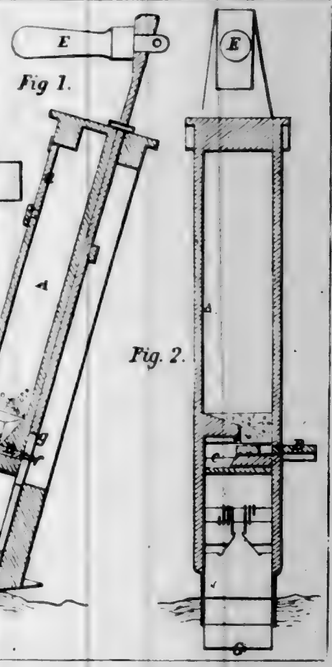


Fig. 2.

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Fig. 1

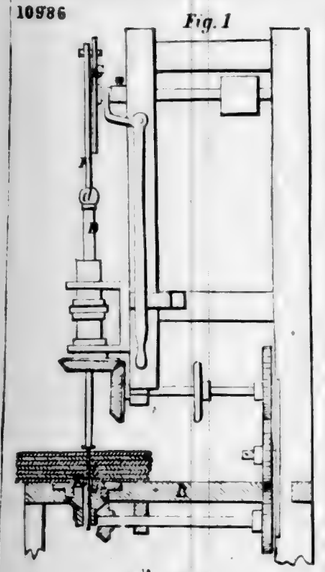
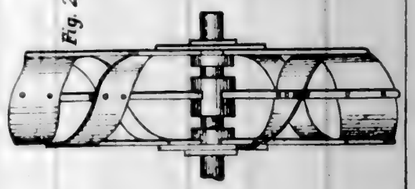


Fig. 2.



Fig. 2



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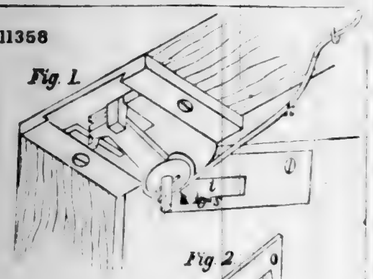


Fig 2

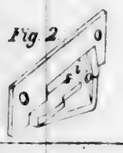
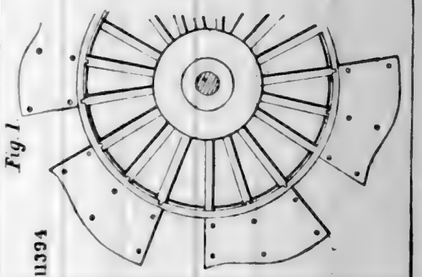
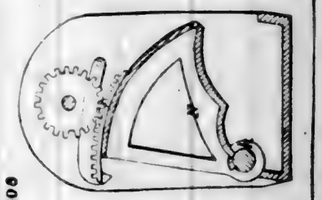


Fig 1



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Fig. 1.

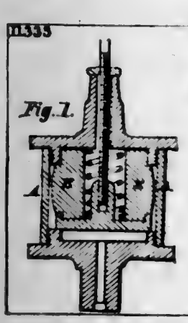
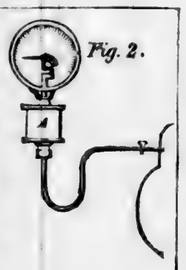


Fig. 2.



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Fig 1

Fig 2.

Fig 1.

Fig 2

Fig 3

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Fig. 1.

Fig. 3.

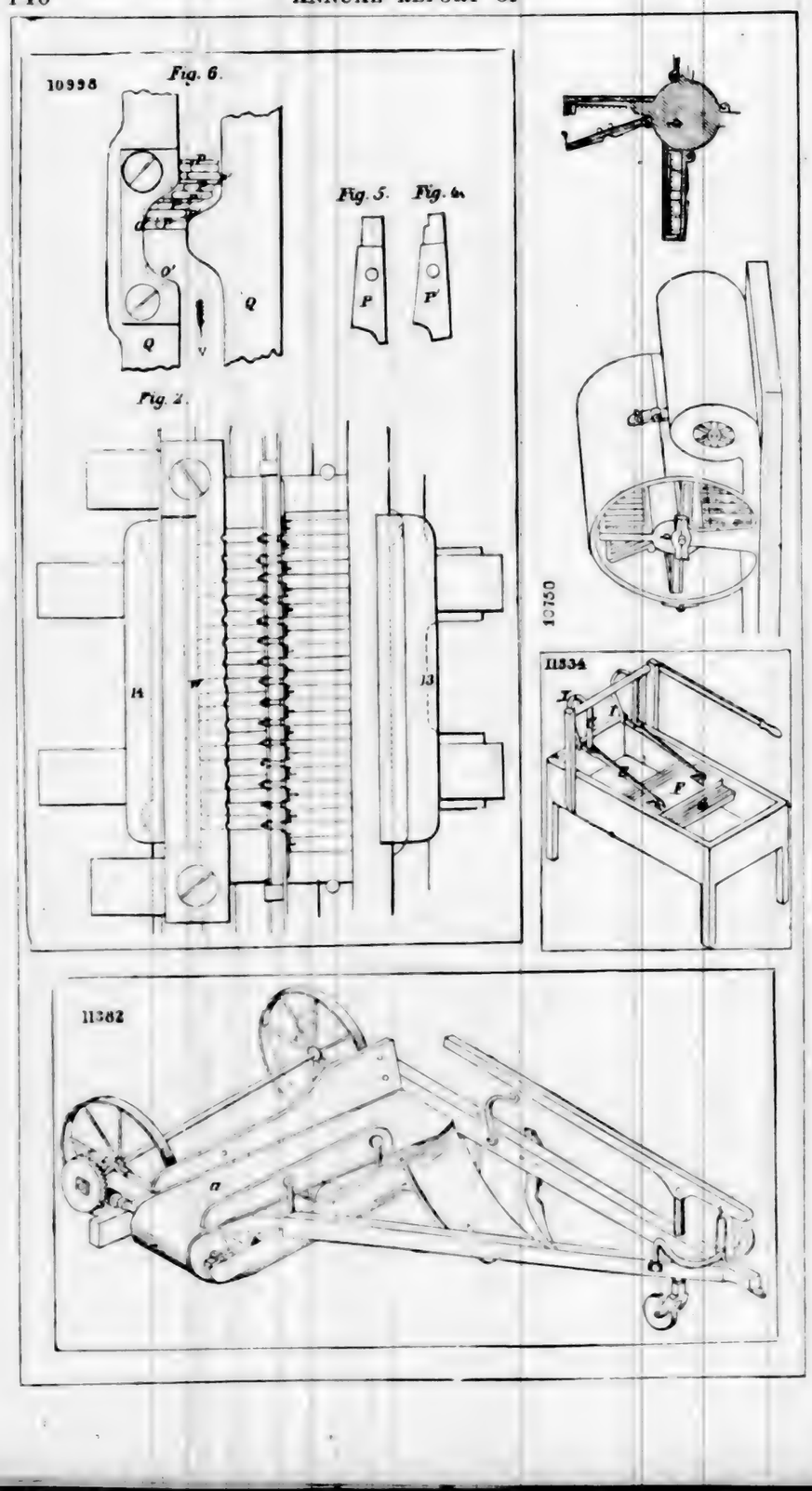
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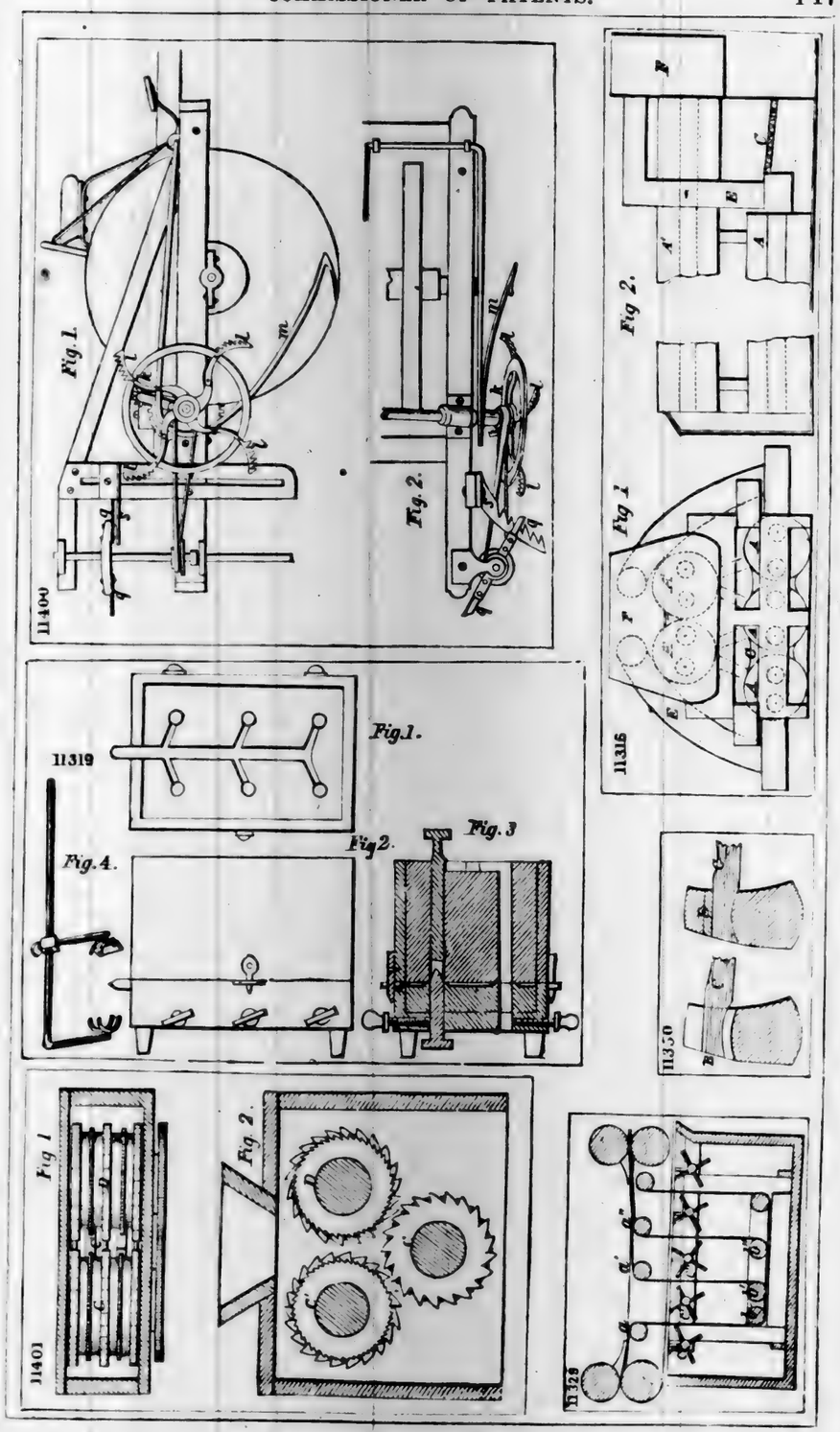
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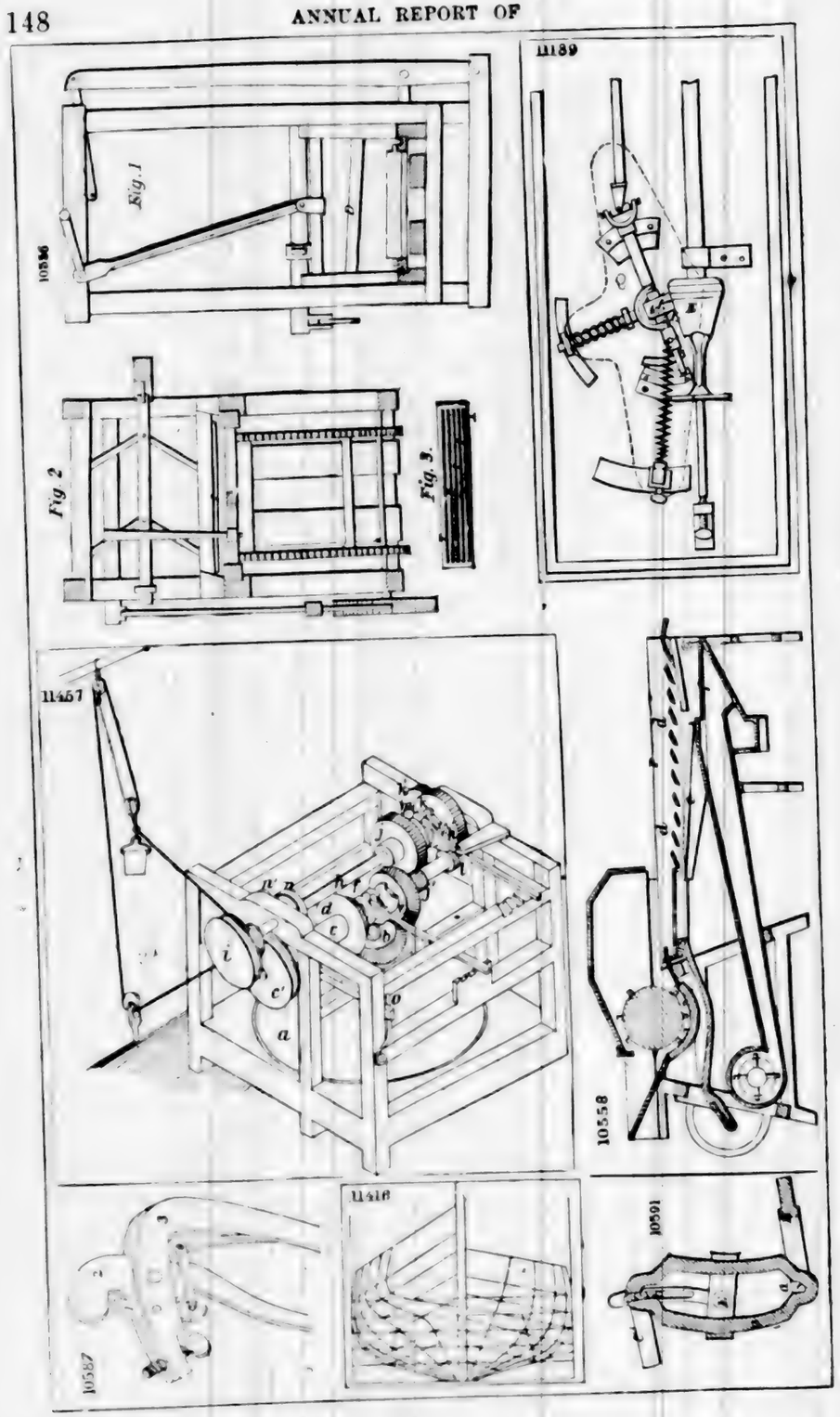
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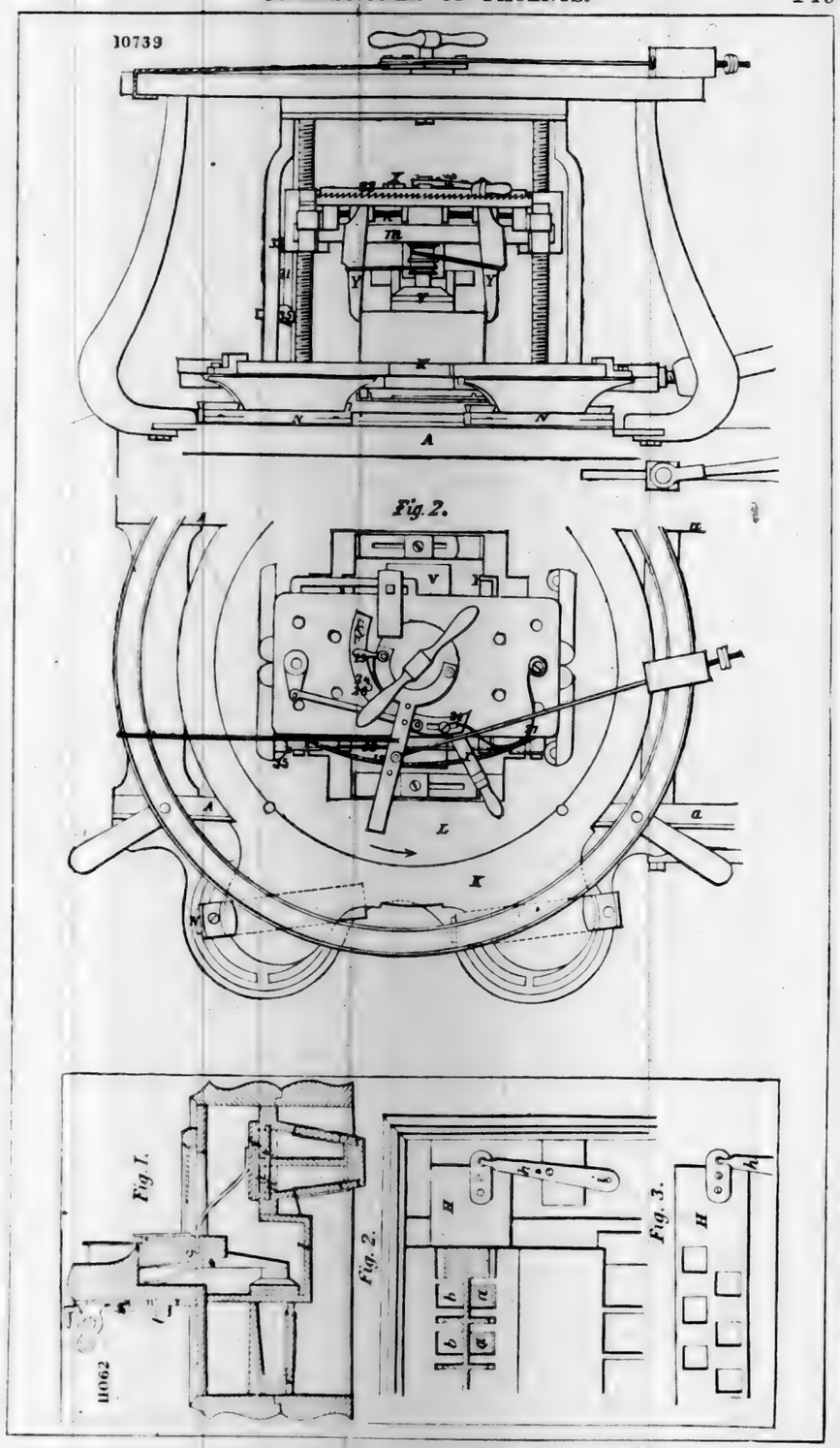
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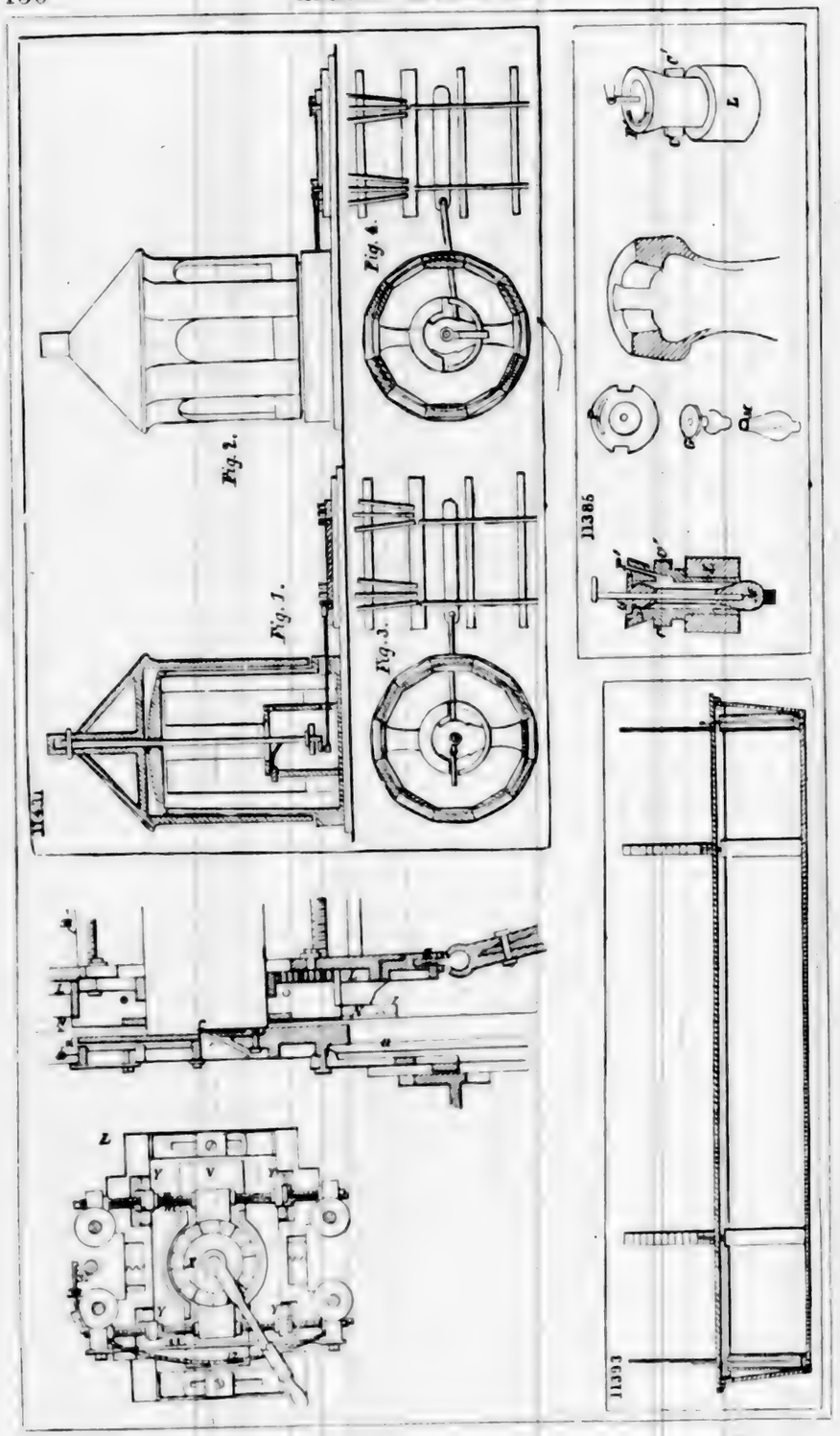
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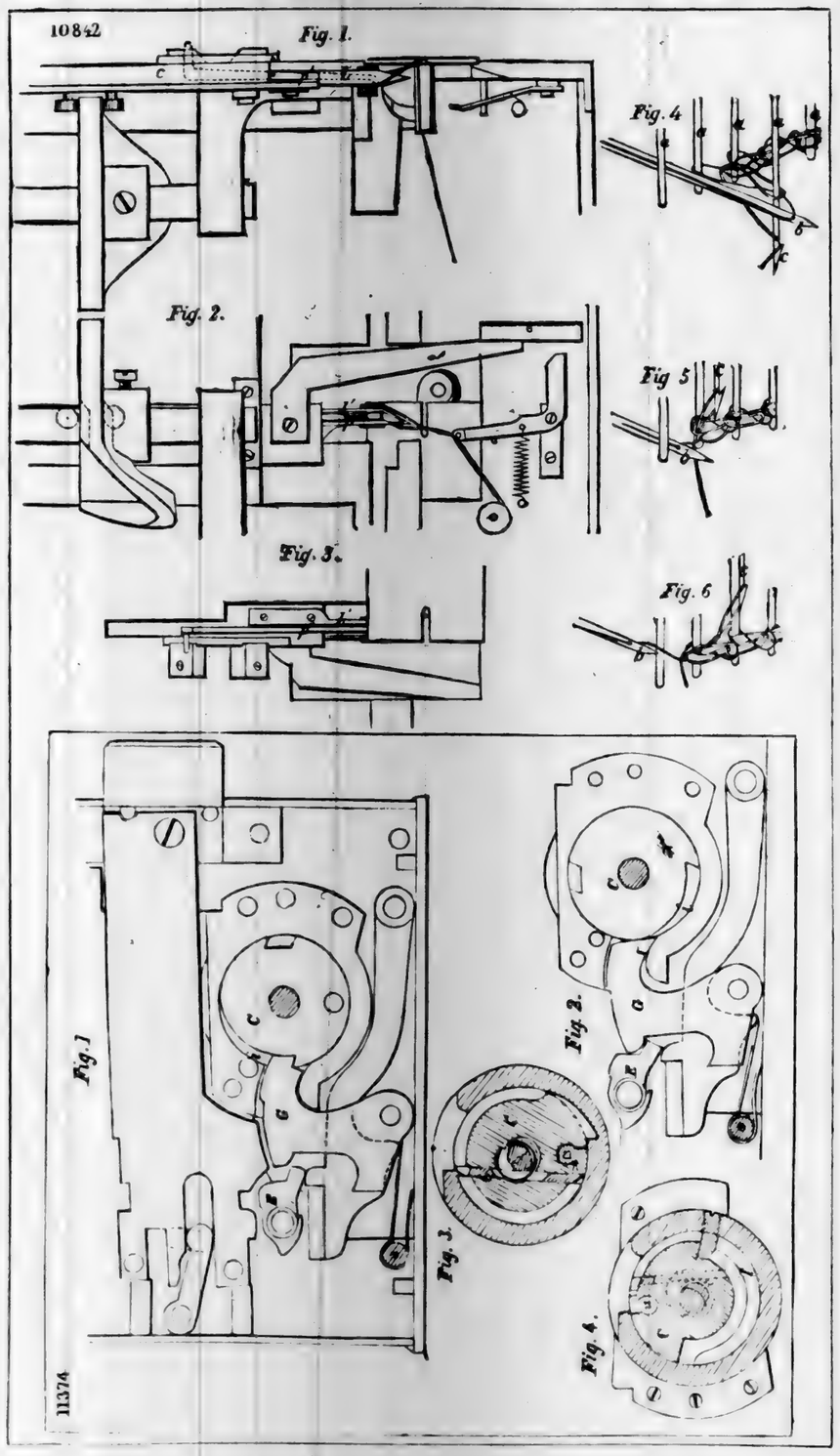

10998
Fig. 6.
Fig. 5.
Fig. 4.
Fig. 2.
10750
11534
11382


11400
Fig. 1.
Fig. 2.
11319
Fig. 1.
Fig. 2.
Fig. 3
Fig. 4.
11401
Fig. 1
Fig. 2.
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Fig 2.
Fig 1
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10536
Fig. 1
Fig. 2
Fig. 3.
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10739
Fig. 2.
Fig. 1.
Fig. 2.
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Fig. 1.
Fig. 2.
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Fig. 1.
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Fig. 2.

Fig. 1.

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Fig. 1.

Fig. 2.

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Fig. 1.

Fig. 2.

Fig. 3.

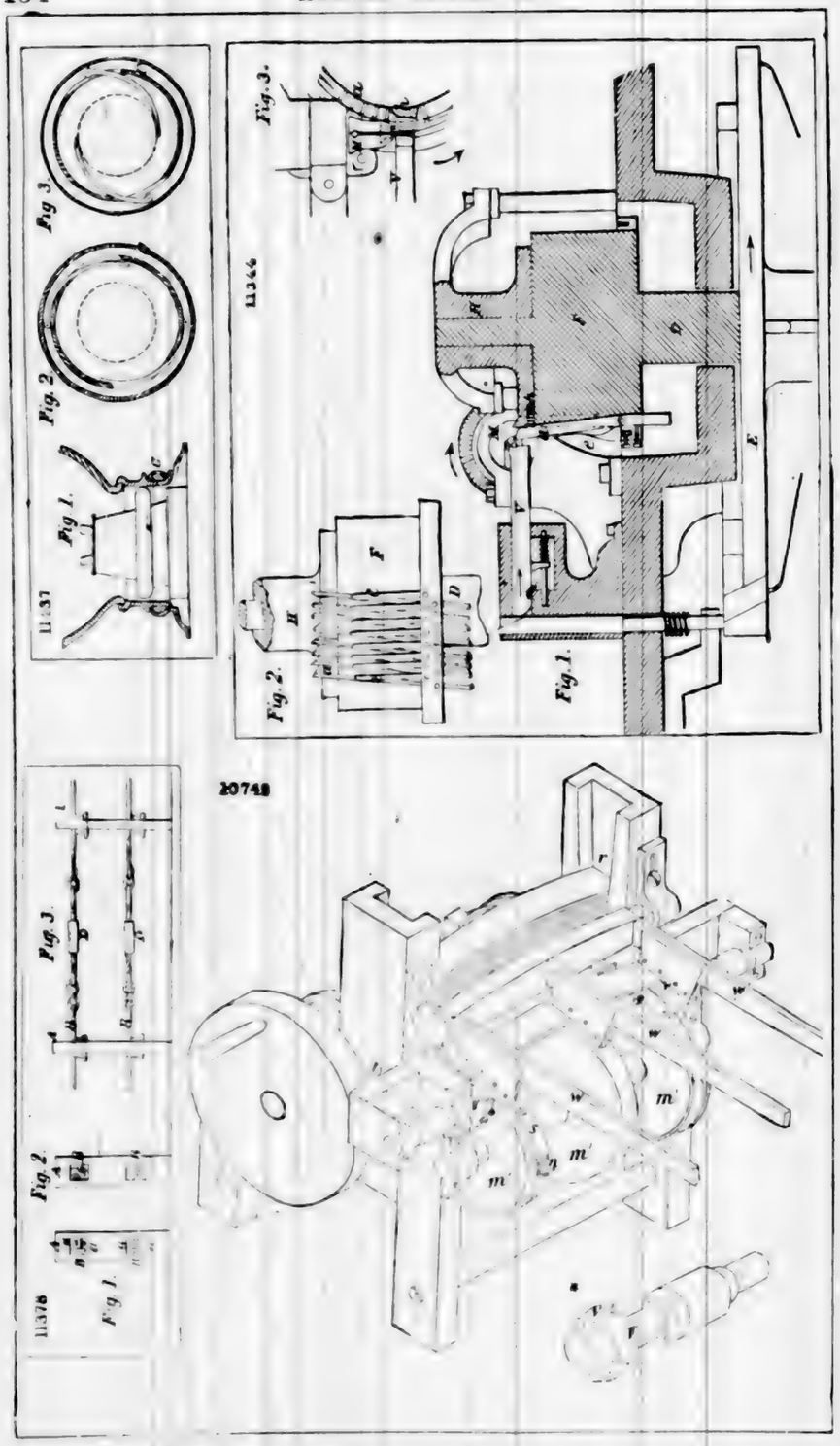
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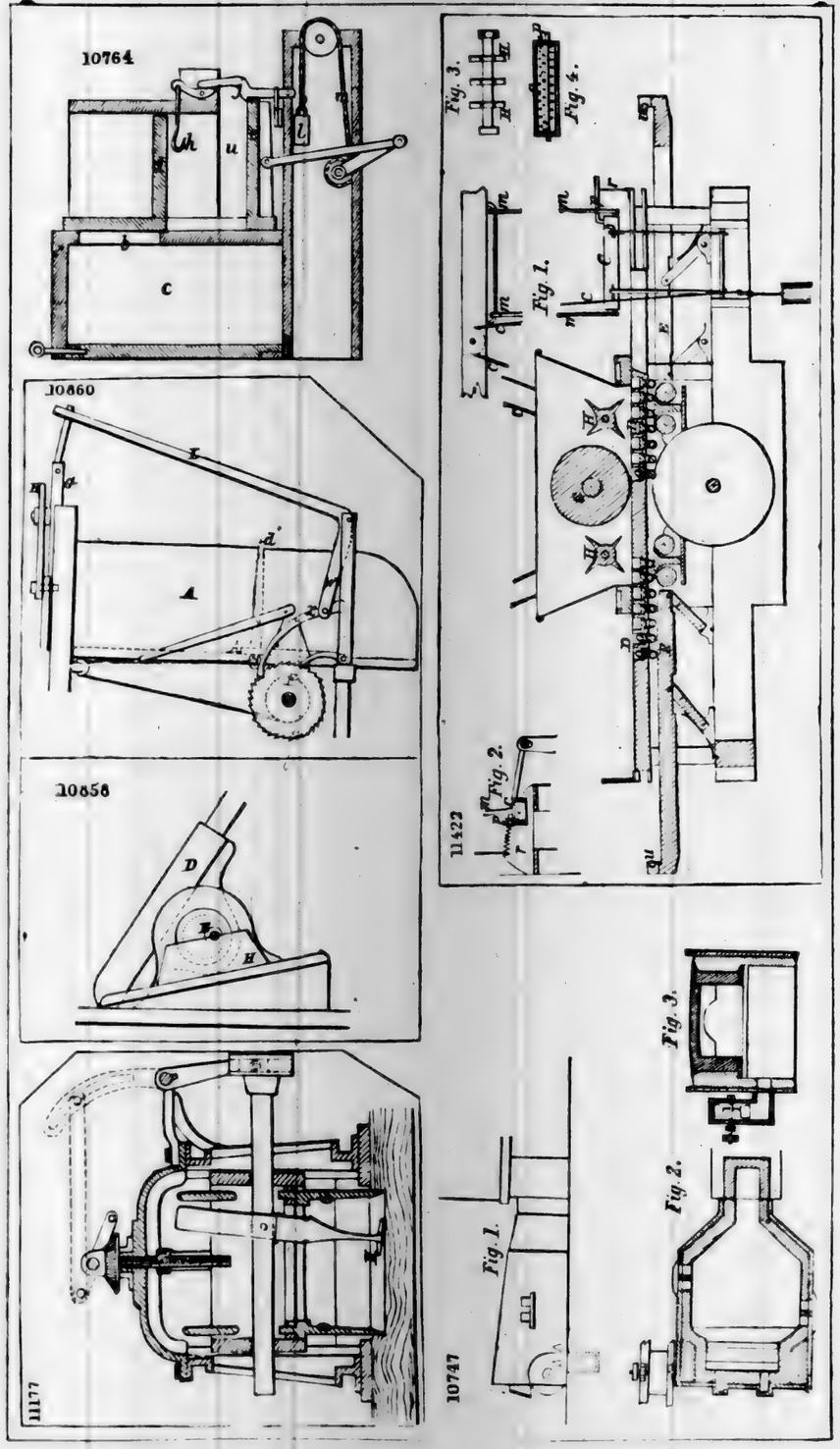
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Fig. 1.

Fig. 2.

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Fig. 1.
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Fig. 1.
Fig. 2
Fig. 3


10764
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Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.

10768

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 5.

Fig. 3.

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Fig. 3

Fig. 1.

Fig. 2

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Fig. 1.

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Fig. 4.

Fig. 5.

Fig. 2.

Fig. 6.

Fig. 7.

Fig. 3.

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 1. 10737

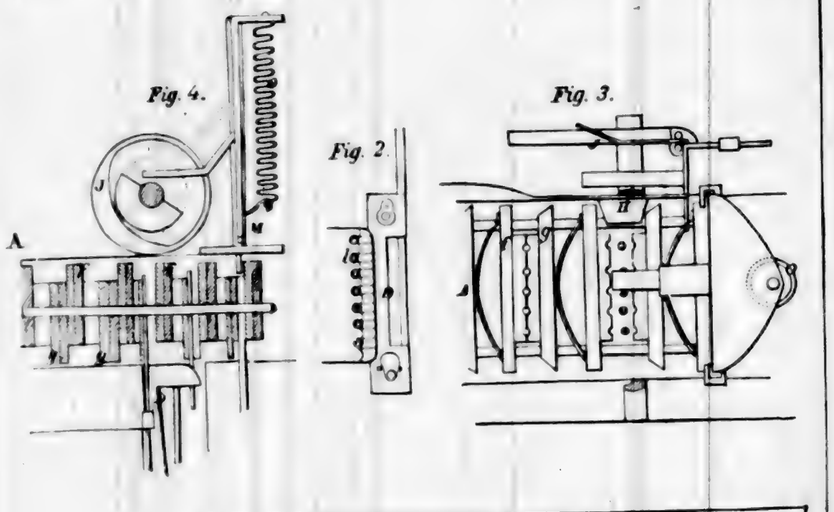
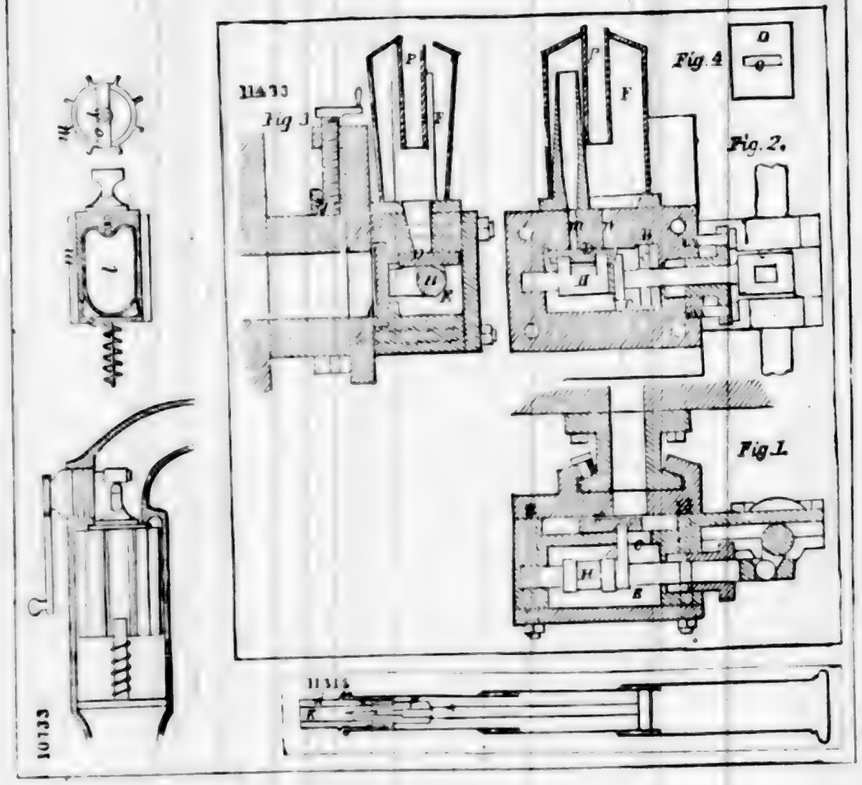


Fig. 4.

Fig. 2.

Fig. 3.



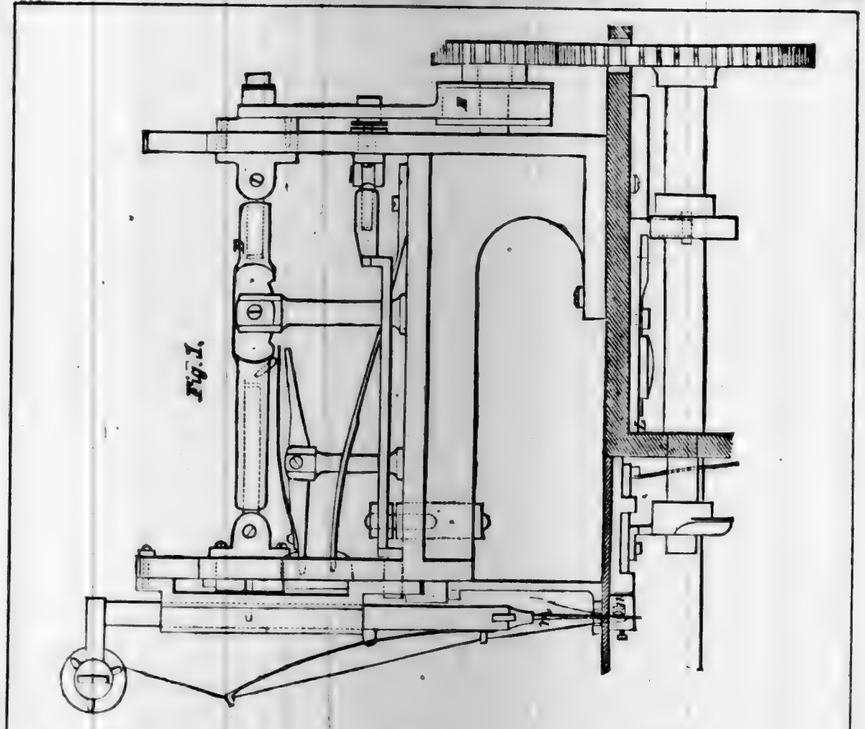
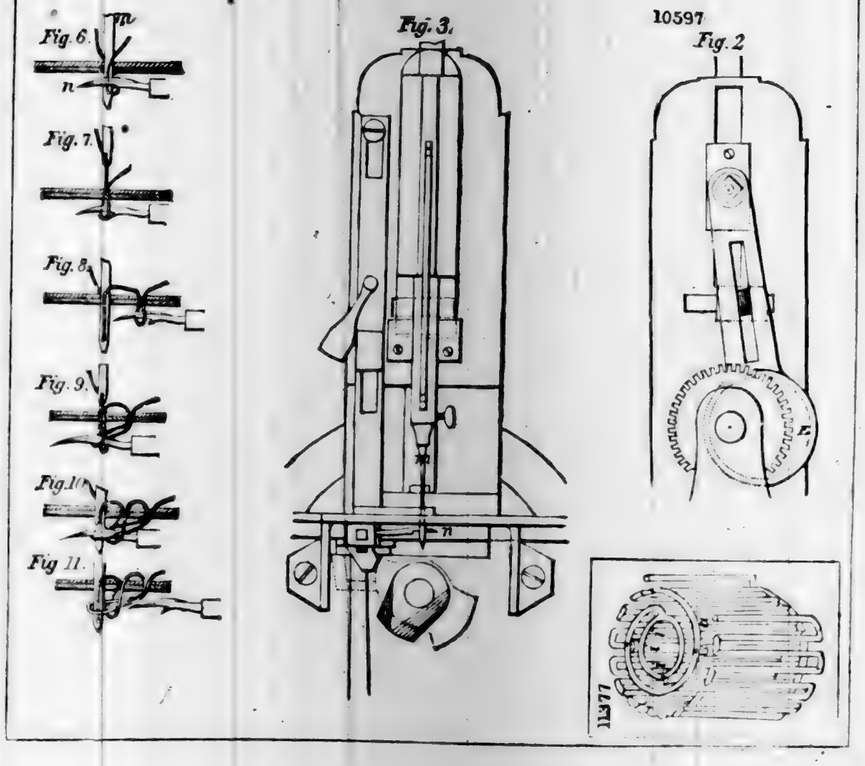


Fig. 1.



11426

Fig. 1.

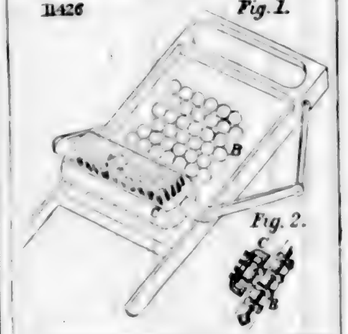


Fig. 2.

10676

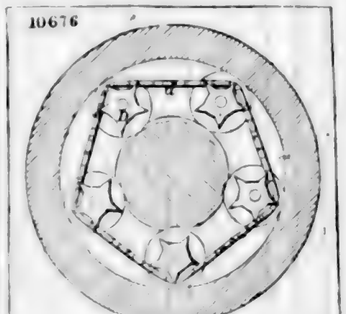


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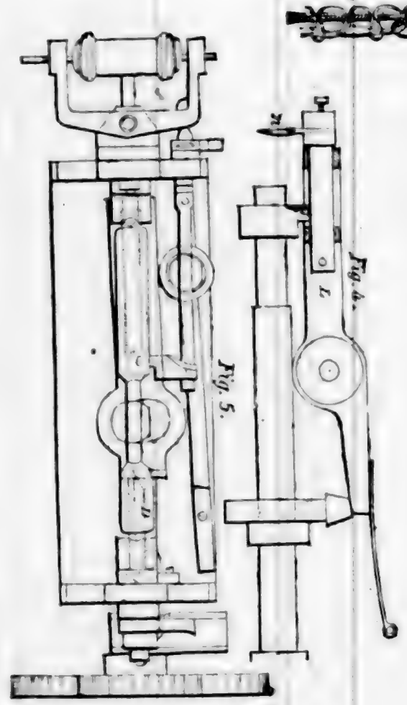
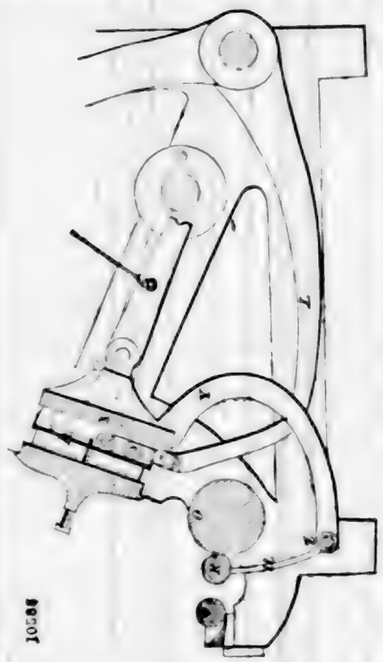


Fig. 5.

Fig. 4.



10736

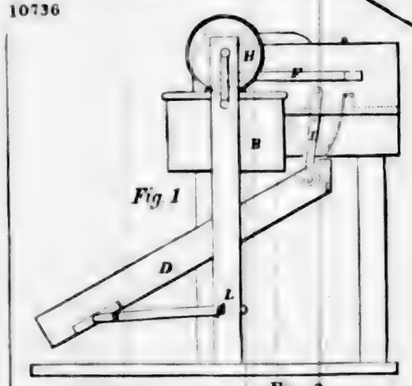
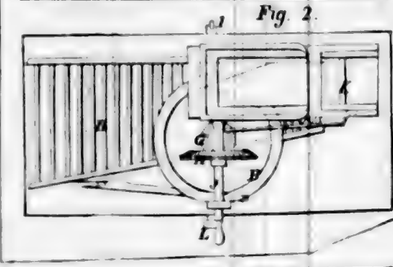


Fig 1

Fig. 2.



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Fig. 2.

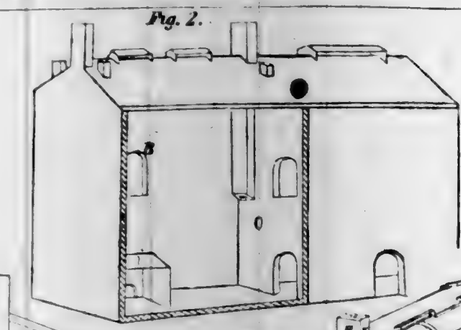


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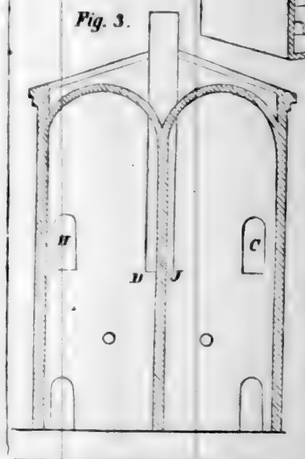
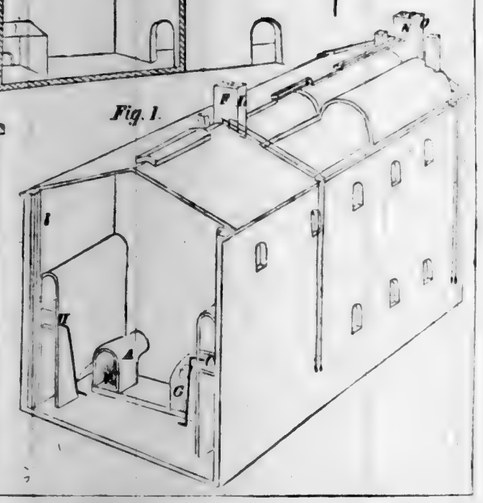
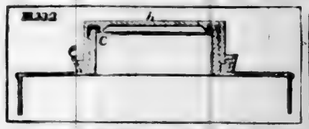


Fig. 1.



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Fig. 1.

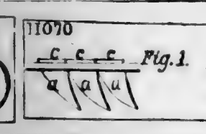
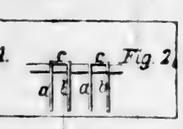


Fig. 2.



11312

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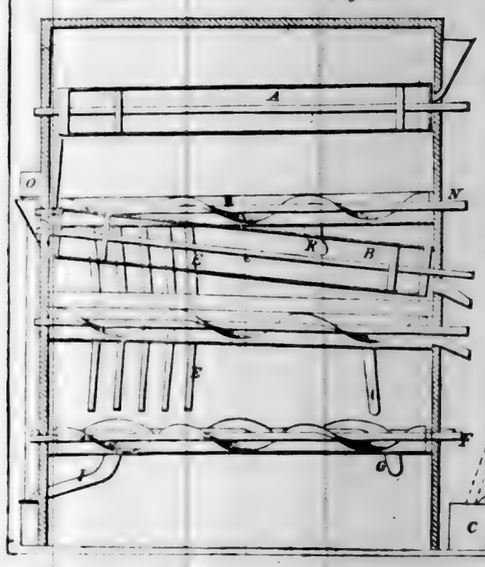
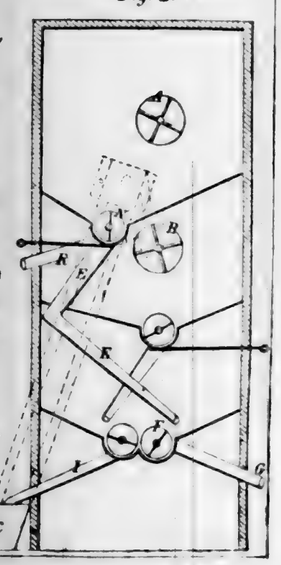


Fig. 2.



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Fig. 1.

Fig. 2.

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Fig 1.

Fig 2

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Fig. 2.

Fig. 3.

Fig. 1

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Fig. 3.

Fig. 1.

Fig. 2.

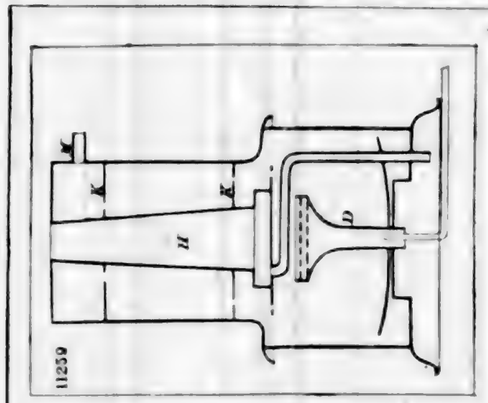
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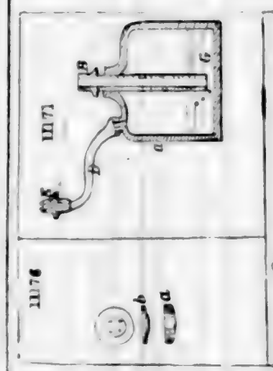
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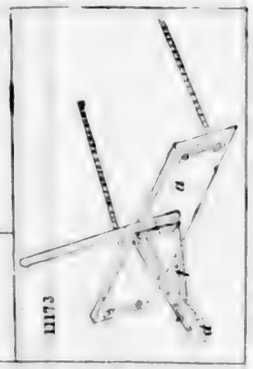
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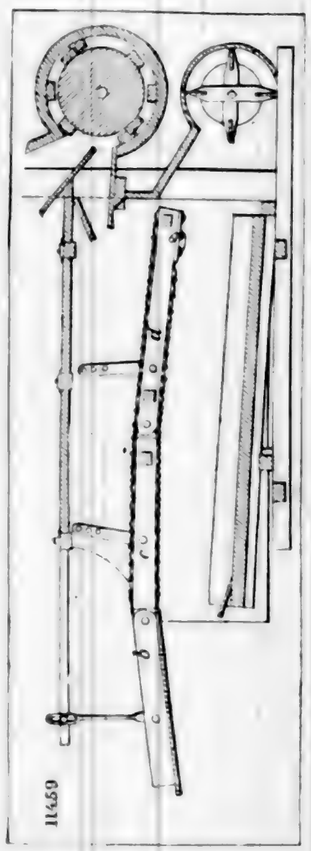
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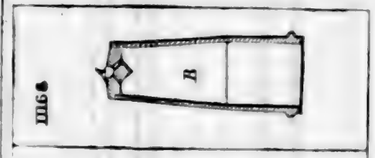
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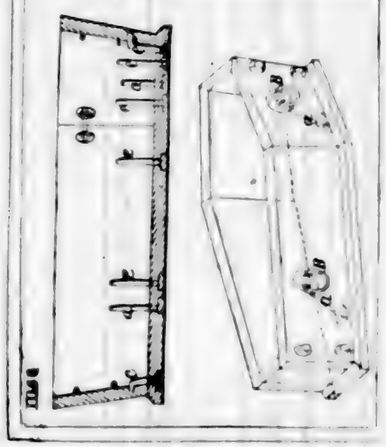

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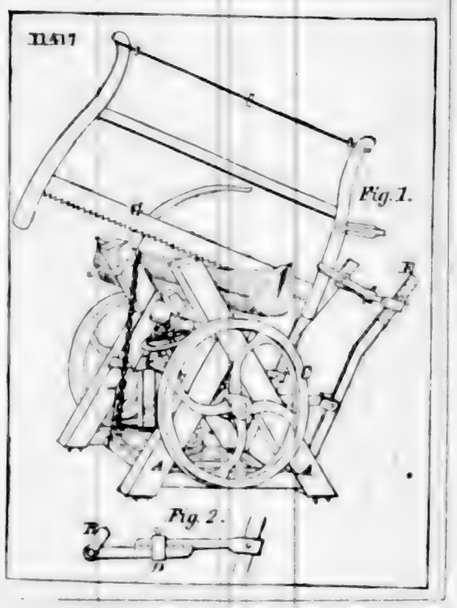

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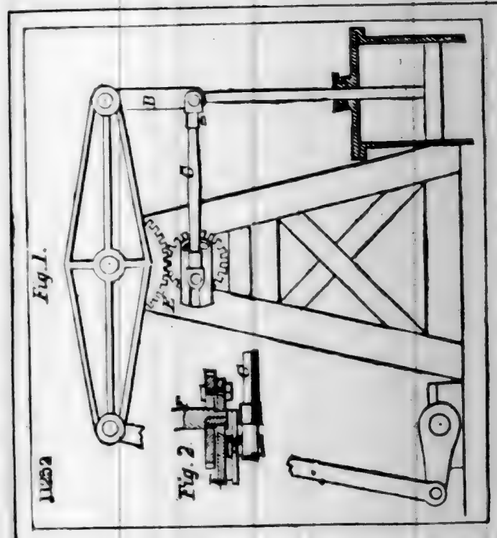

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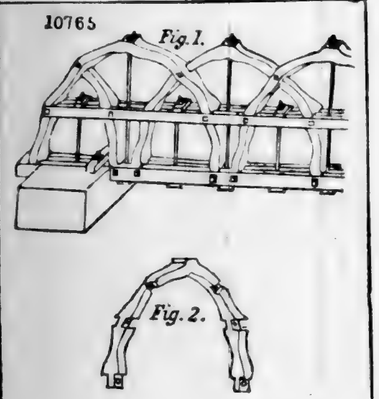

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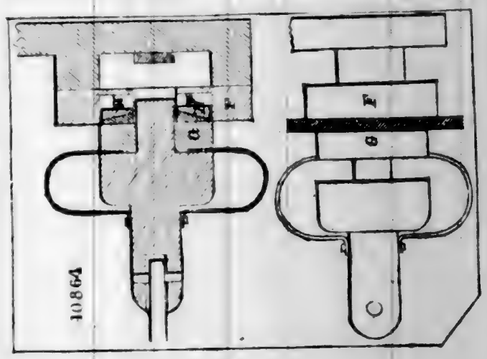

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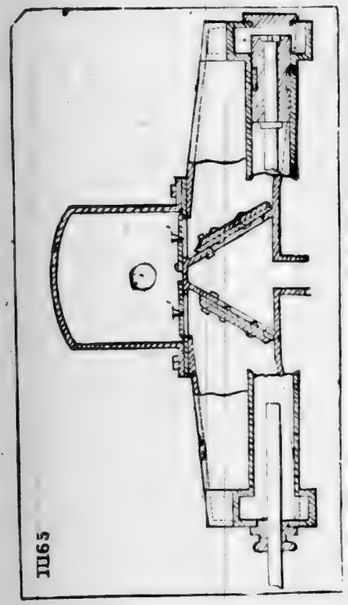

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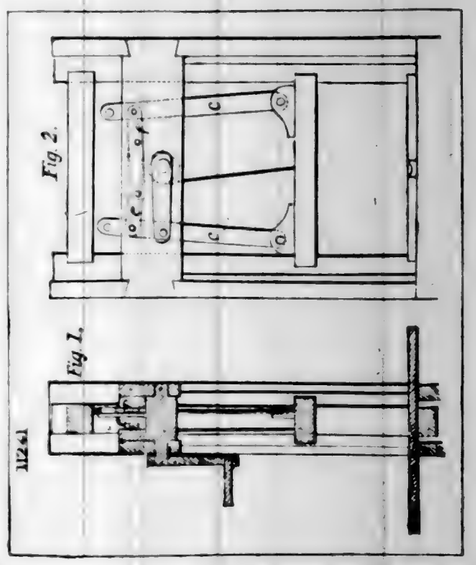

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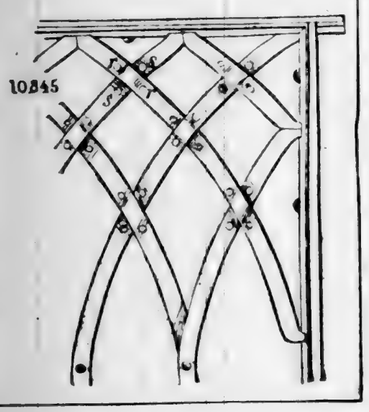

Fig. 1.
Fig. 2
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10765
Fig. 1.
Fig. 2.


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Fig. 2.
Fig. 1.
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Fig. 1.

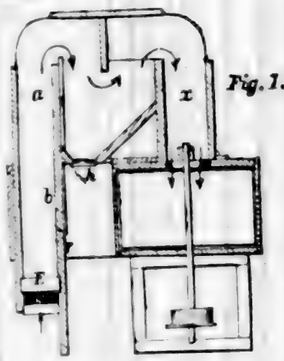


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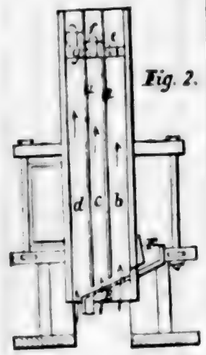
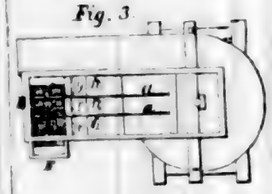


Fig. 3



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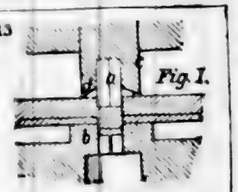
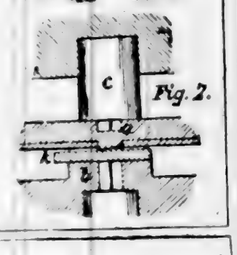


Fig. 2.



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Fig 1.

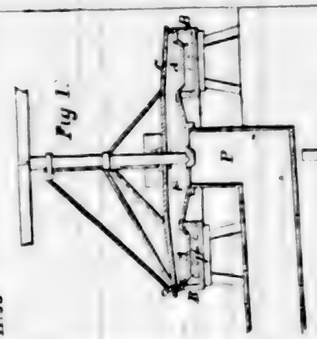
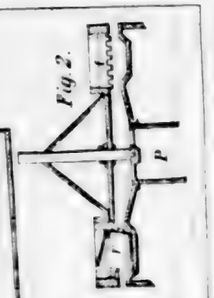


Fig. 2.



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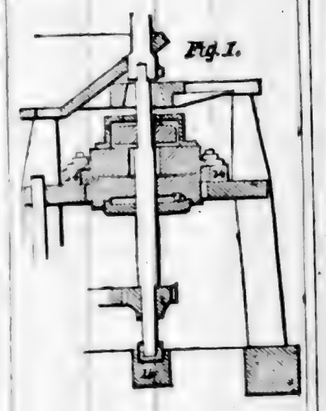


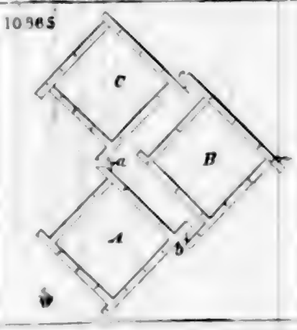
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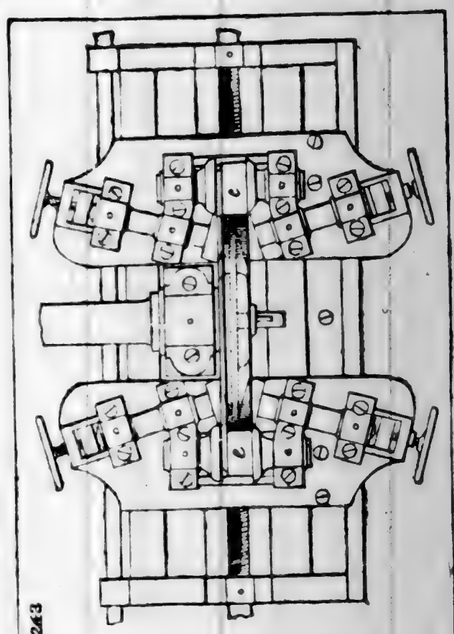
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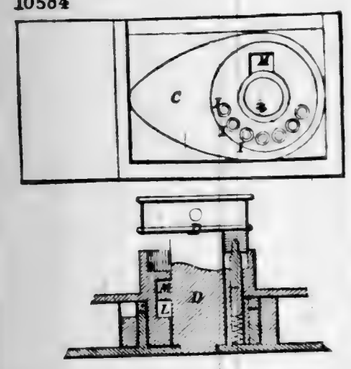
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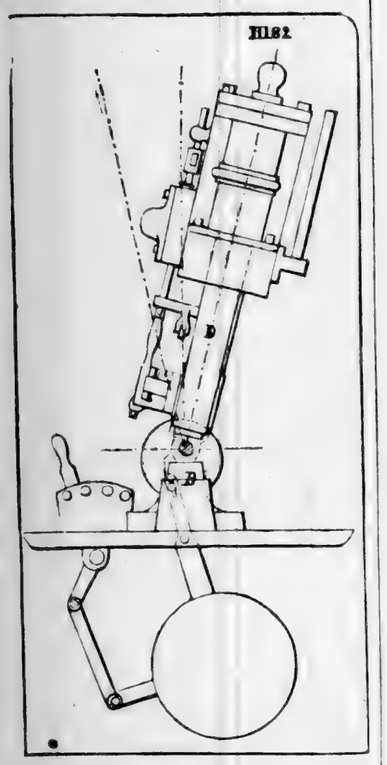
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Fig. 1

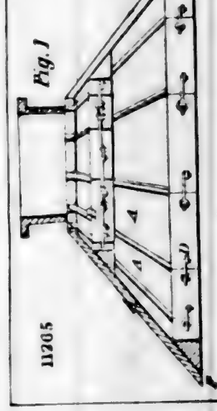
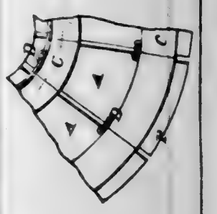
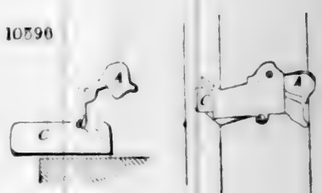
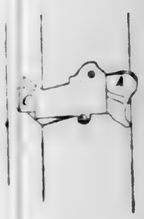


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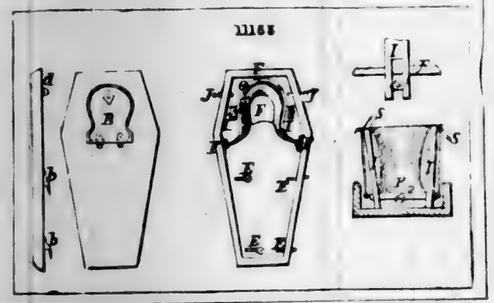


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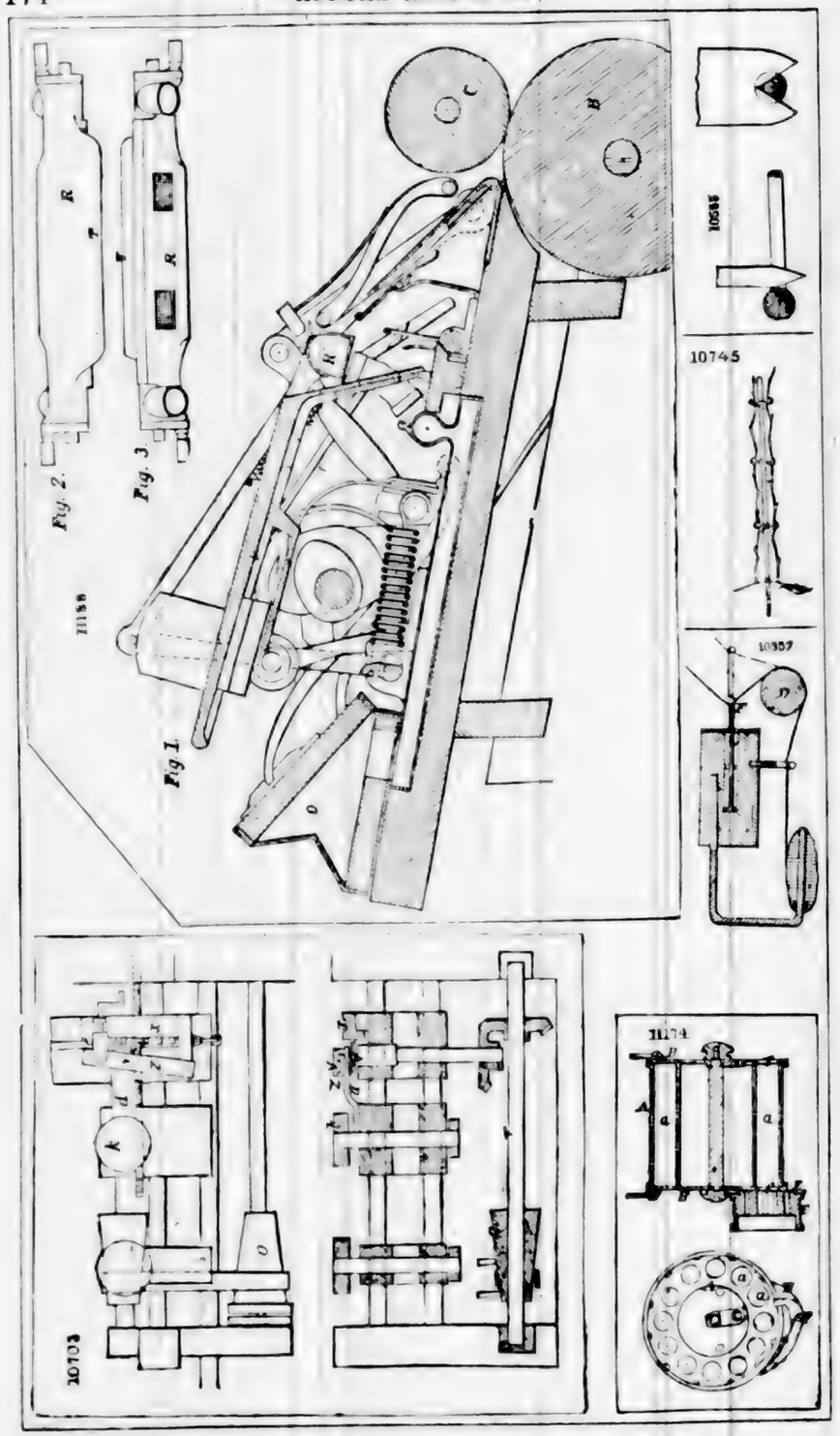
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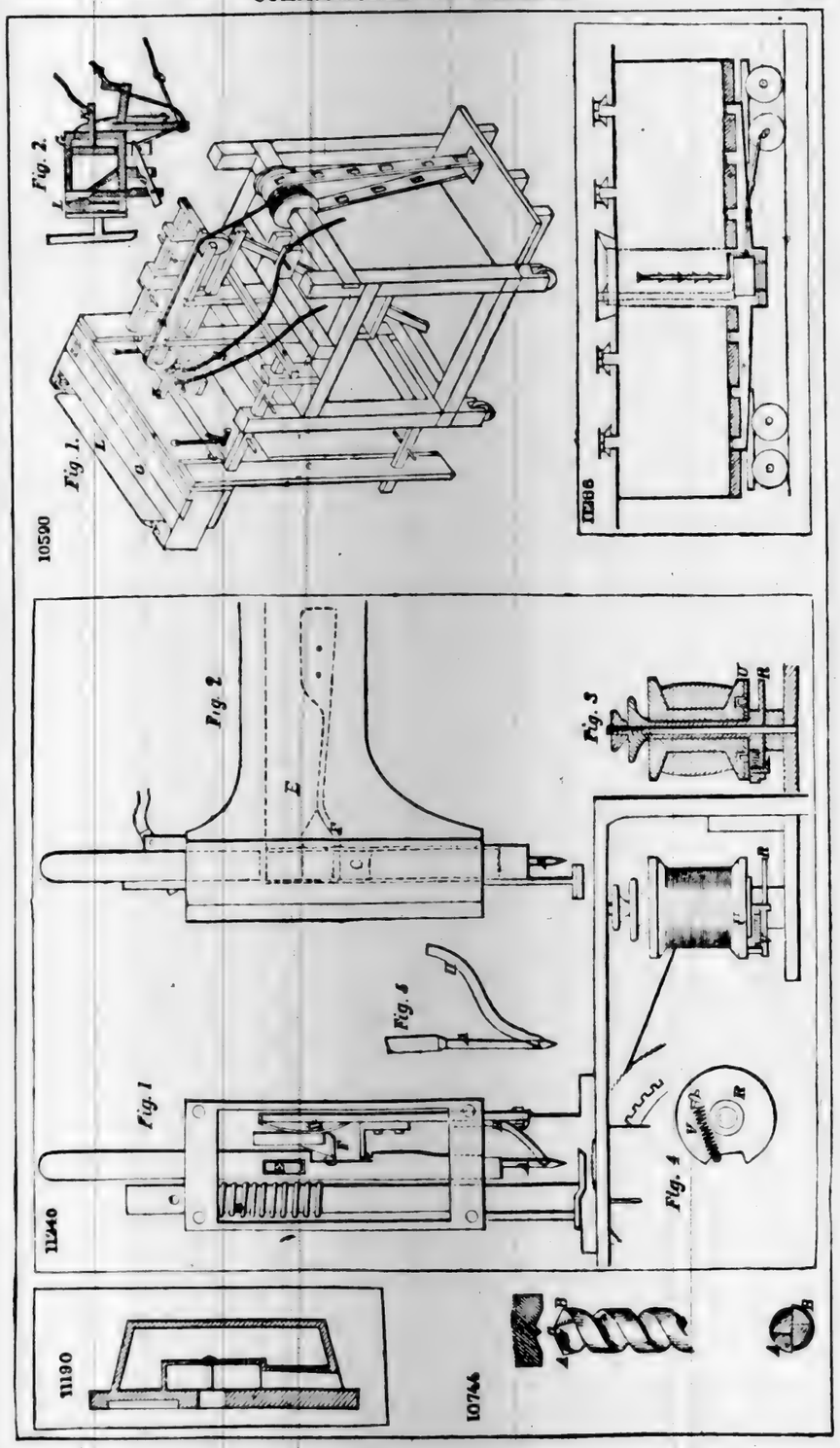
Fig. 2.

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Fig. 2.
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Fig. 2.
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Fig. 1.

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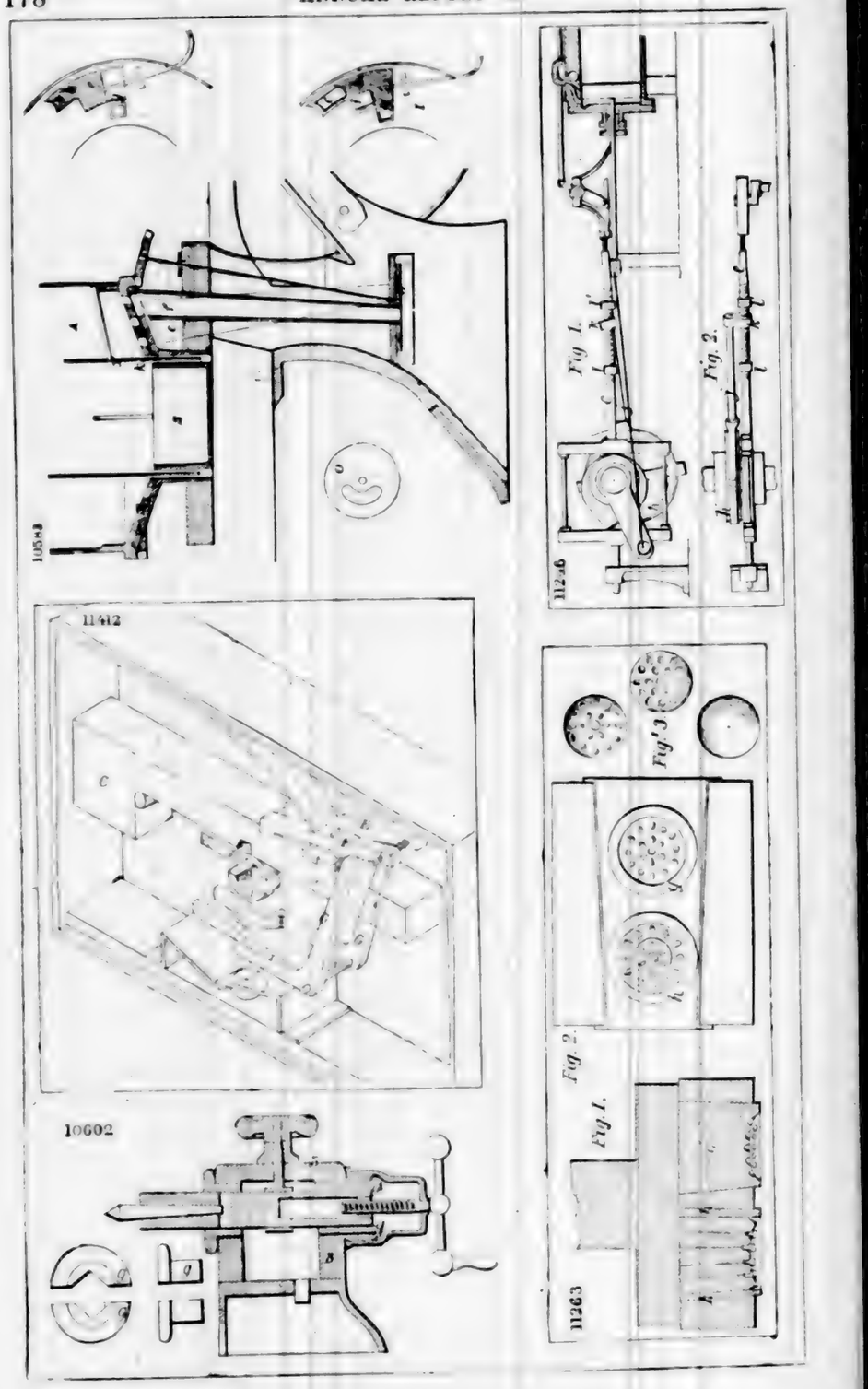
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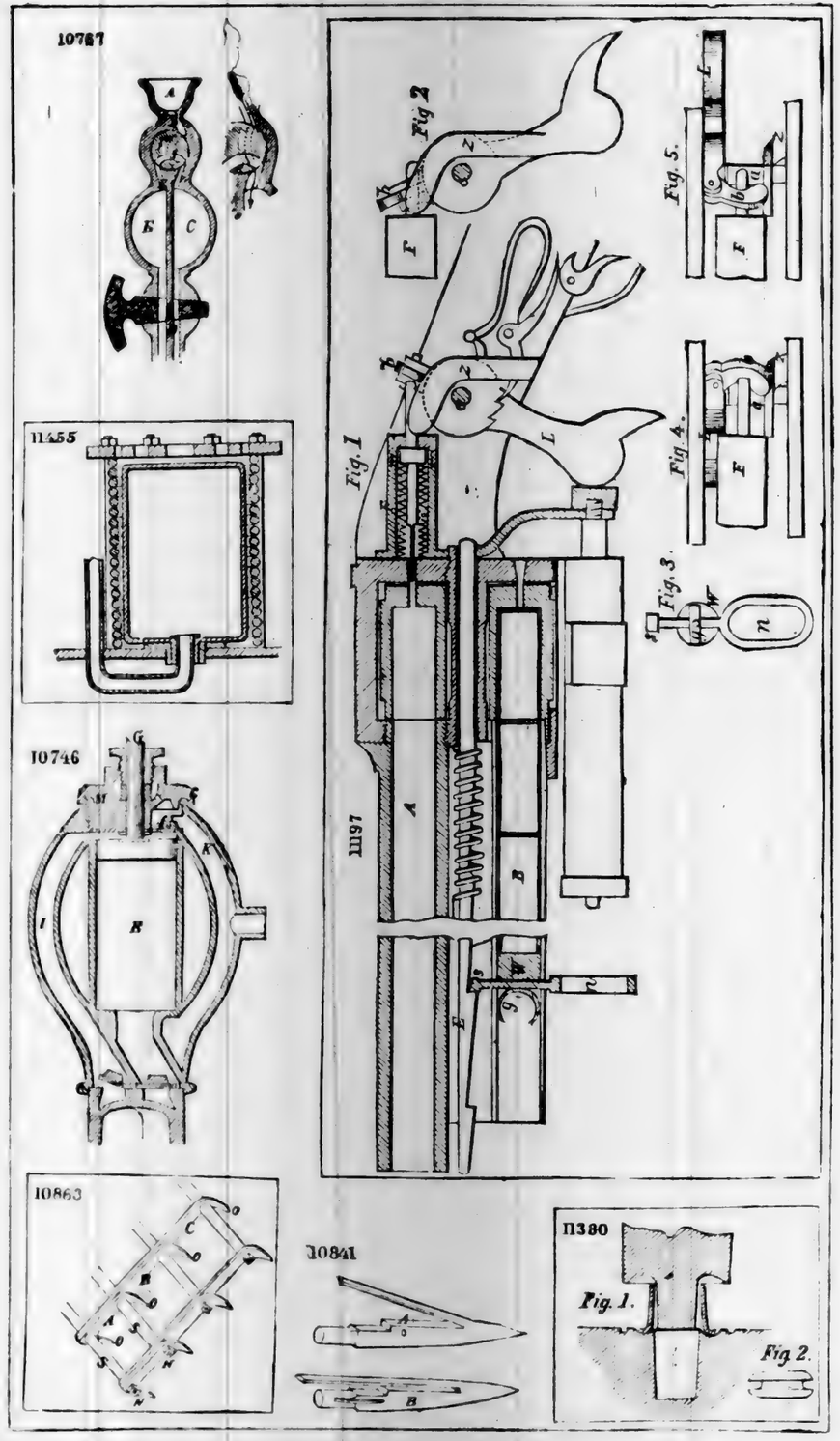
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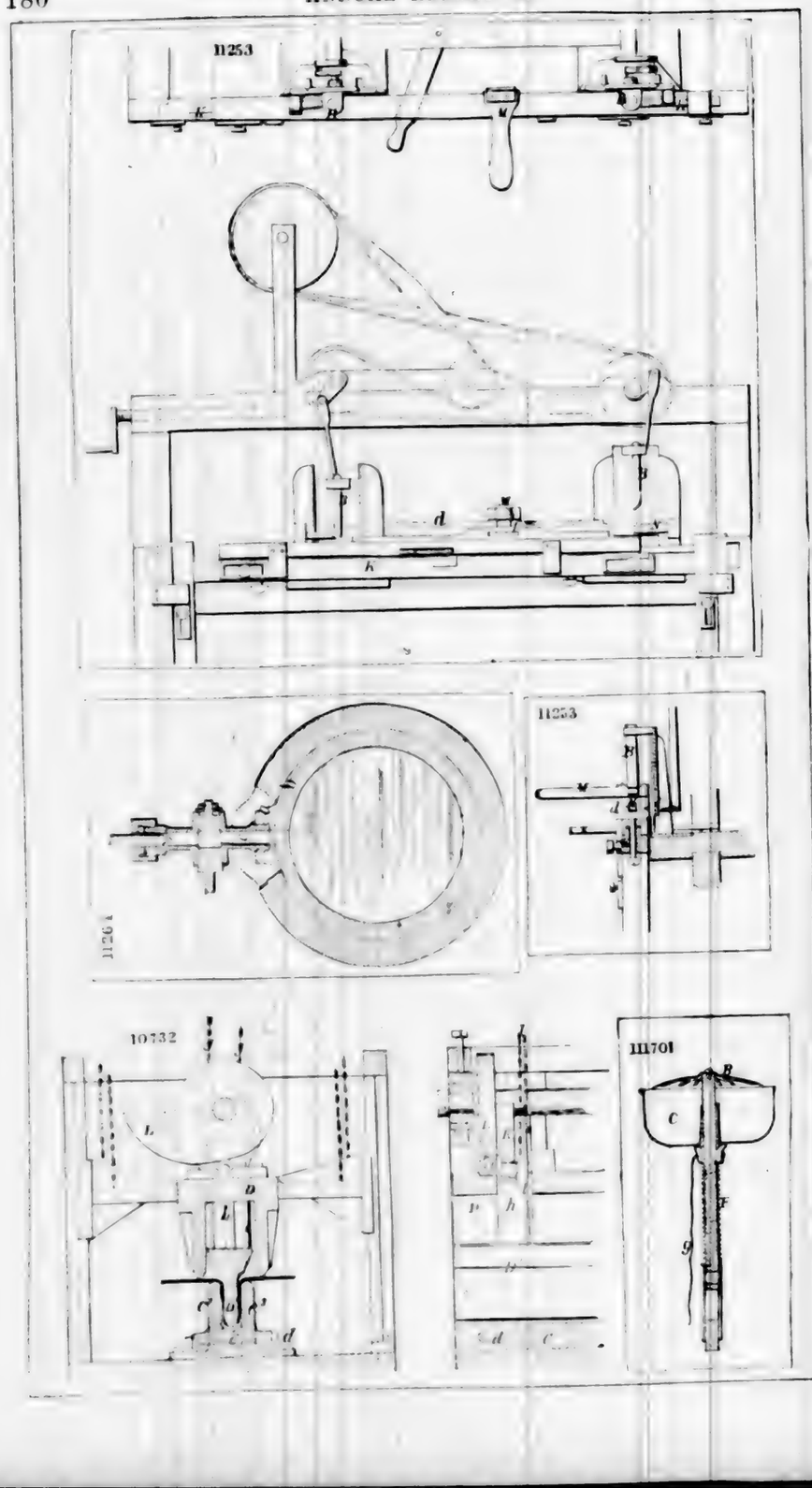
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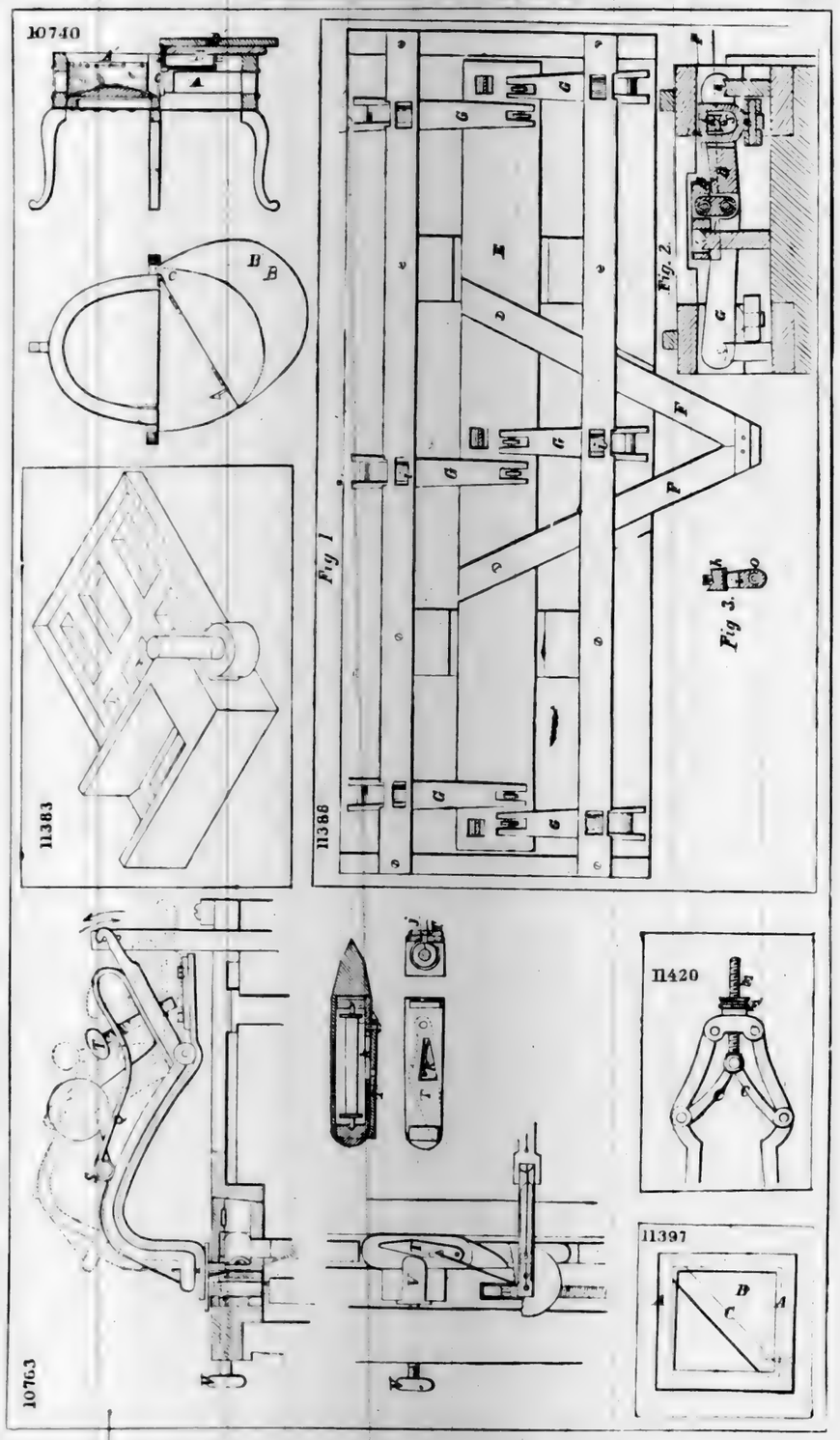
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Fig. 5.
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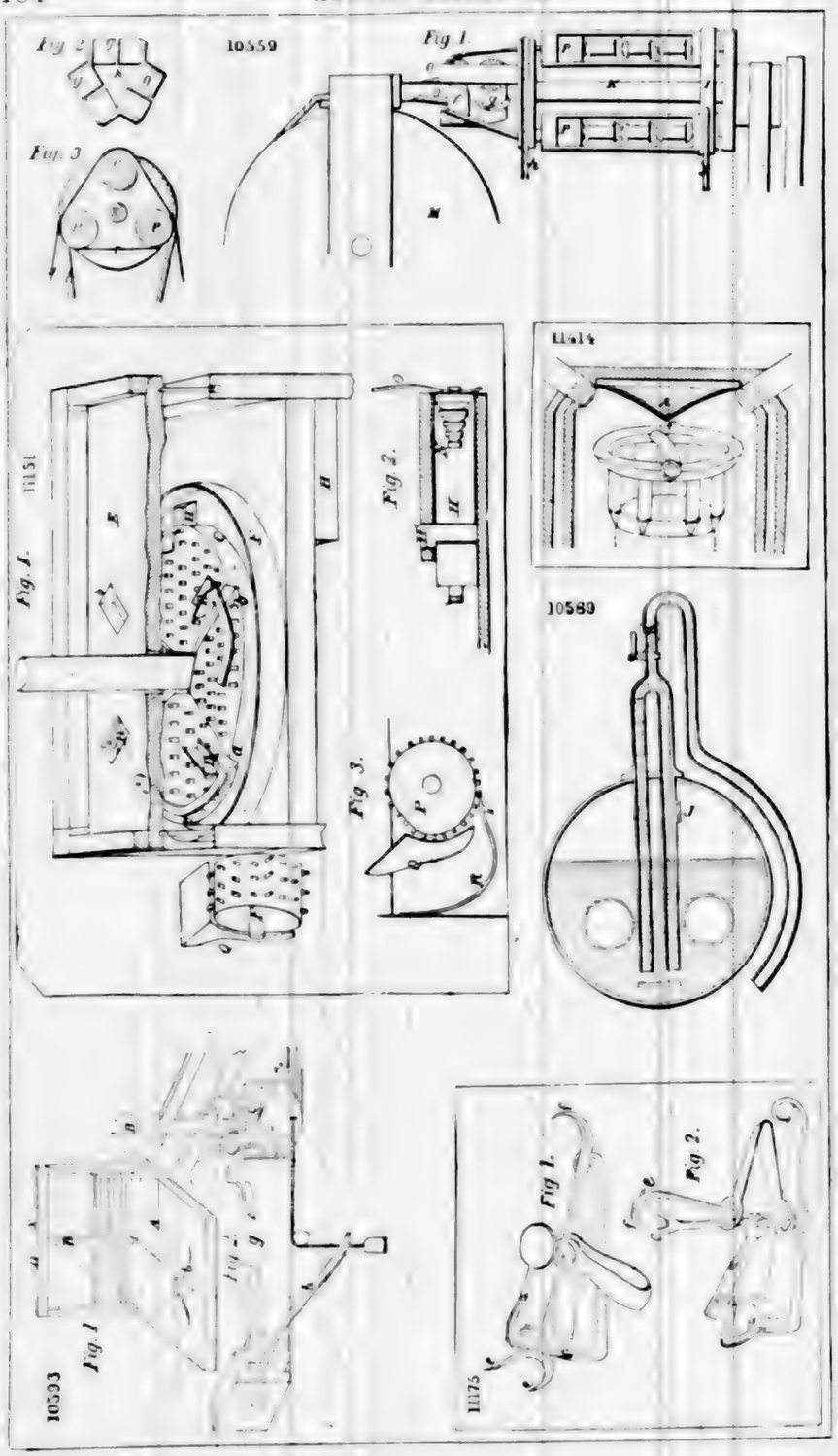
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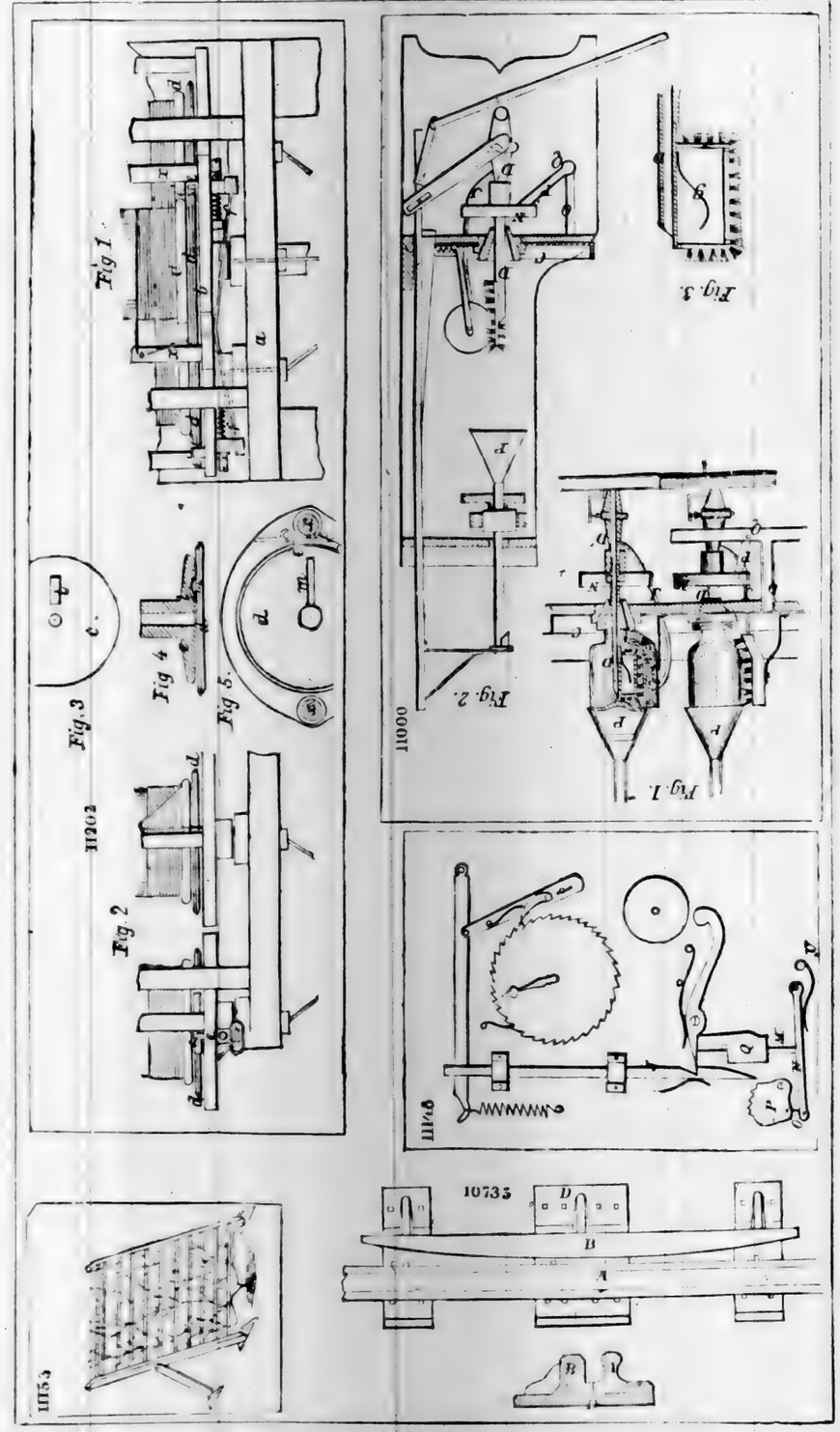
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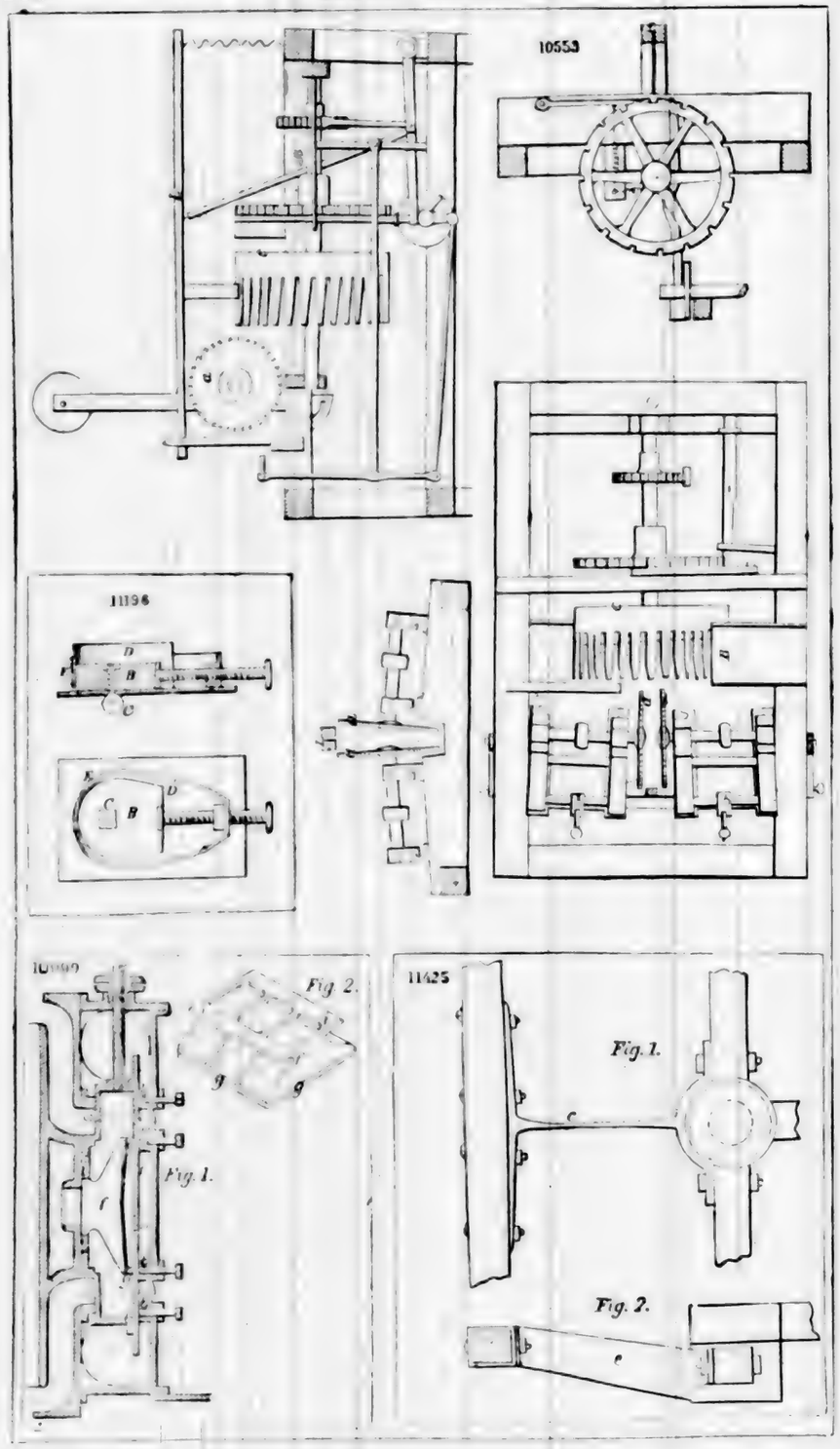
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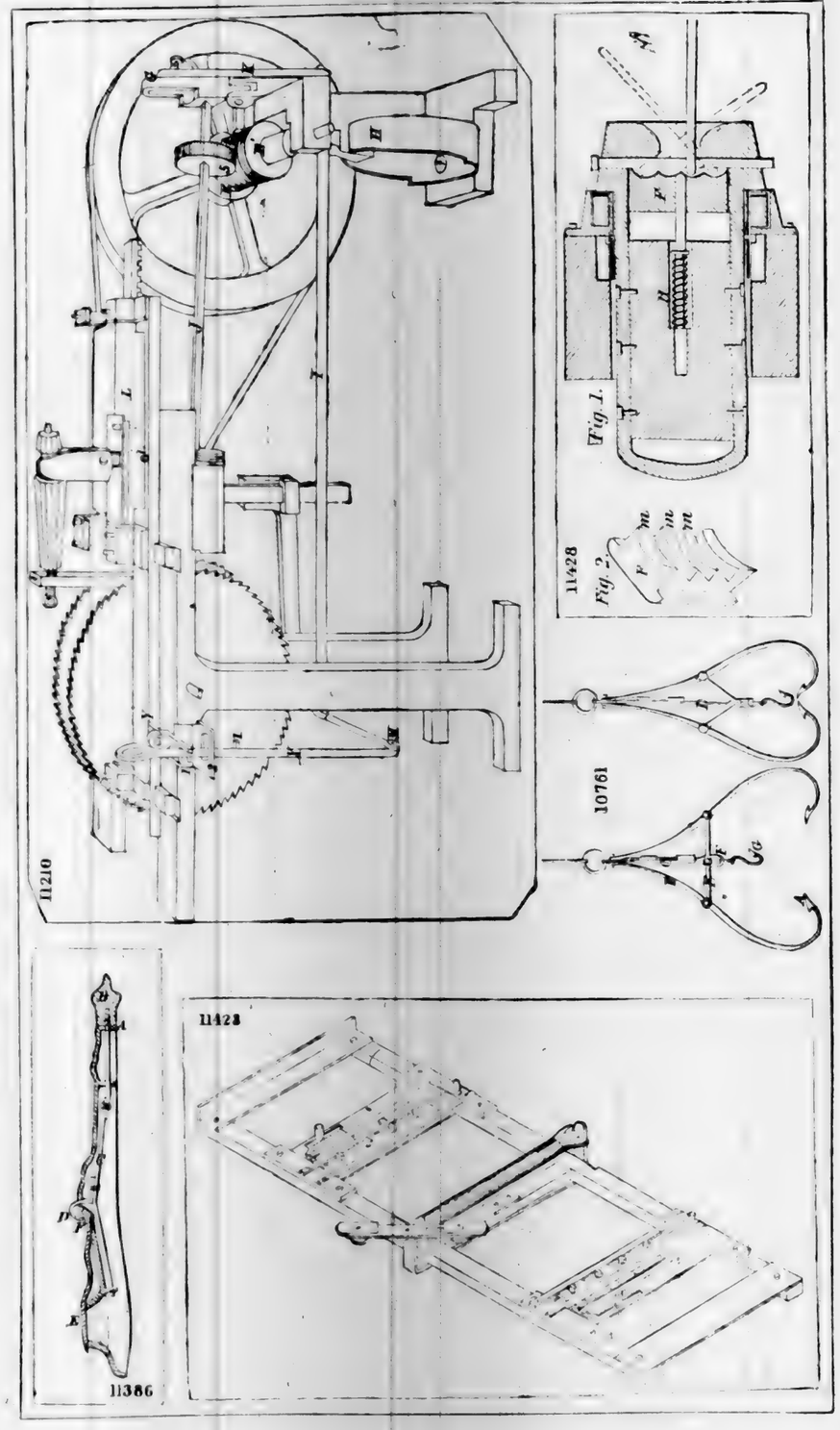
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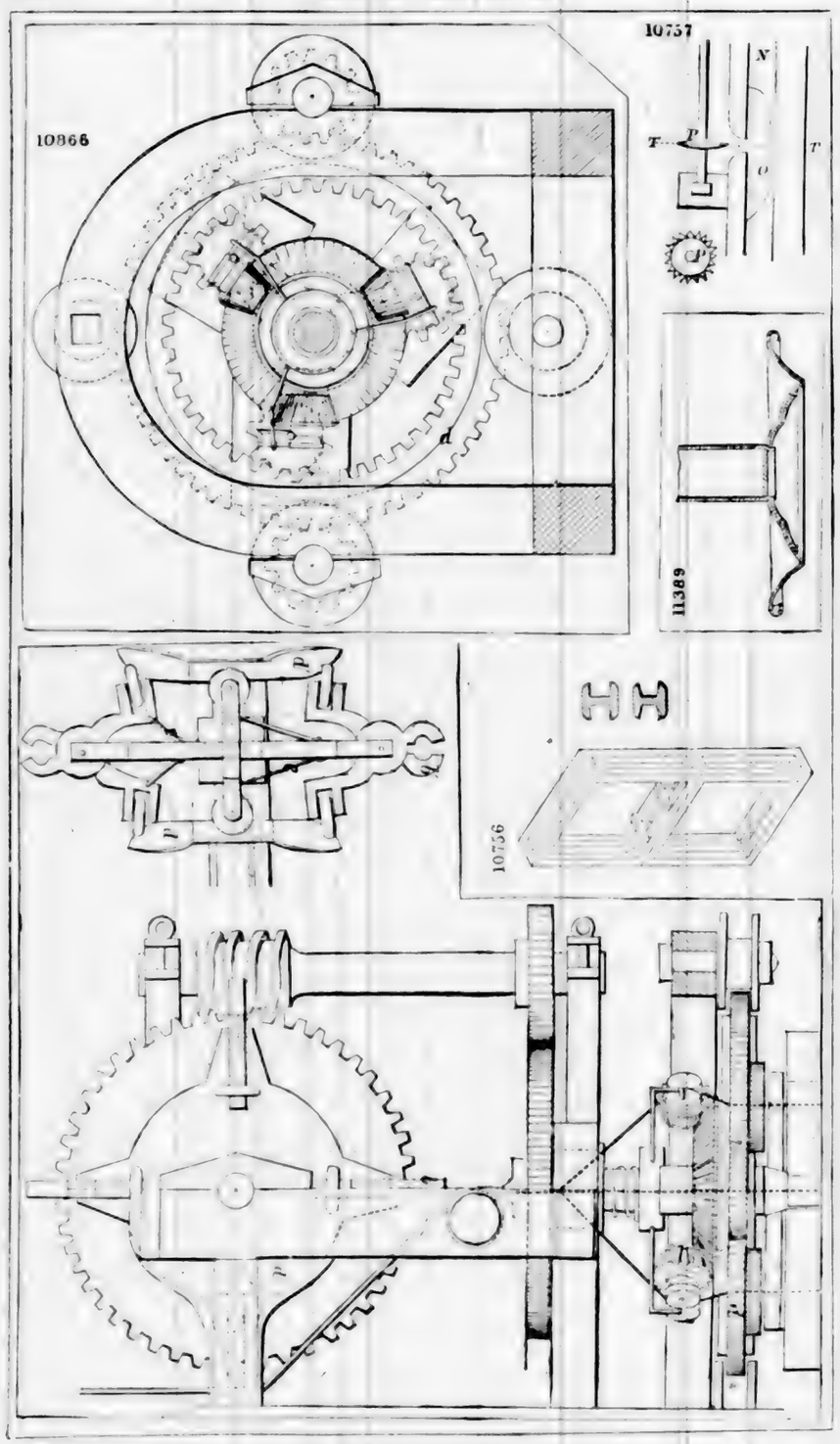
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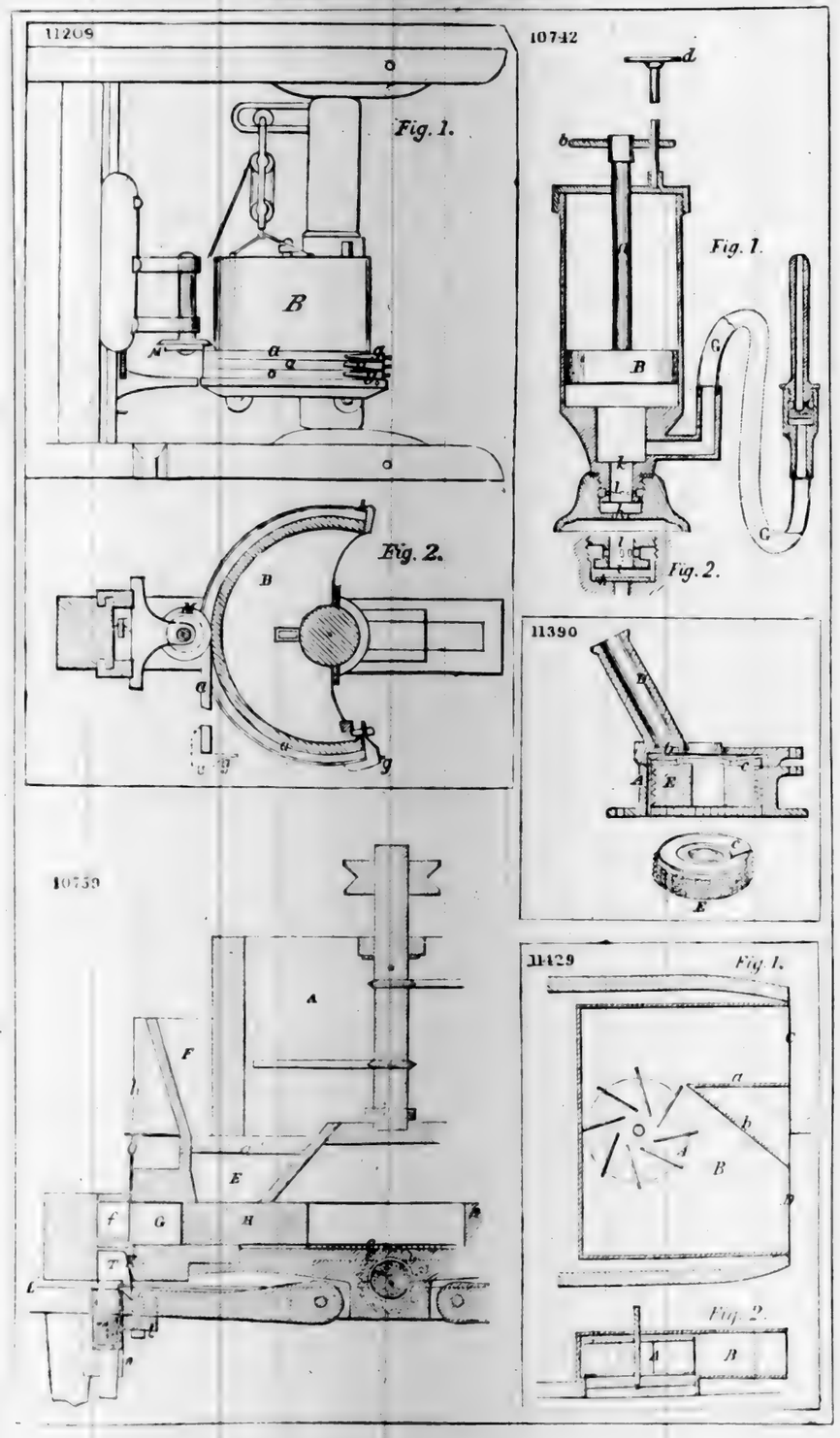

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Fig. 1. Fig. 2.

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Fig. 1 Fig. 2. Fig. 3. Fig. 4.

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11514 Fig. 6.

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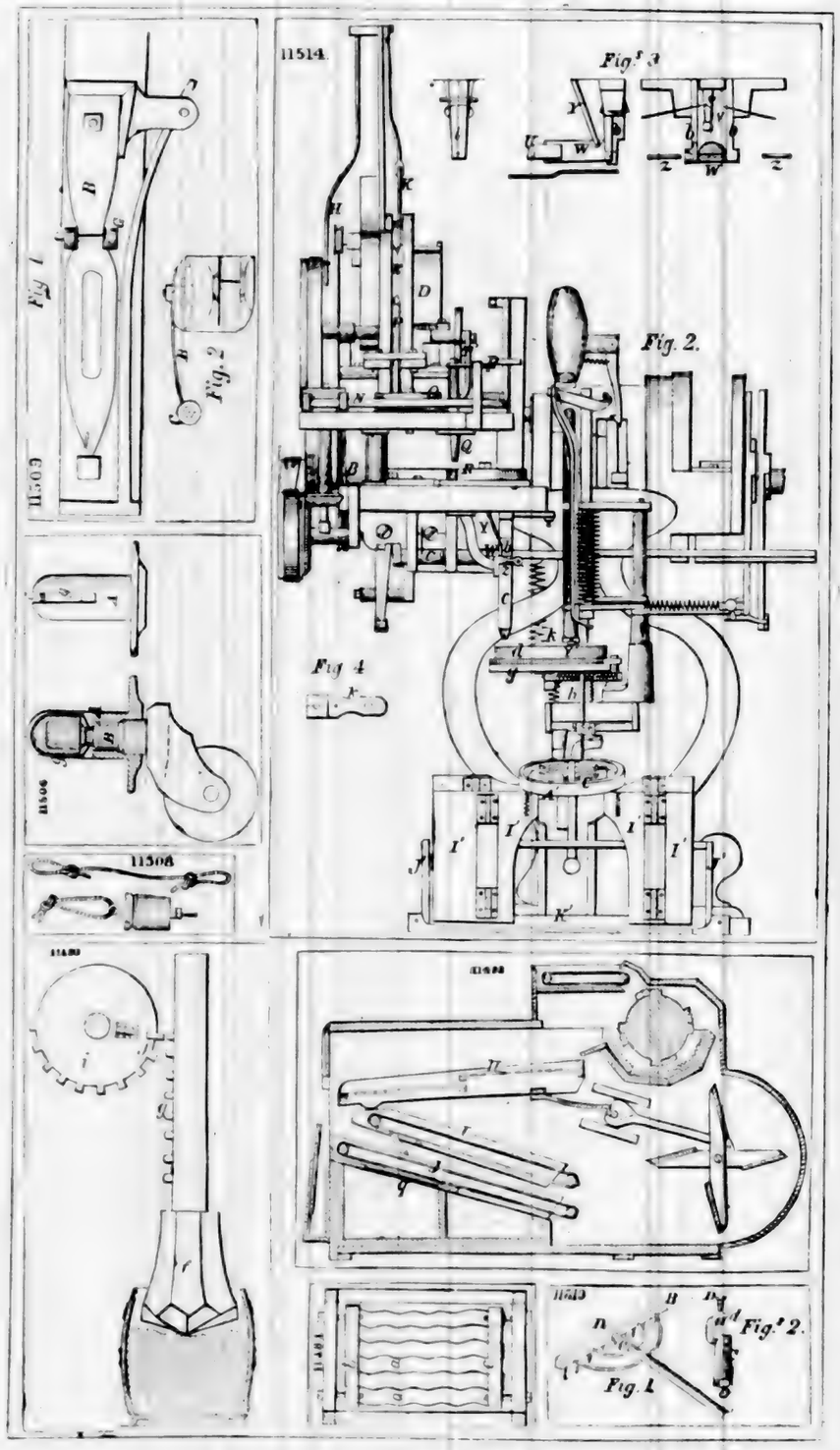
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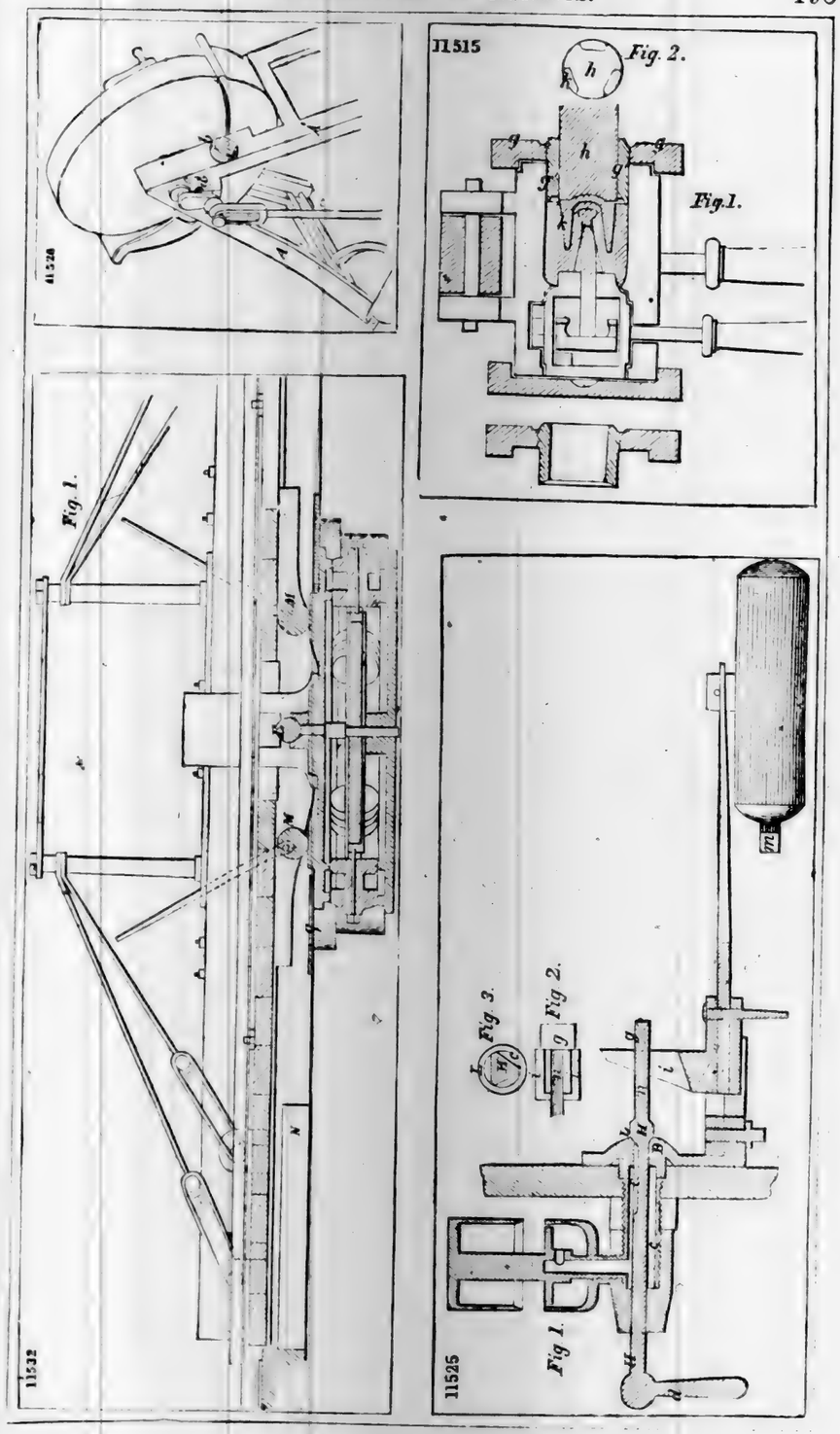
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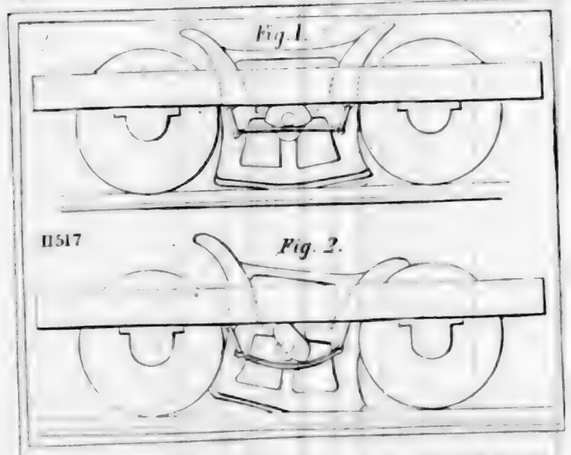
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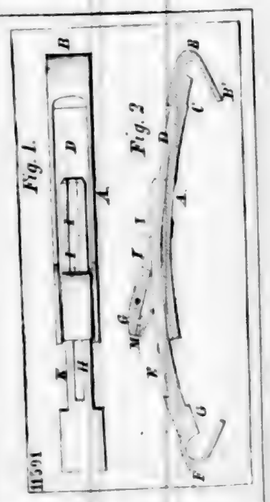
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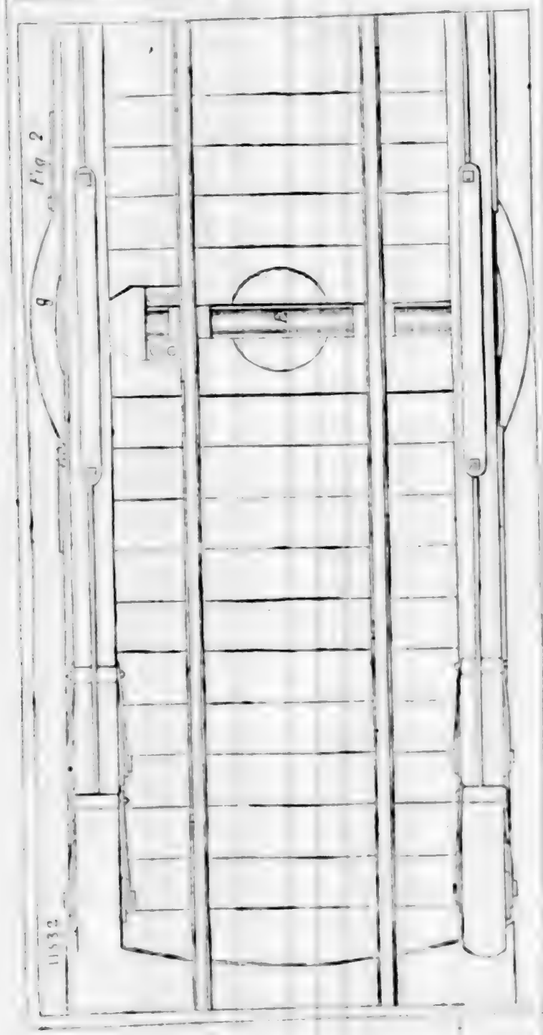
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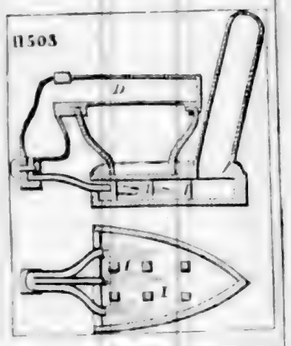

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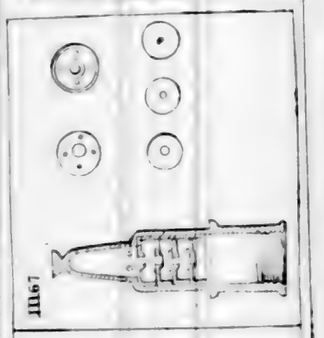

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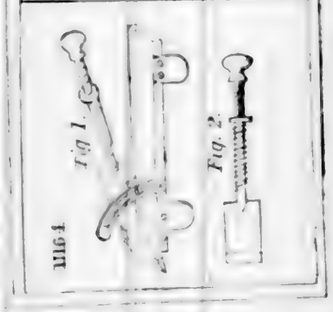

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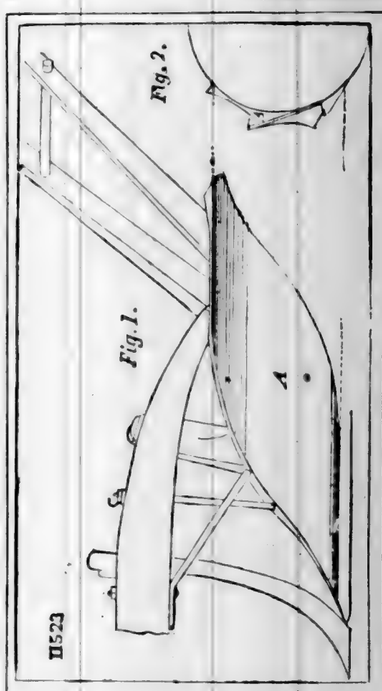

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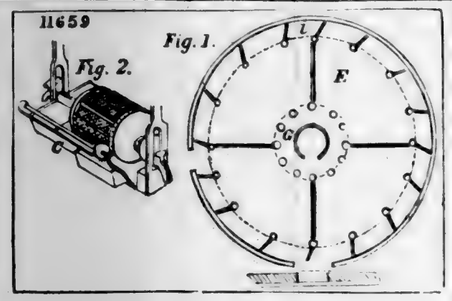

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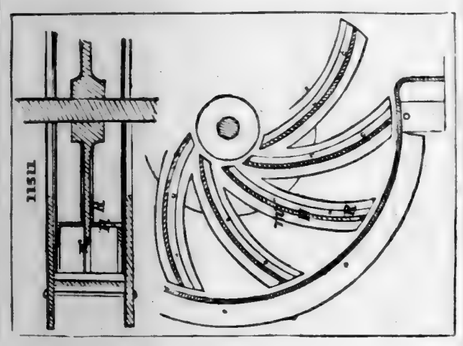

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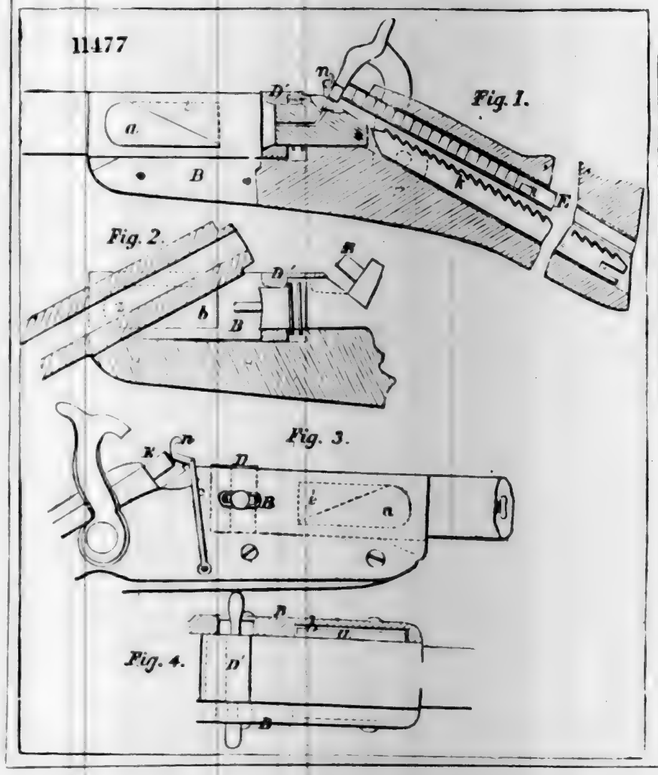

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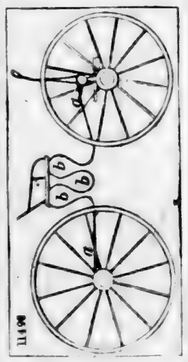

Fig 1.
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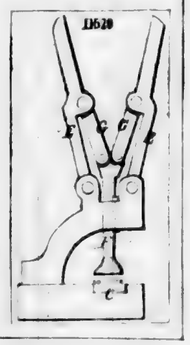

Fig. 2.
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Fig. 2.

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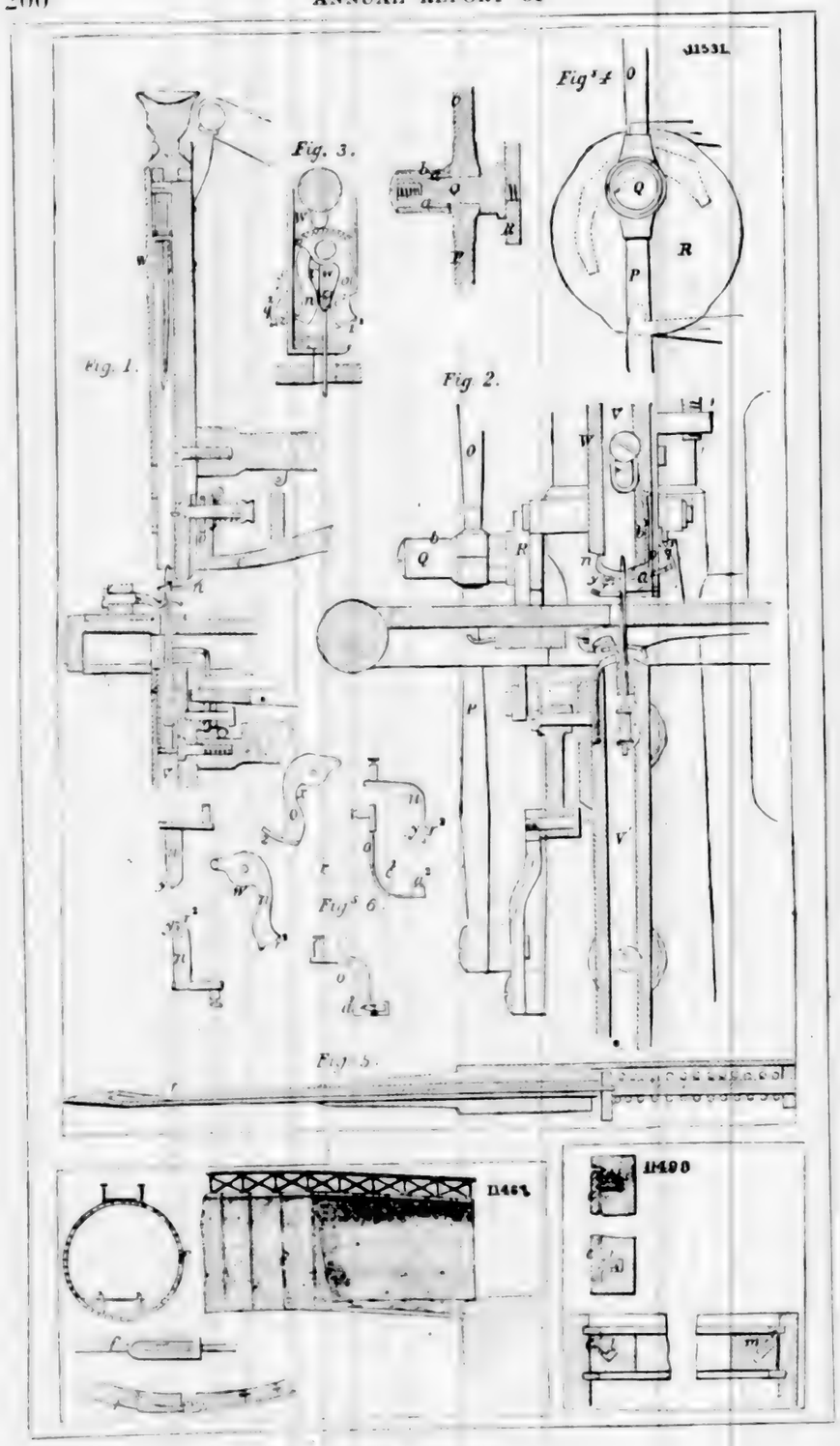
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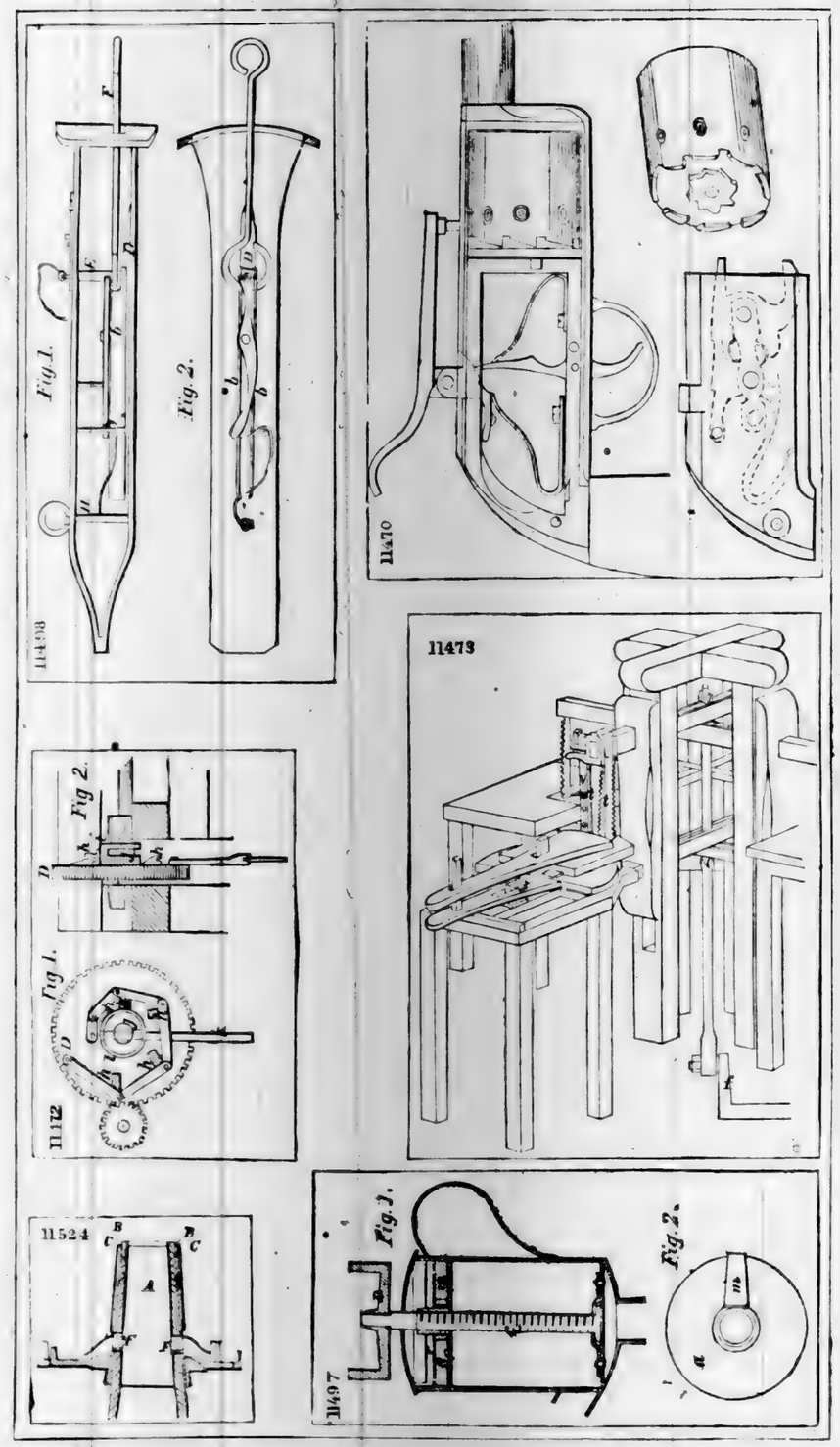
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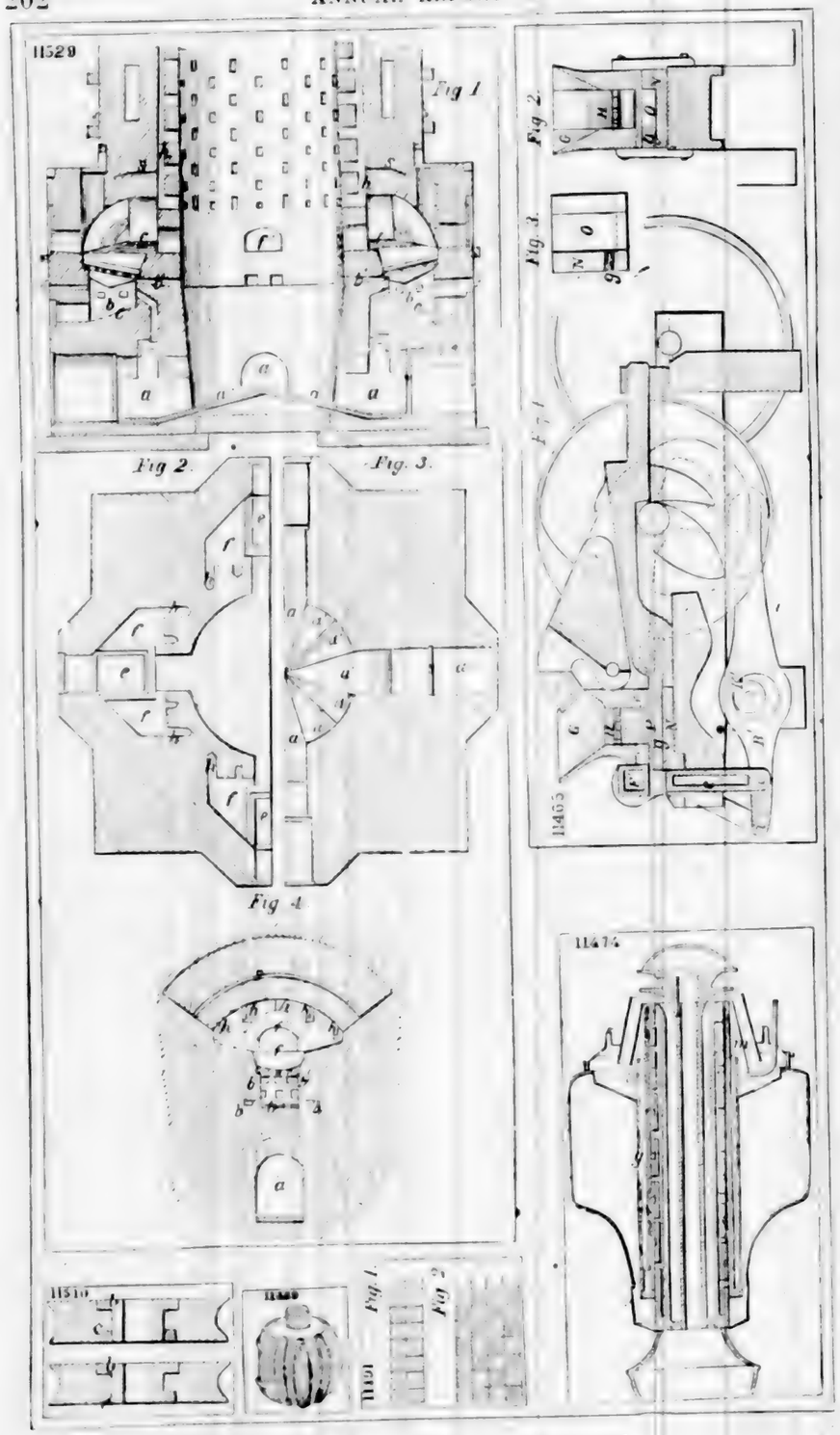
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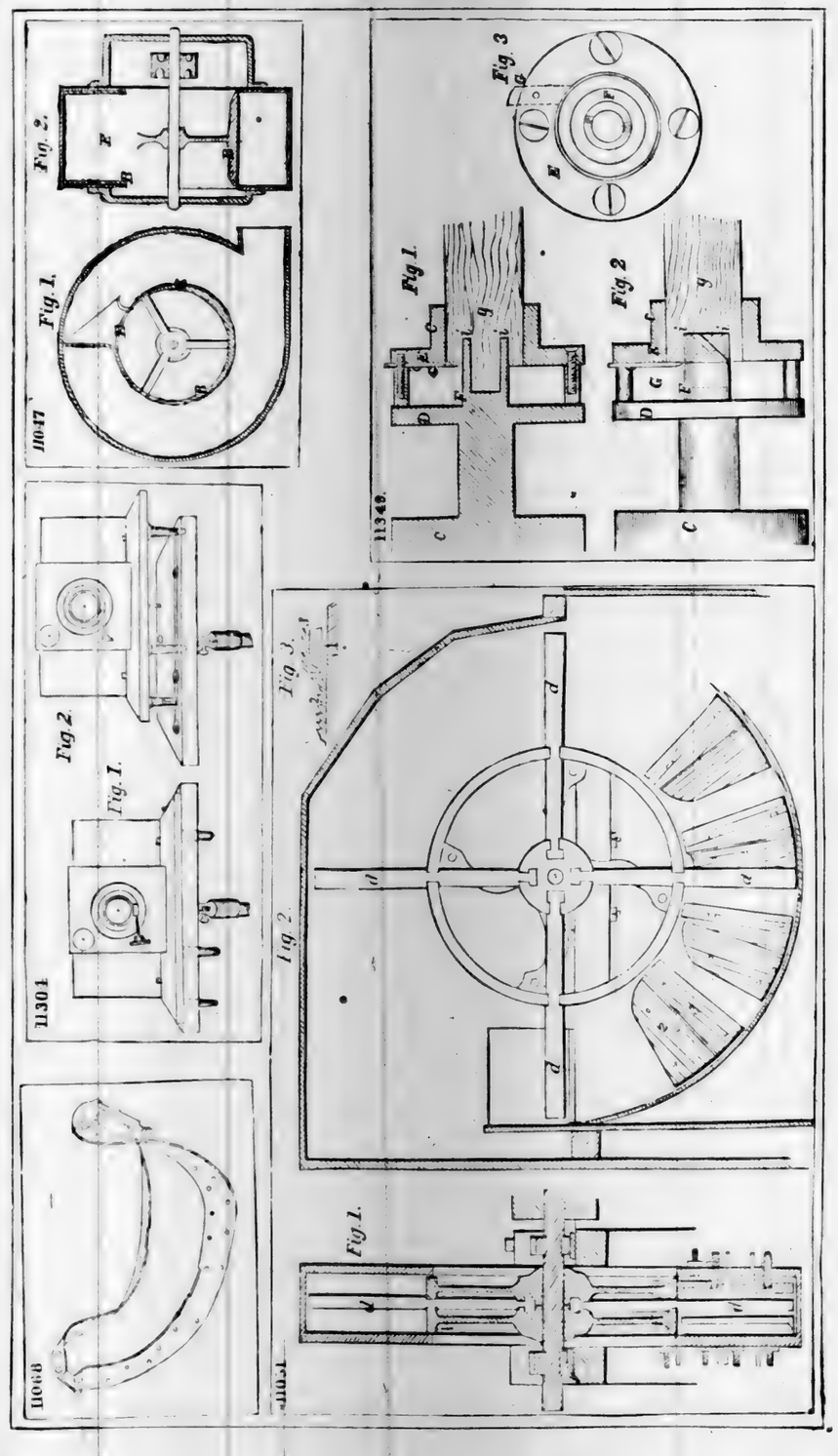
Fig. 2.

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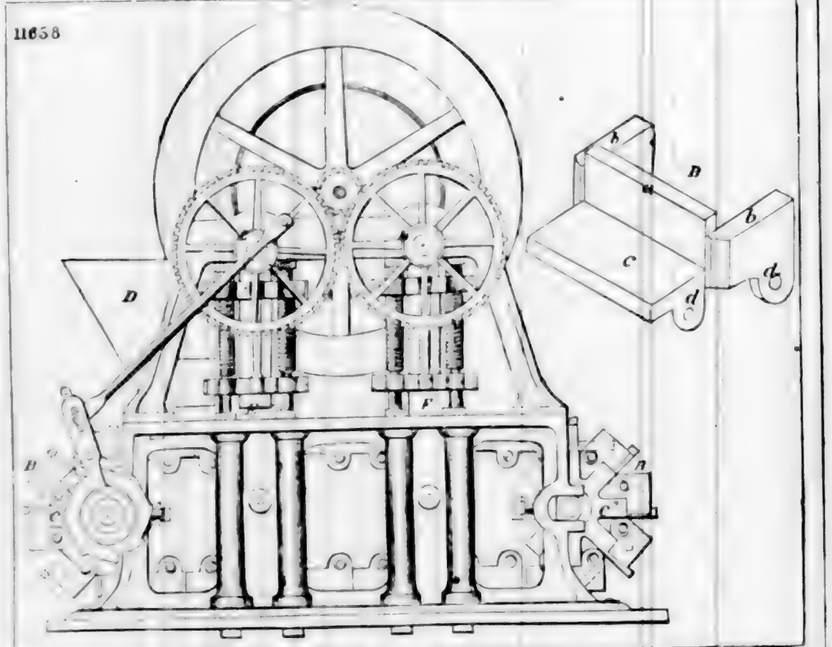

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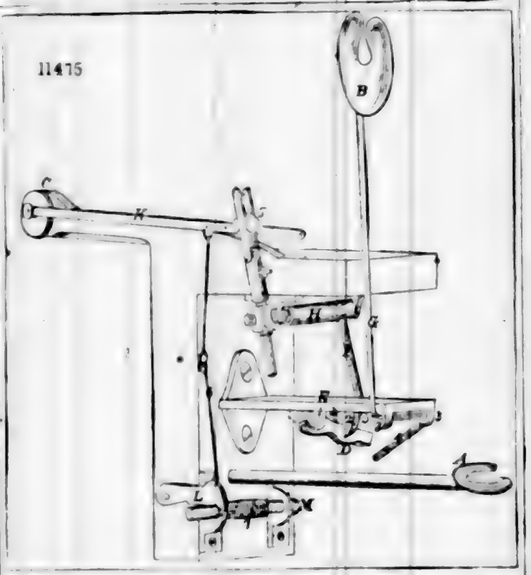


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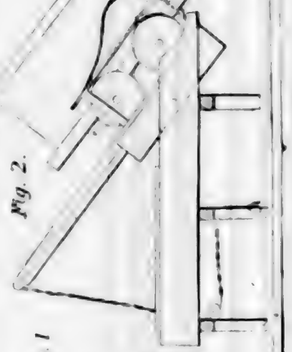
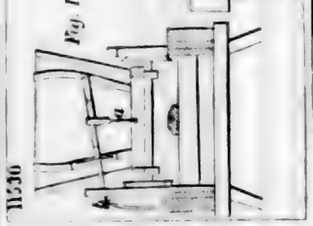
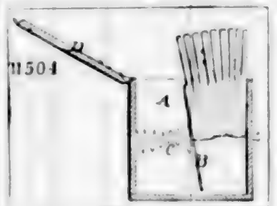


Fig. 1

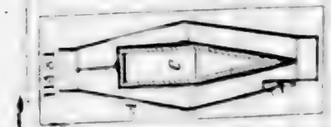


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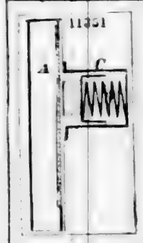
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Fig. 1.

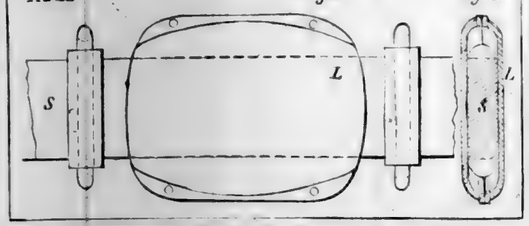
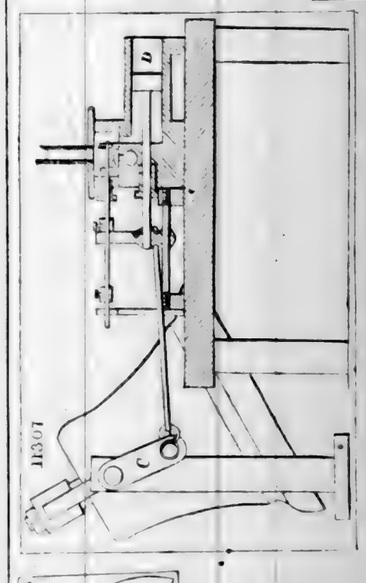


Fig. 2.



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Fig. 1.

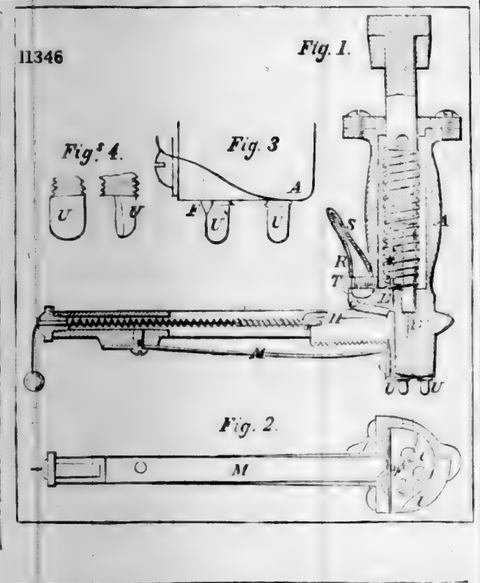
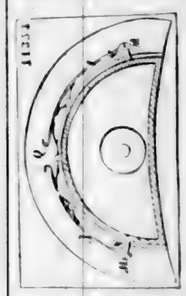


Fig.s 4.

Fig. 3

Fig. 2.

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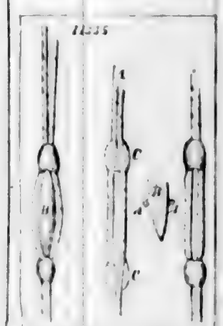


Fig. 2

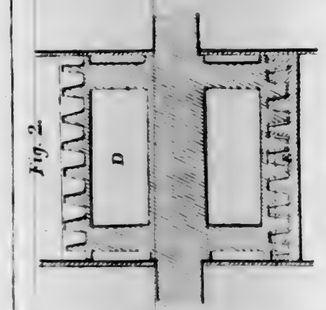
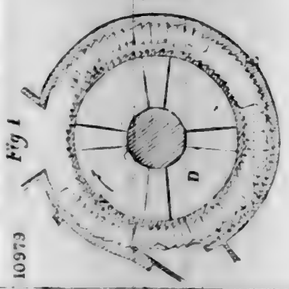


Fig 1



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Fig. 4.

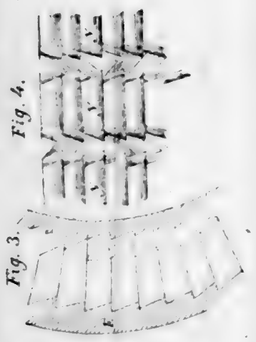


Fig. 3.

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Fig. 1.

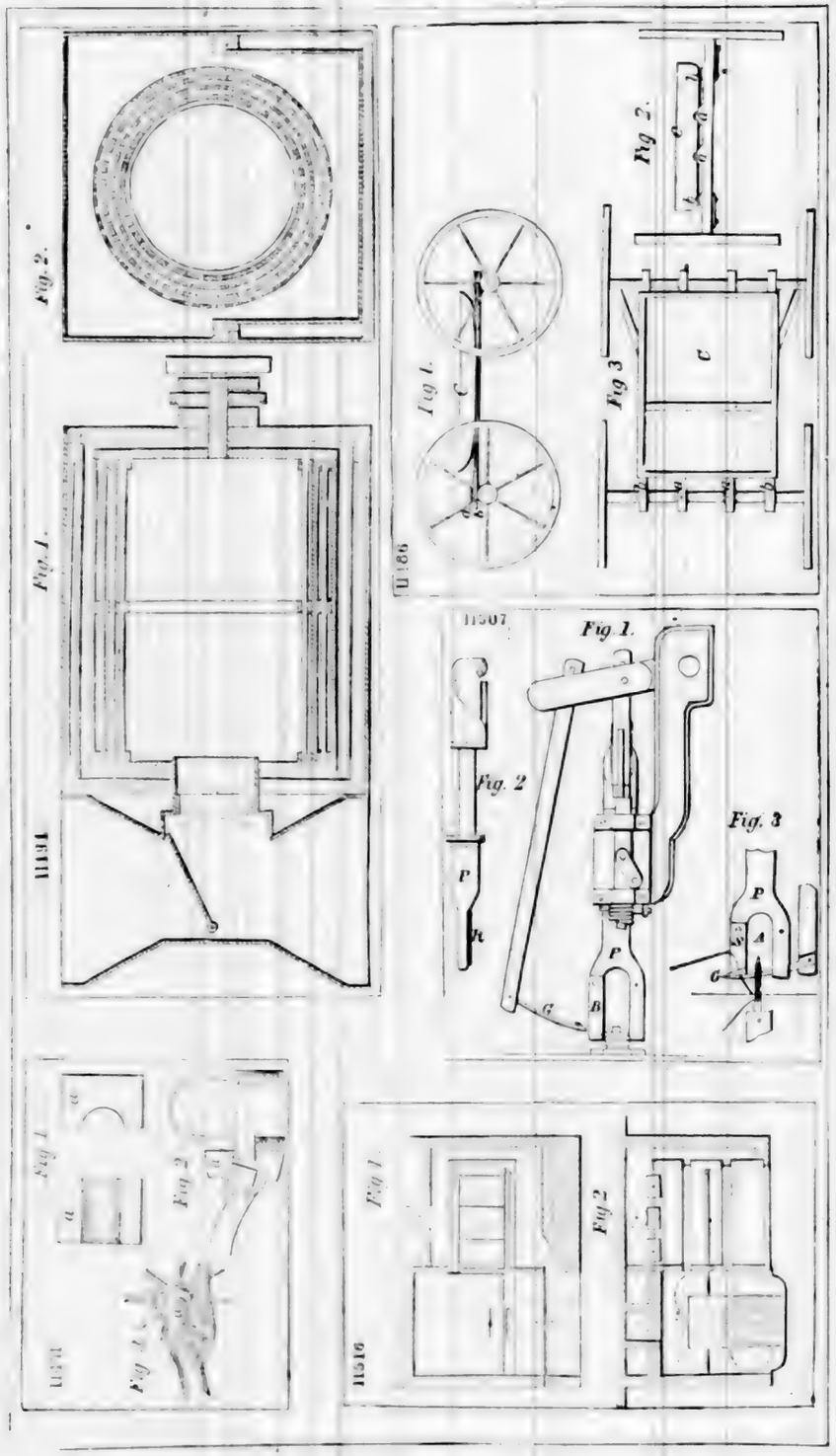
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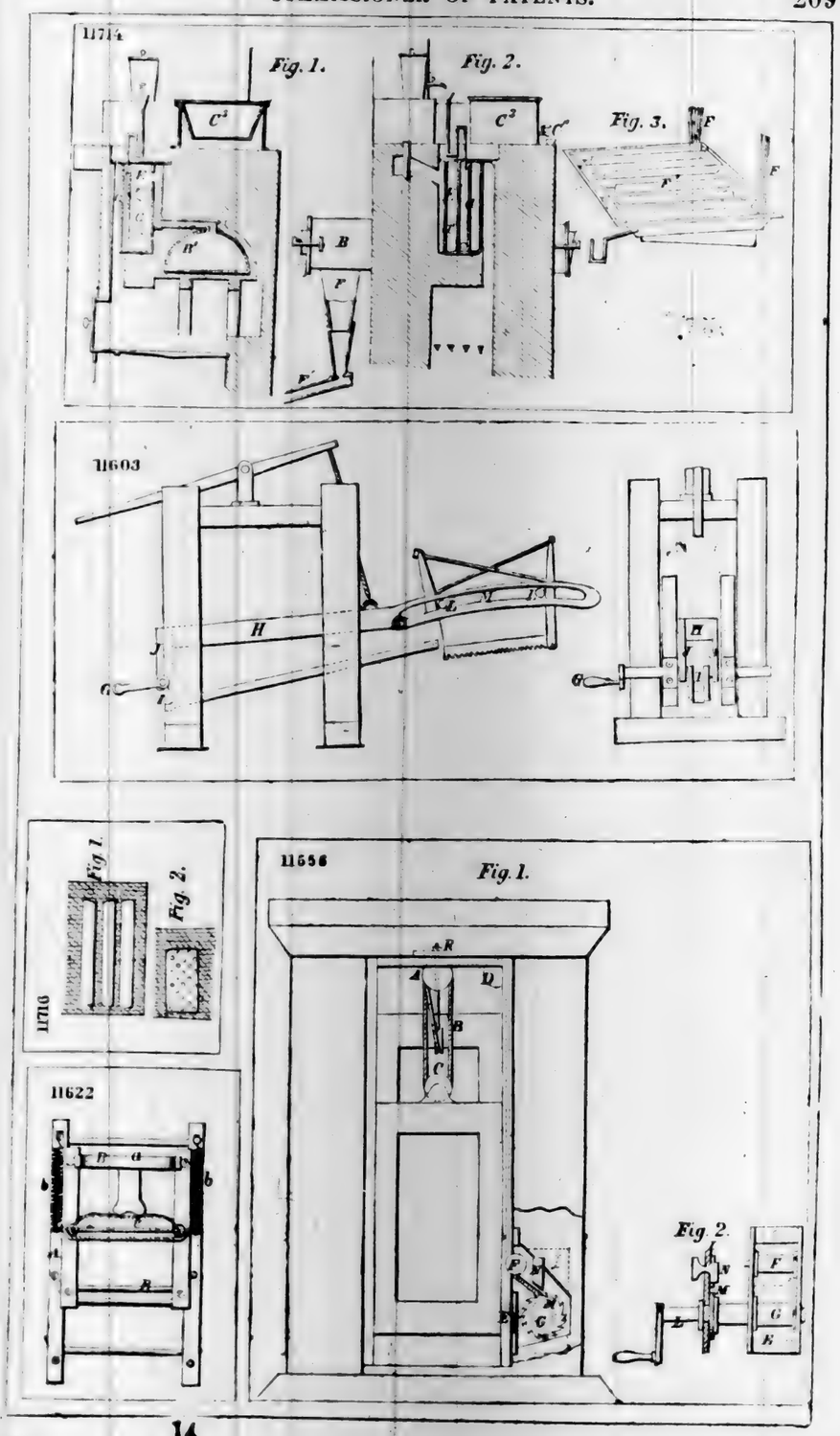
Fig. 4

Fig. 5

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Fig. 1.

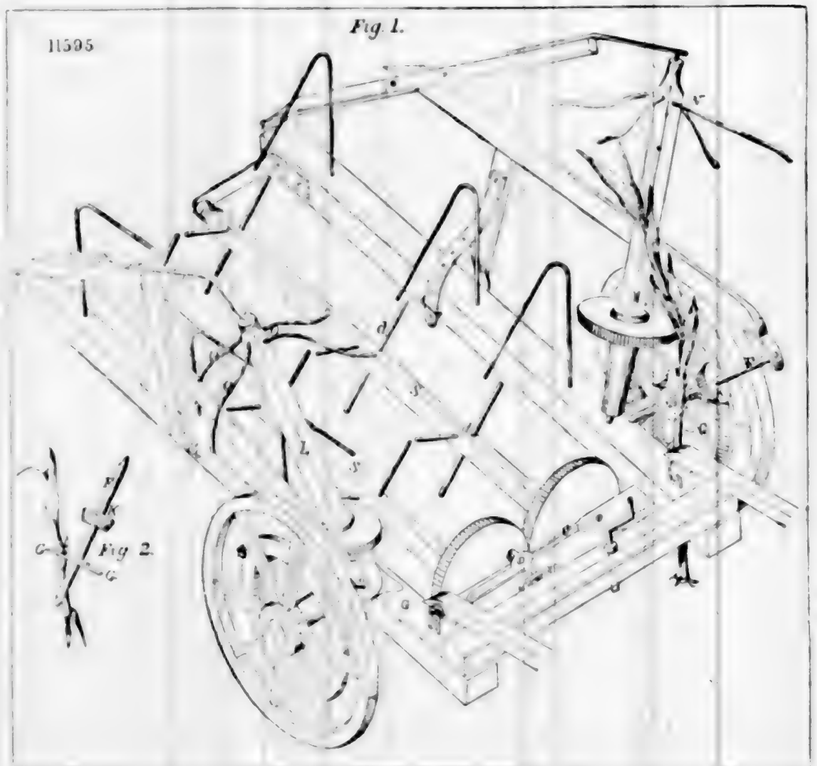
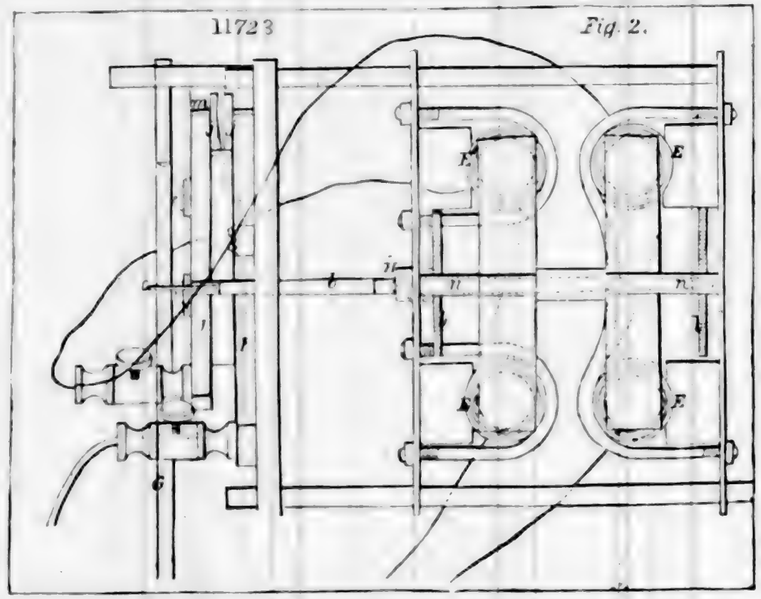


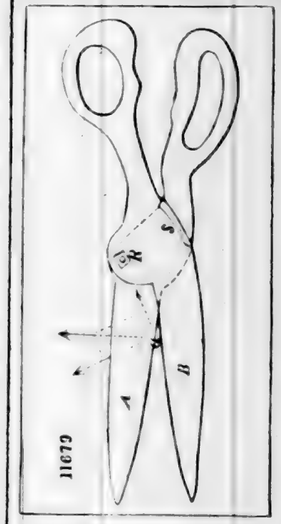
Fig. 2.

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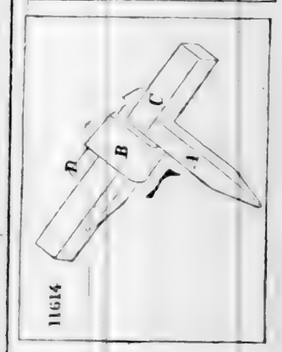
Fig. 2.



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Fig 2

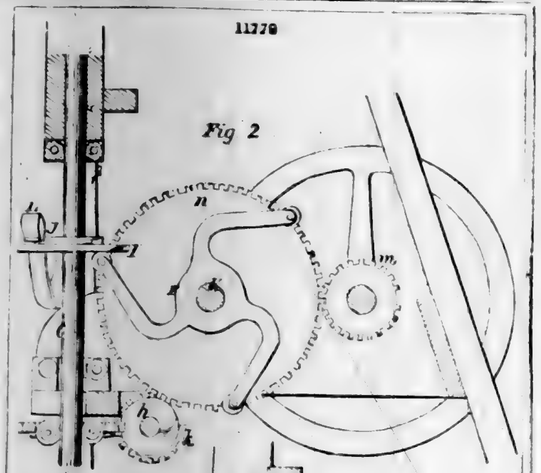


Fig. 3

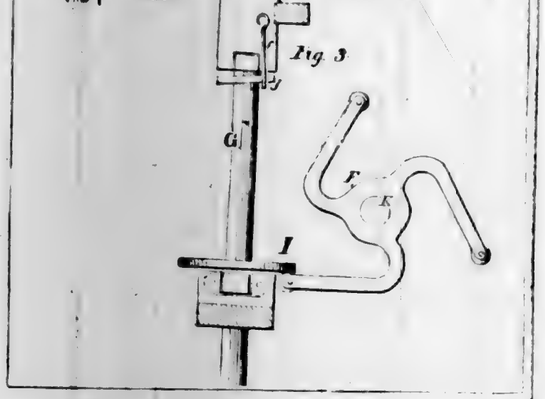


Fig. 1.

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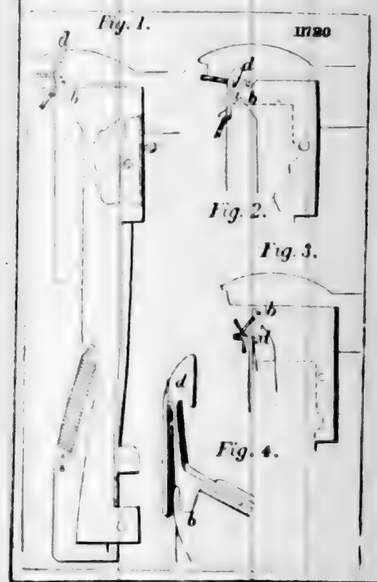


Fig. 2.

Fig. 3.

Fig. 4.

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Fig. 1.

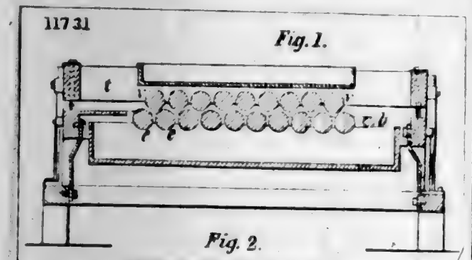
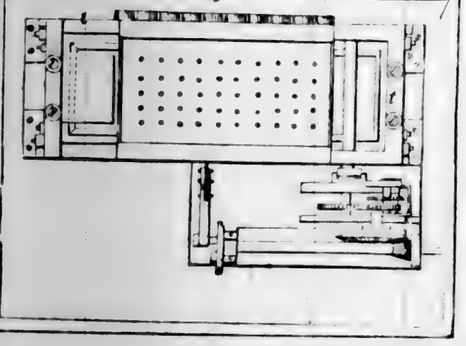


Fig. 2.



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Fig. 1.

Fig. 2.

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Fig. 1.

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Fig. 1.

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Fig. 1.

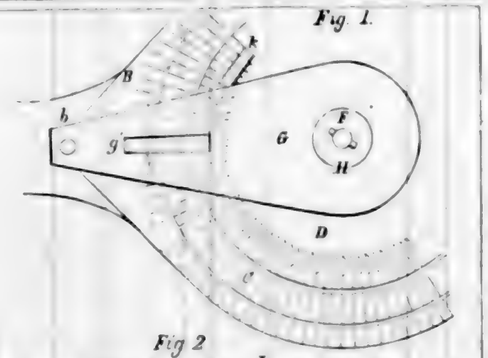
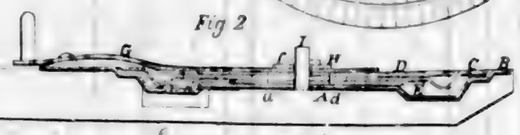


Fig 2



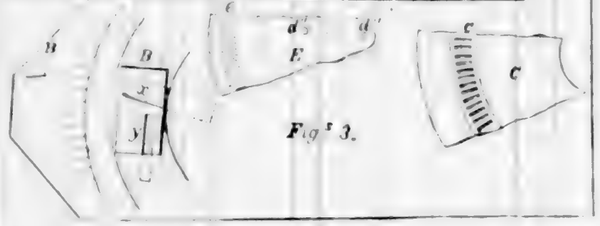


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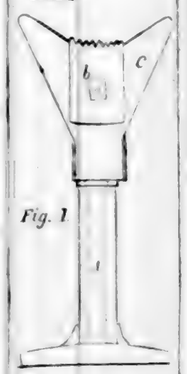


Fig. 1



Fig. 2.

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Fig. 1

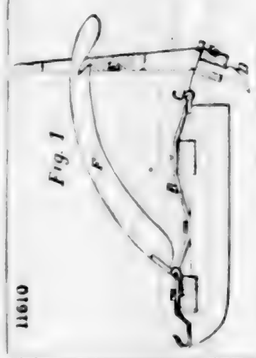


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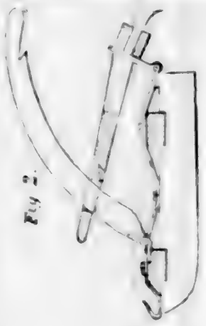
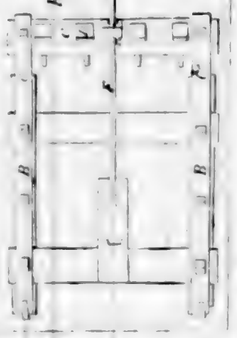
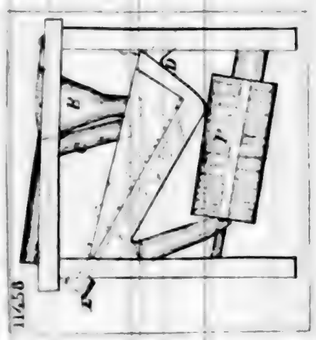


Fig. 3.



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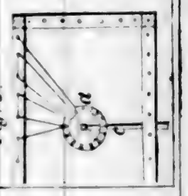


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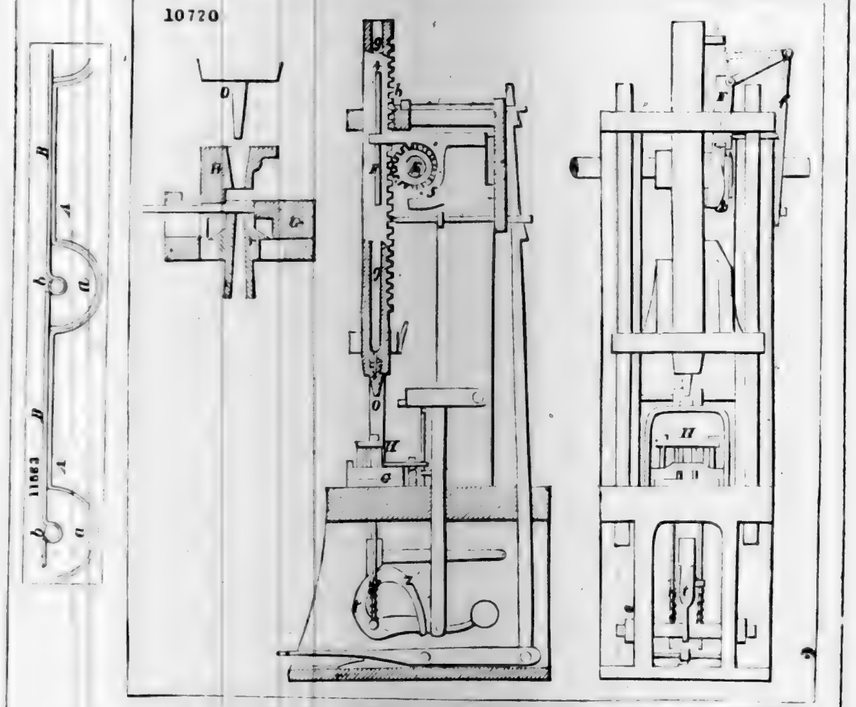
Fig. 1.



Fig. 2.



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Fig.ᵉ 1.

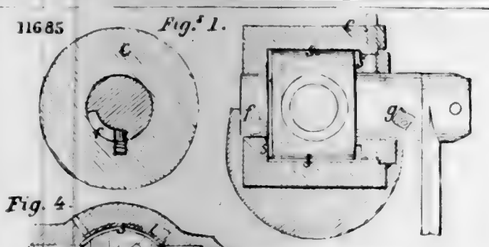


Fig. 4.

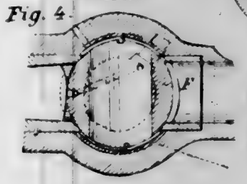
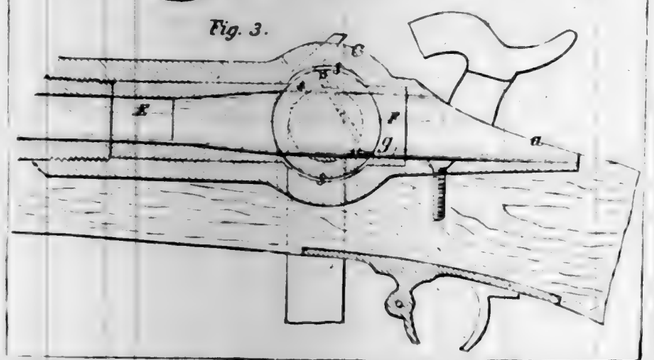


Fig.ᵉ 2



Fig. 3.



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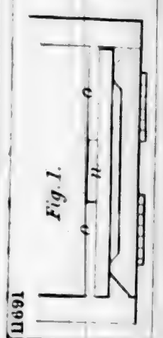
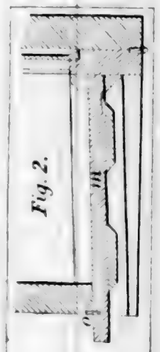
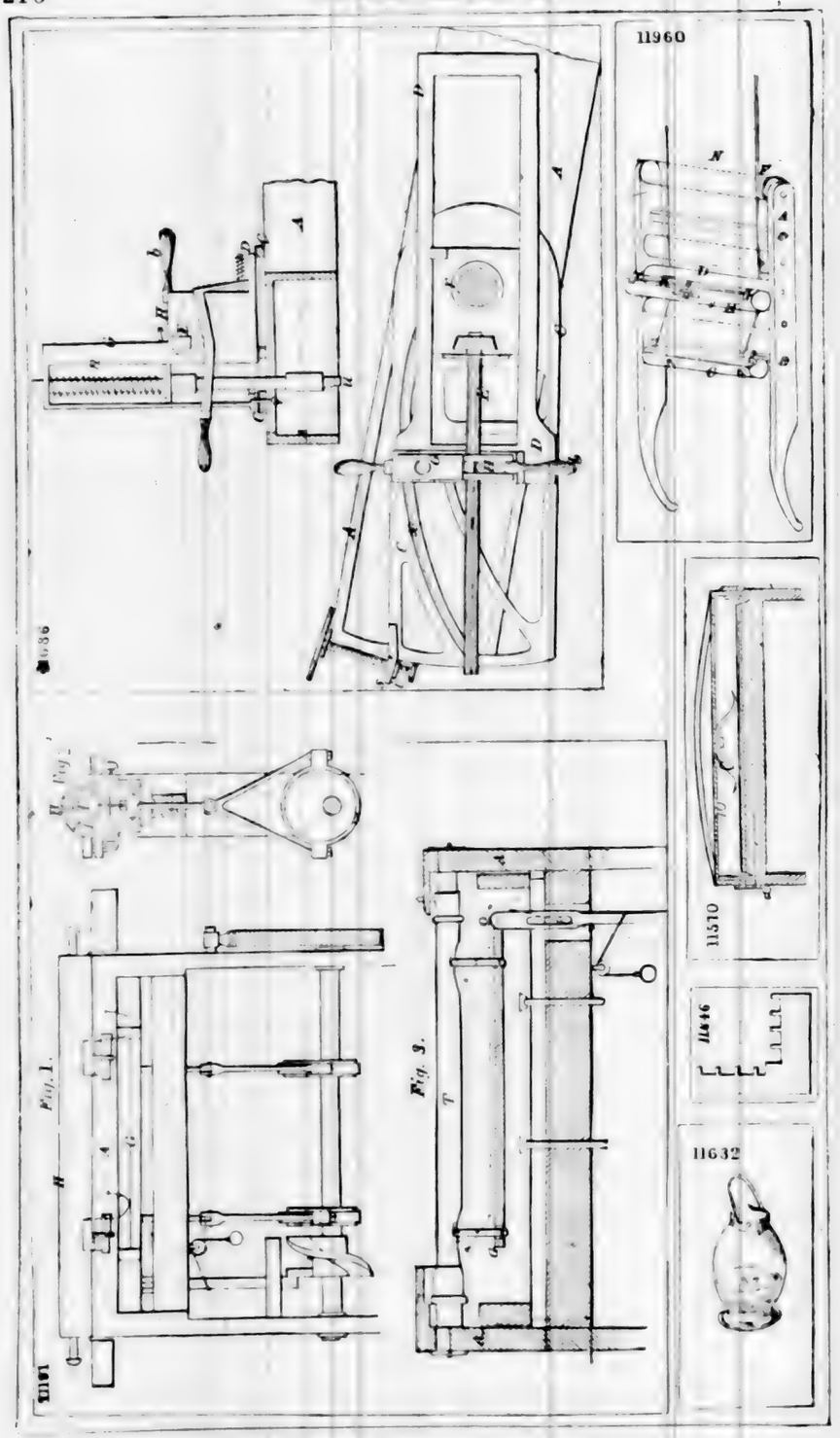
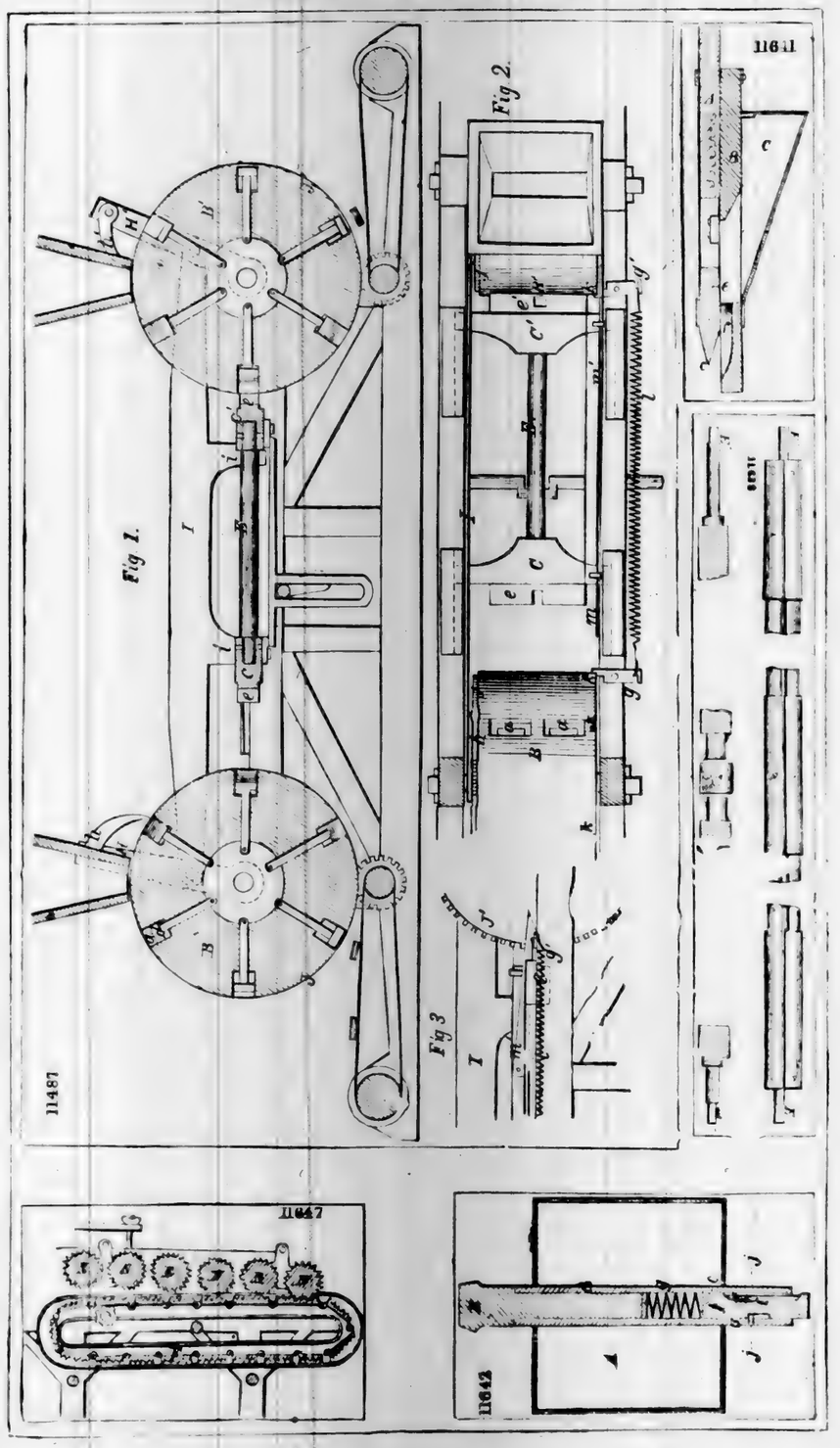


Fig. 2.




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Fig. 1.

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Fig. 2.

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Fig. 1

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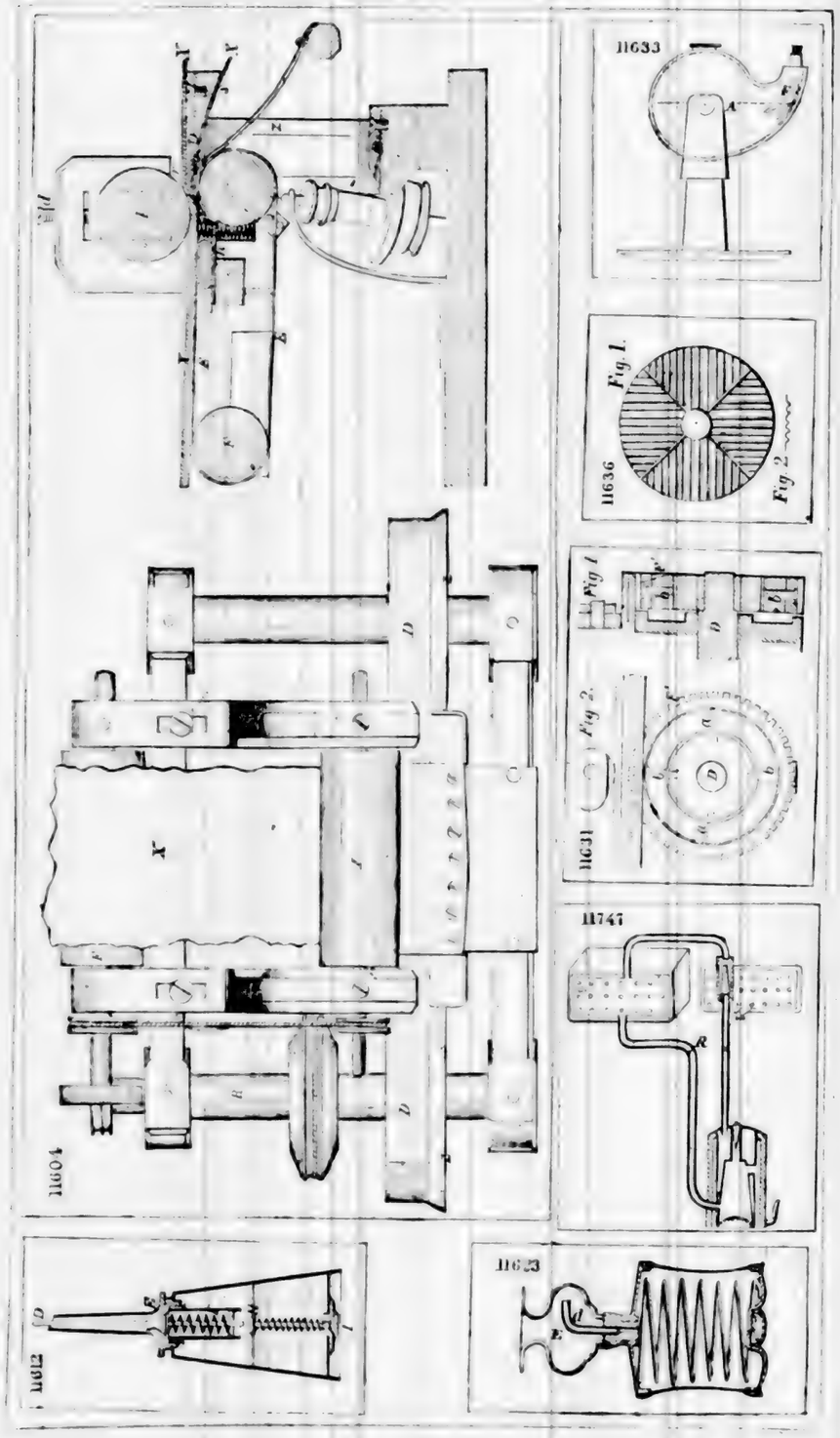
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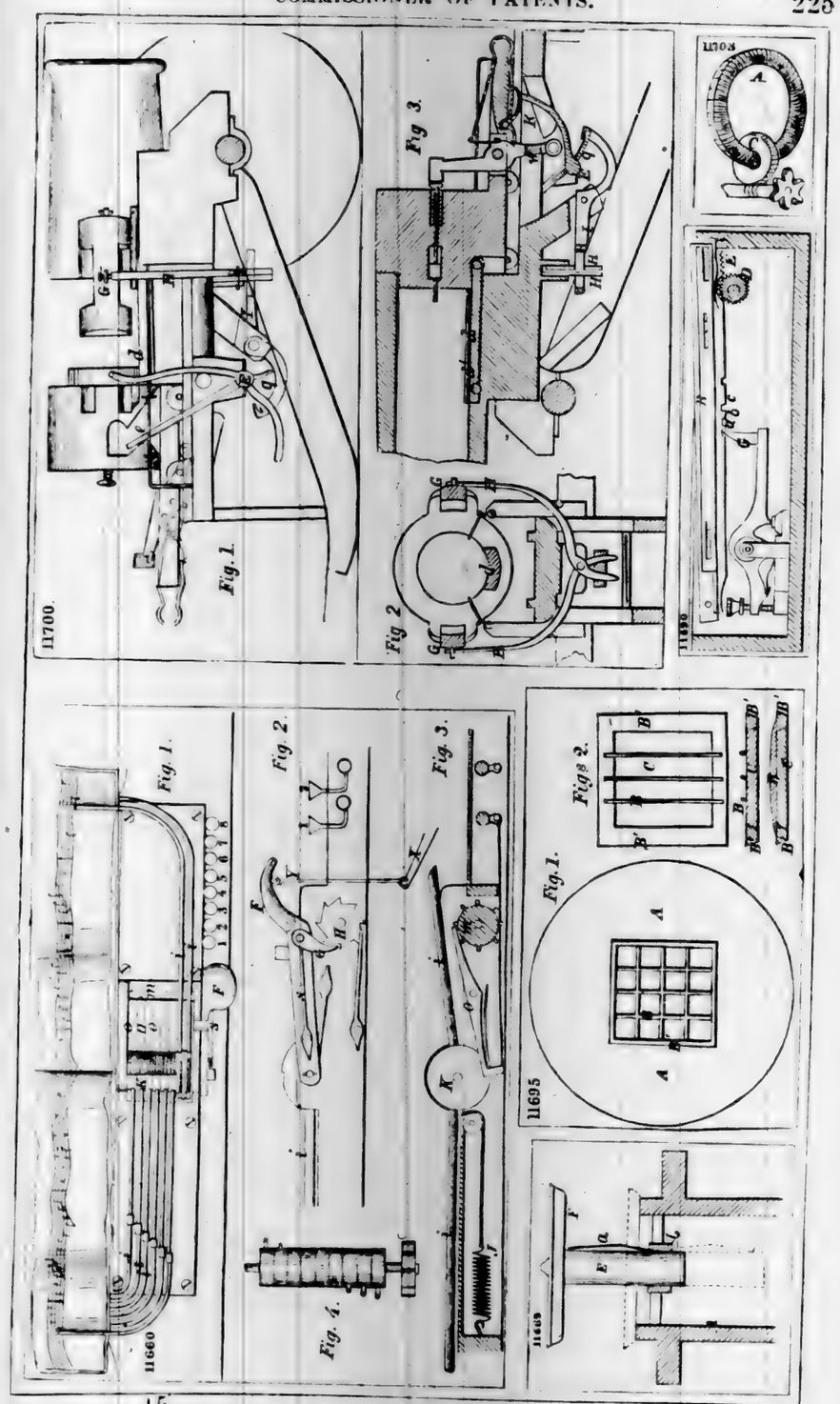
Fig. 1.

Fig. 2.

Fig. 3

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Fig. 1.
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Fig. 1.
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Fig 2.

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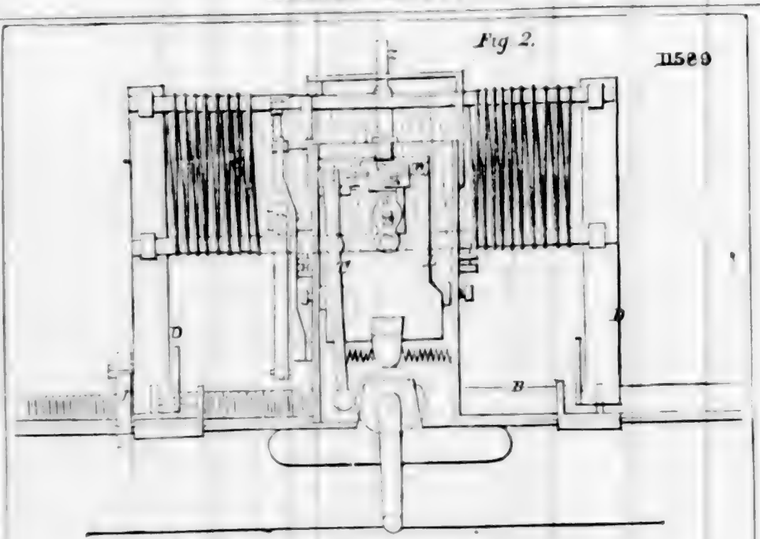
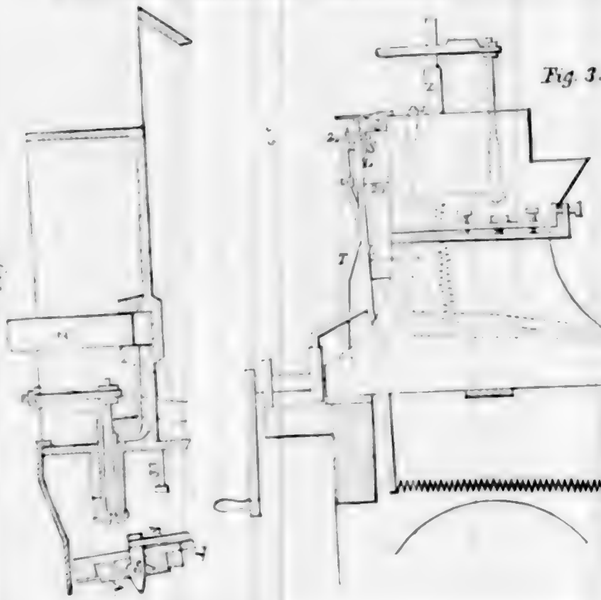
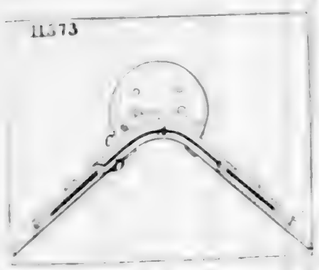


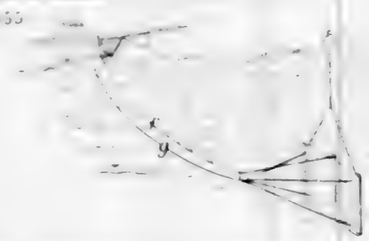
Fig. 3.



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Fig. 1.

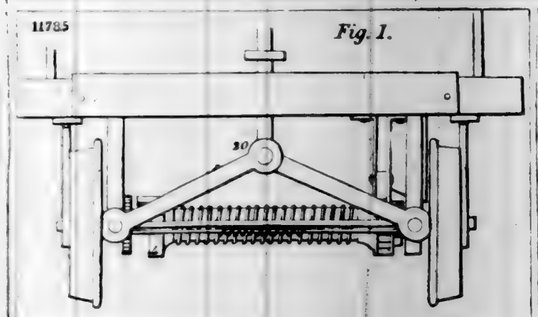


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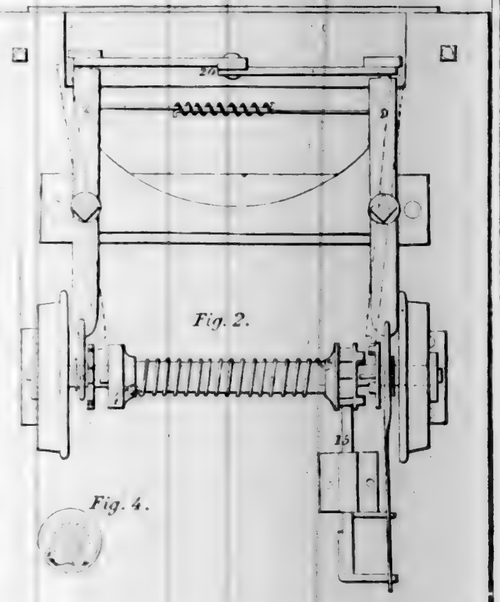
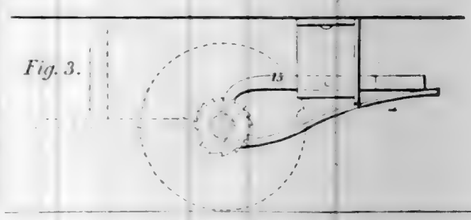
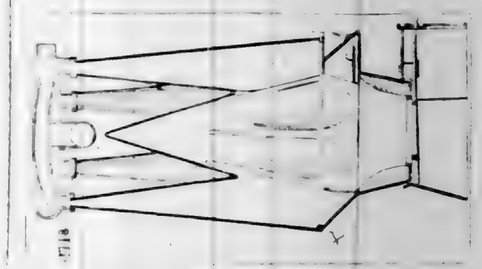


Fig. 4.

Fig. 3.





11626

Fig. 1.

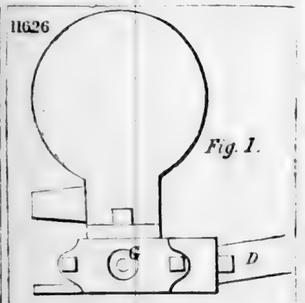
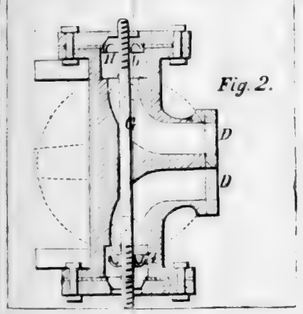
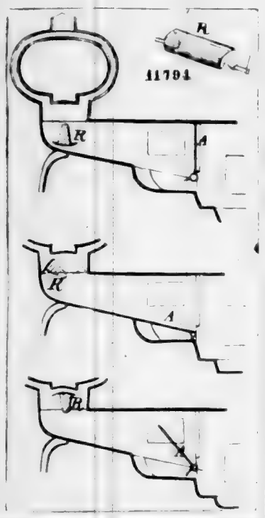


Fig. 2.



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Fig. 1.

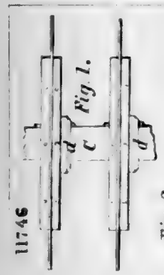
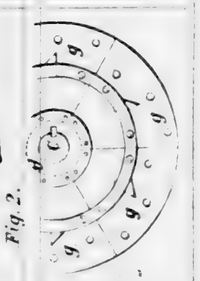
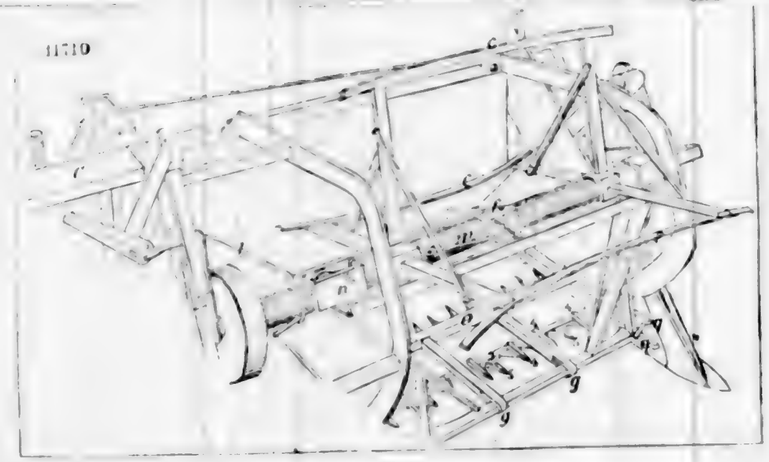
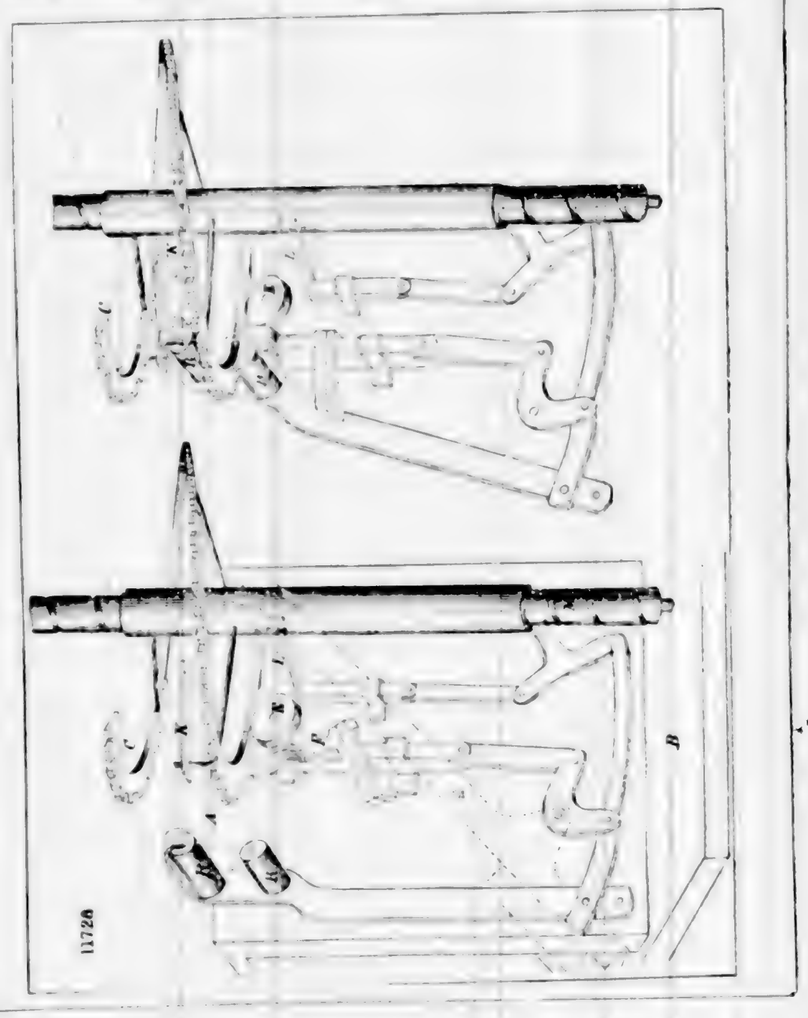


Fig. 2.



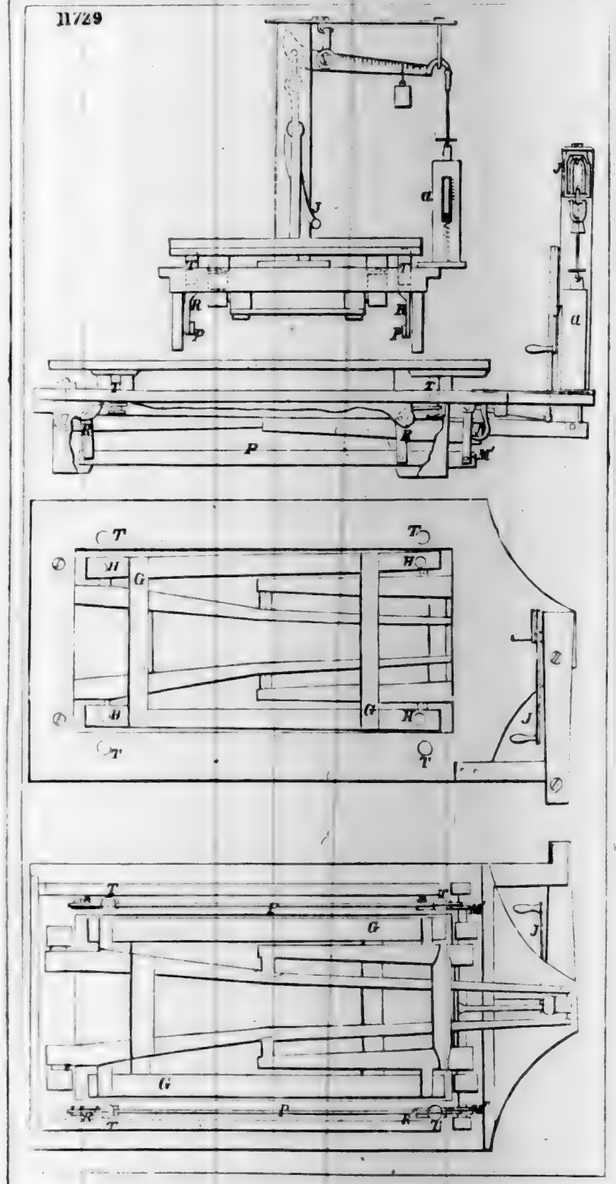
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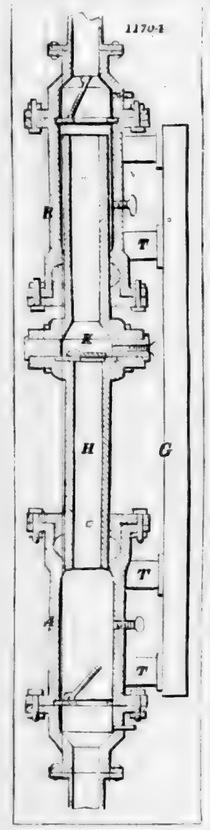


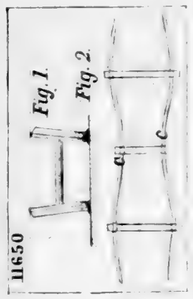
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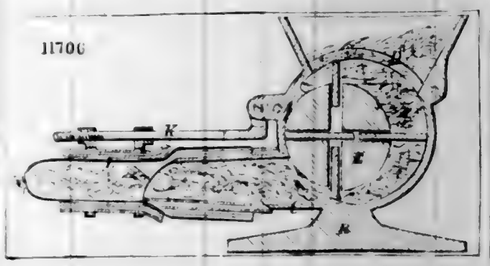
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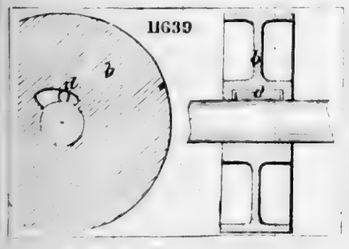


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Fig 3

Fig 2

Fig 1

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Fig^s 1.

Fig^s 2

Fig^s 3.

Fig^s 4

Fig^s 5.

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Fig. 1.

Fig. 2.

Fig. 3.

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Fig. 3.

Fig. 1.

Fig. 2.

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Fig. 1.

Fig. 2.

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Fig. 3.

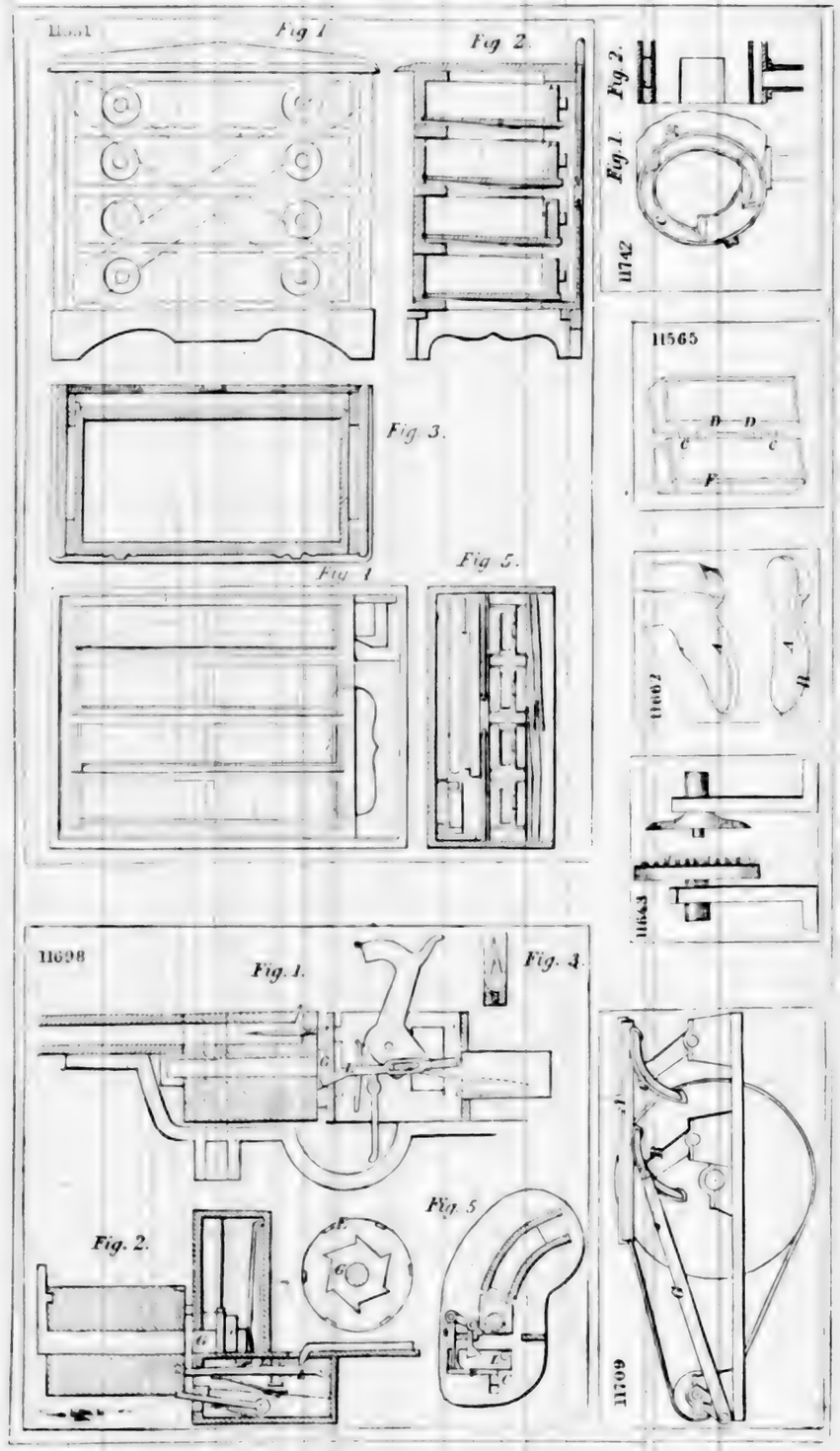
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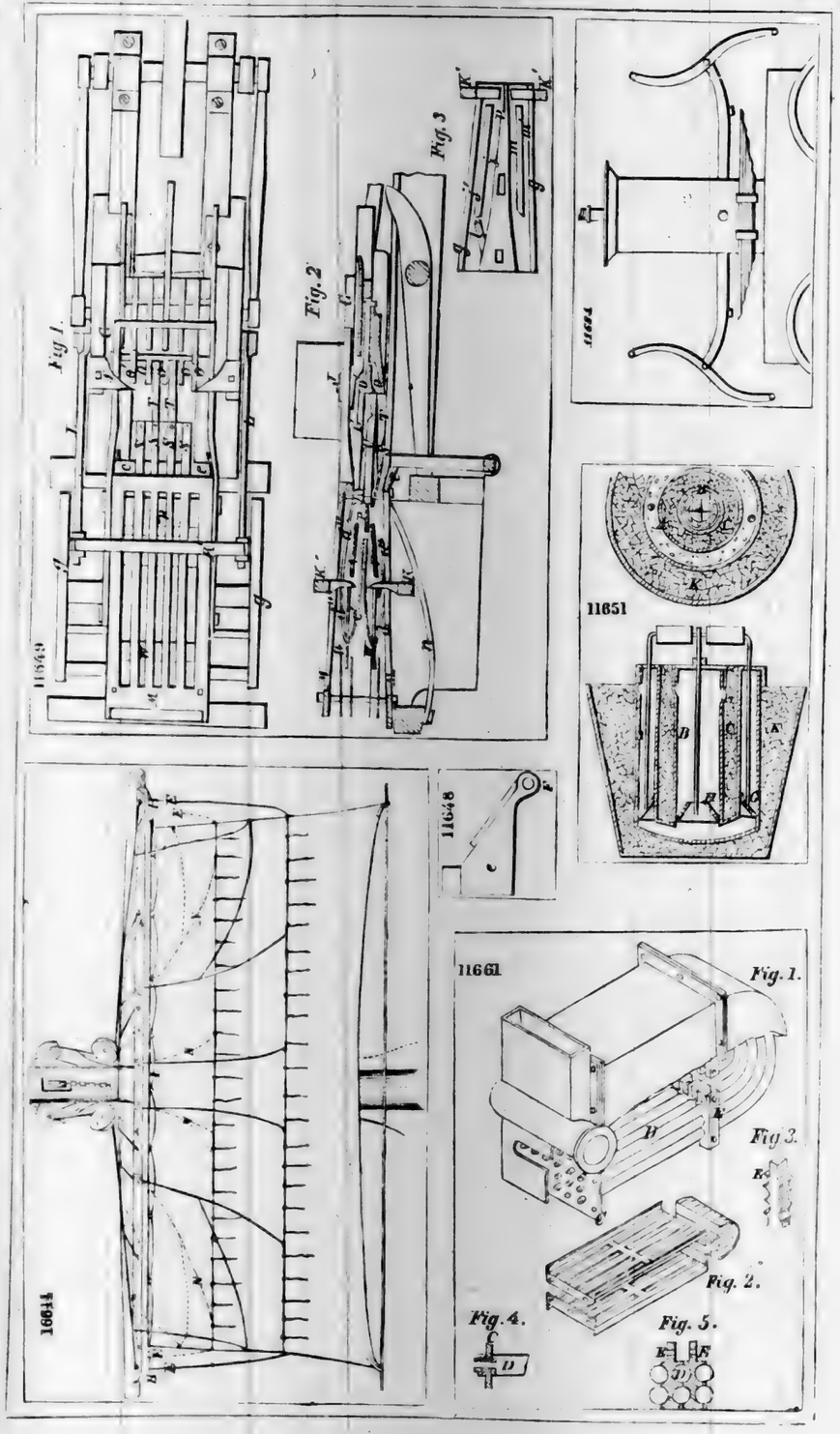
Fig. 2.

11670

Fig. 1.

Fig. 2.


Fig 1
Fig 2.
Fig. 2.
Fig. 1.
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Fig. 3.
Fig 4
Fig 5.
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Fig. 1.
Fig. 4.
Fig. 2.
Fig 5
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Fig. 1.
Fig. 2
Fig. 3
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Fig. 1.
Fig 3.
Fig. 2.
Fig. 4.
Fig. 5.
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Fig. 1.

Fig. 2.

Fig. 3.

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Fig. 3.

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Fig. 2.

Fig. 3.

Fig. 1.

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Fig. 1.

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Fig. 1

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Fig. 3.

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Fig. 5.

Fig. 6.

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Fig. 2.

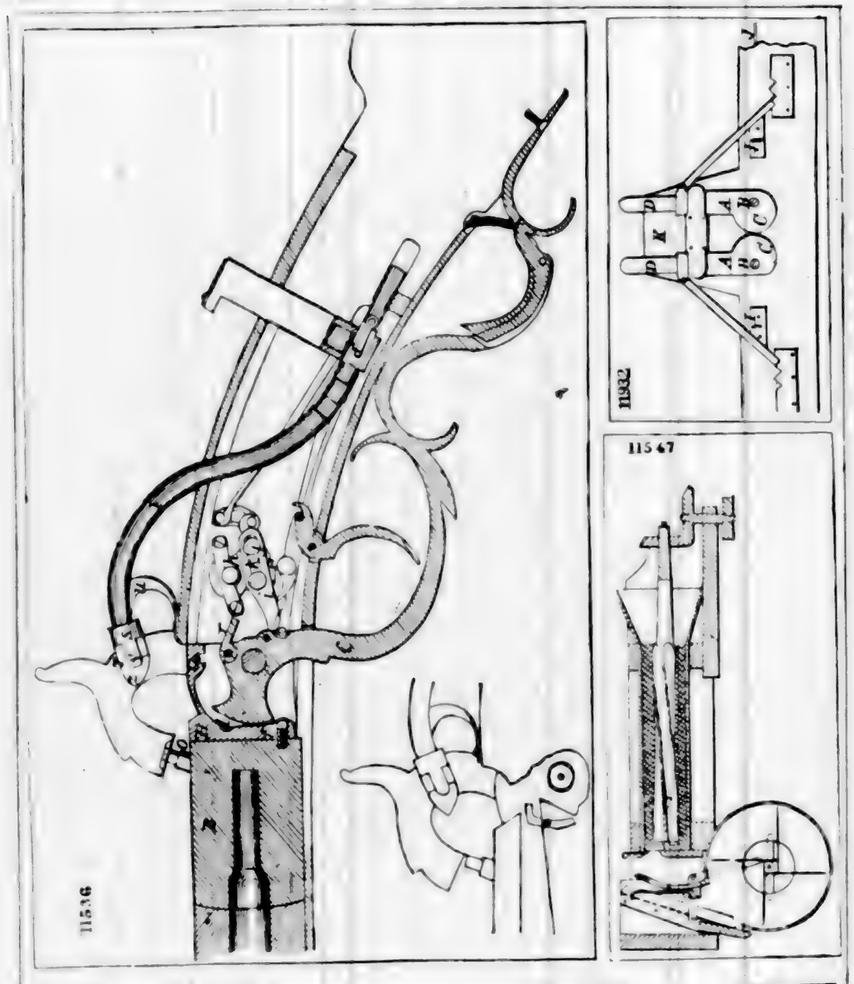
Fig. 1.

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Fig. 1.

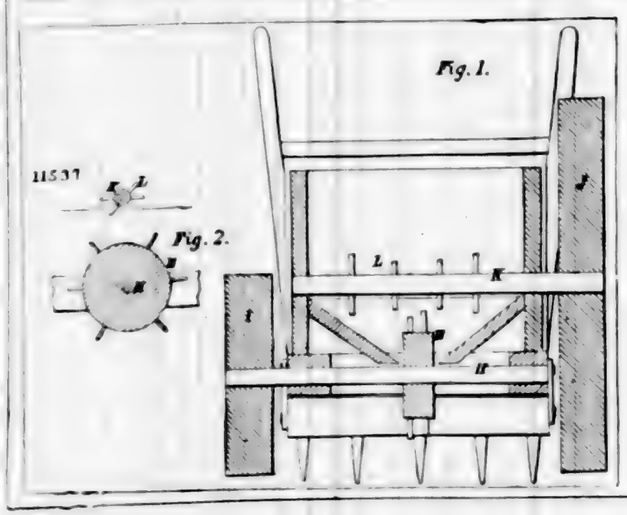
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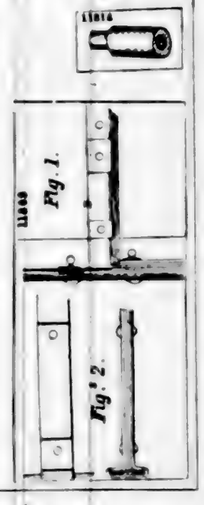
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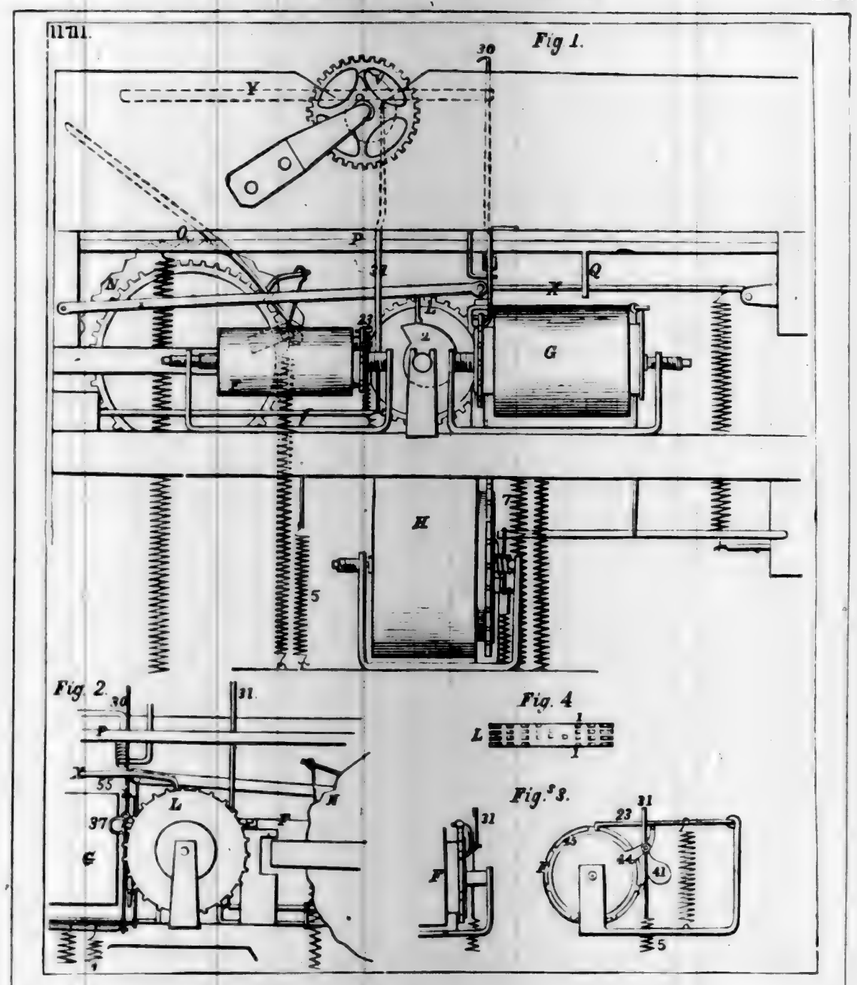

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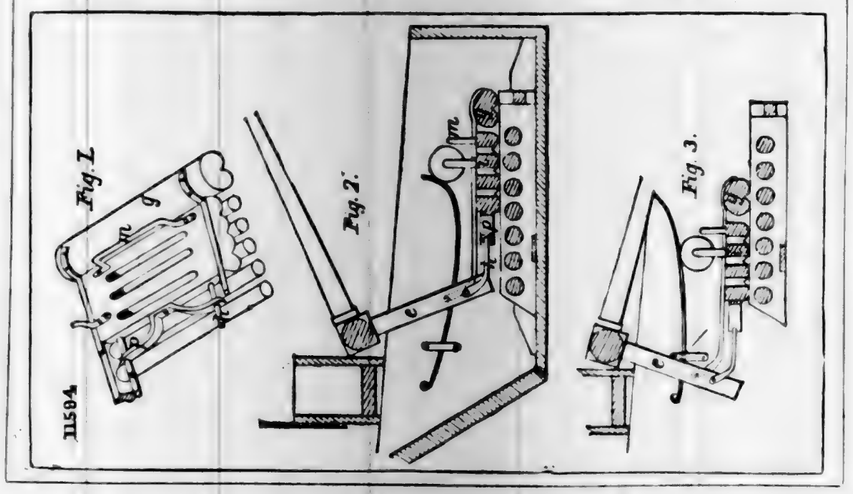
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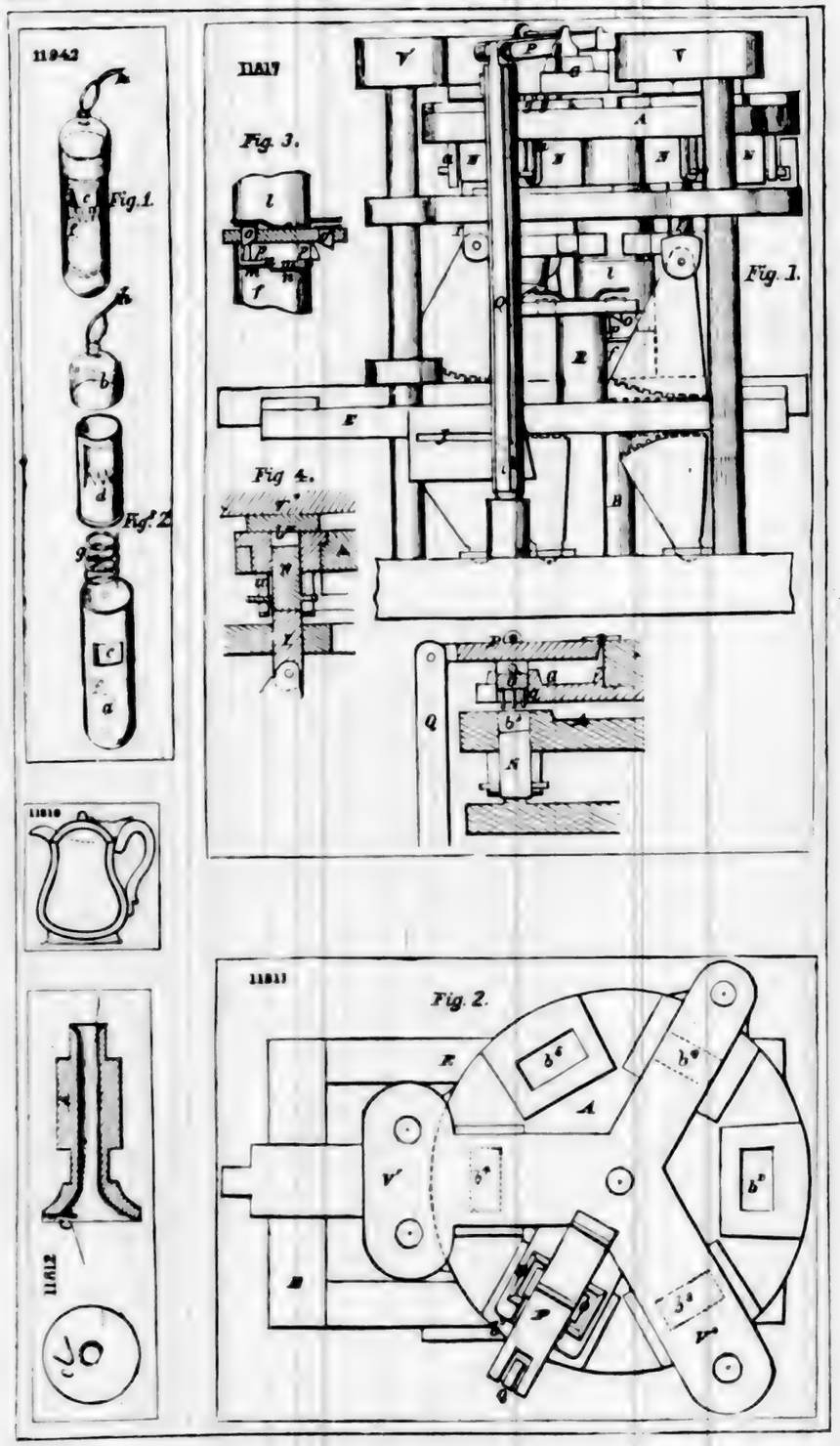
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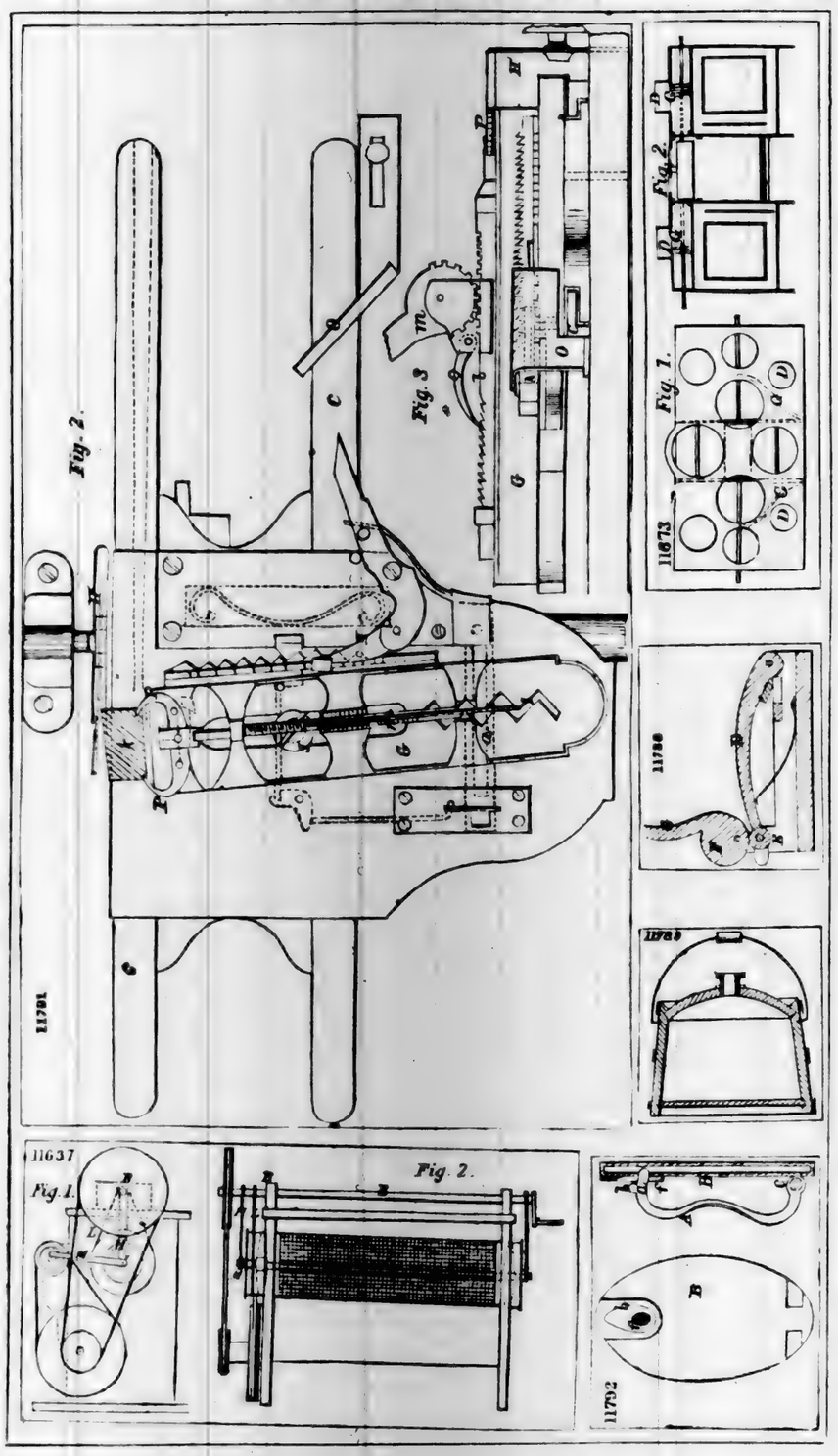

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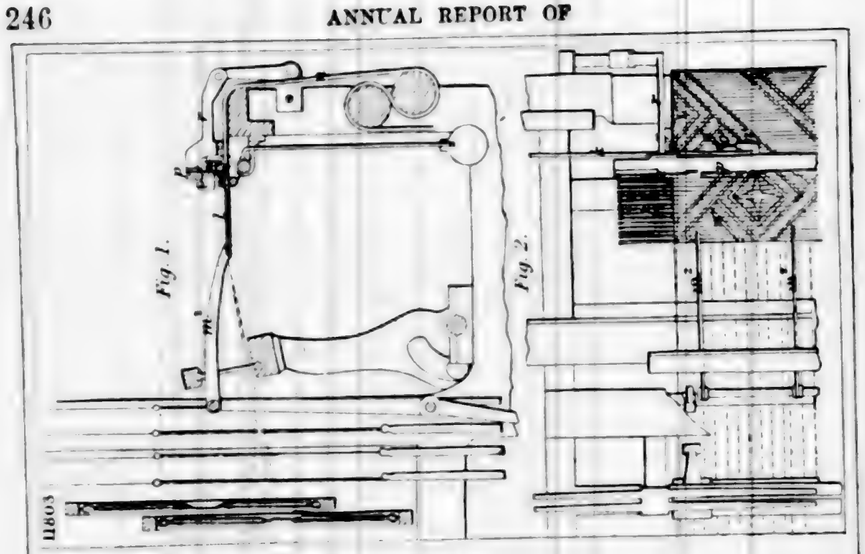

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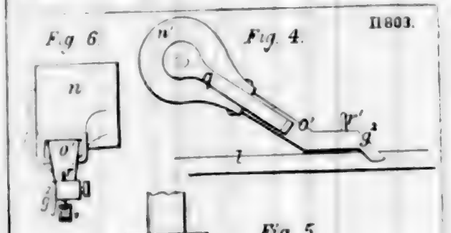

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Fig. 1.
Fig. 2.
Fig. 4
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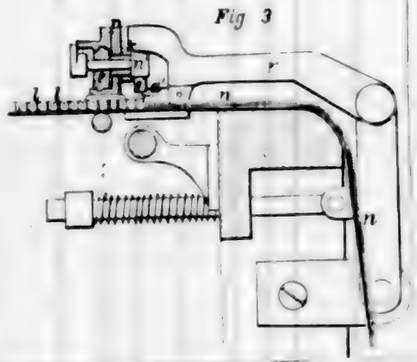

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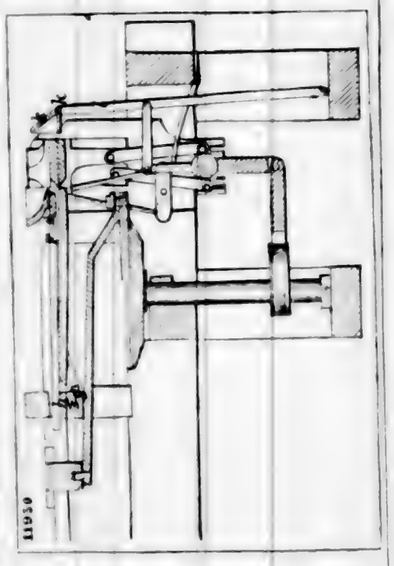

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Fig. 1.
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Fig. 3.
Fig. 4.
Fig. 1.
Fig. 2.

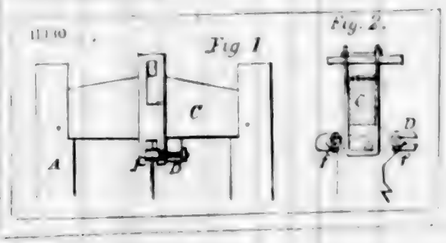

Fig. 2.
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Fig. 1.
Fig. 2.
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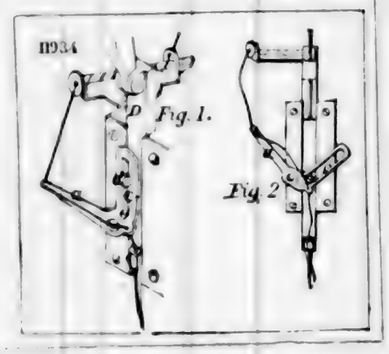

Fig. 1.
Fig. 2.
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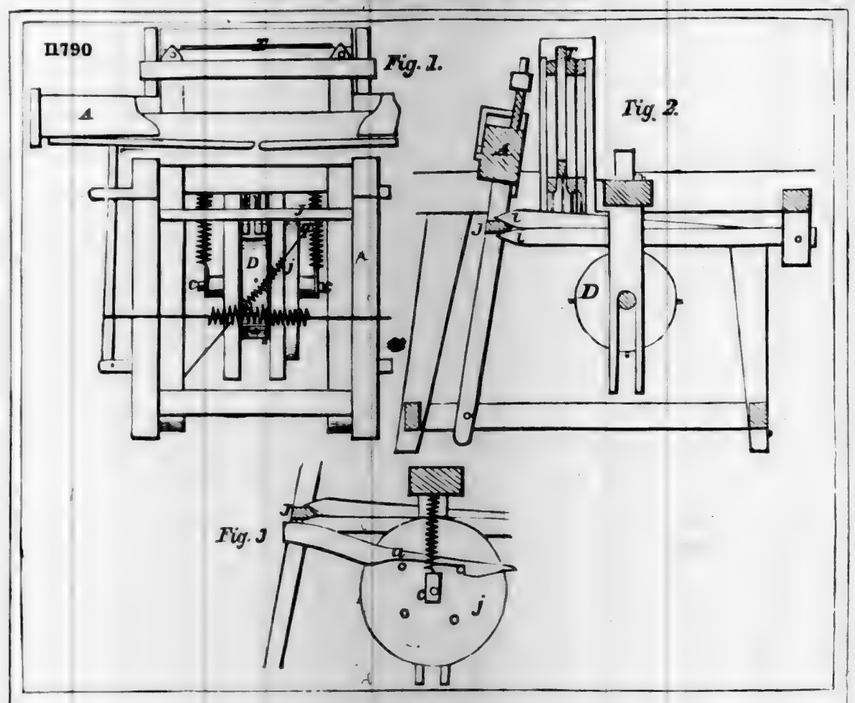

Fig 6
Fig. 4.
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Fig. 5.

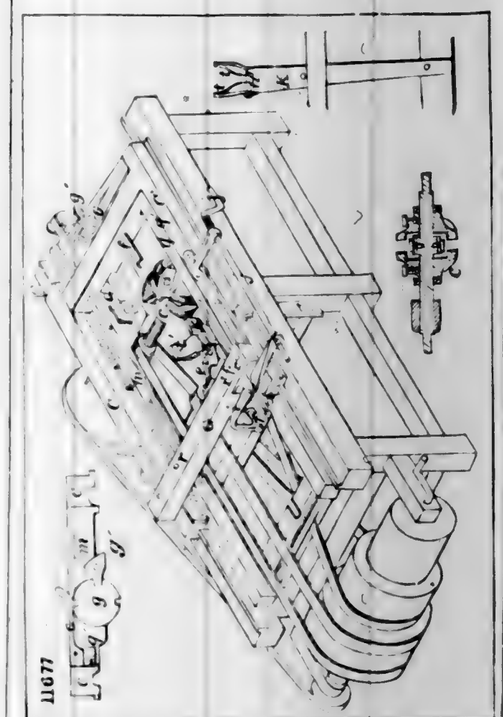

Fig 3

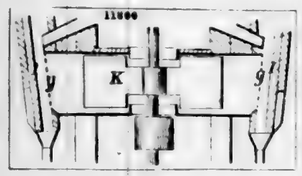

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Fig 1
Fig. 2.


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Fig. 1.
Fig. 2


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Fig. 1.
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Fig. 3


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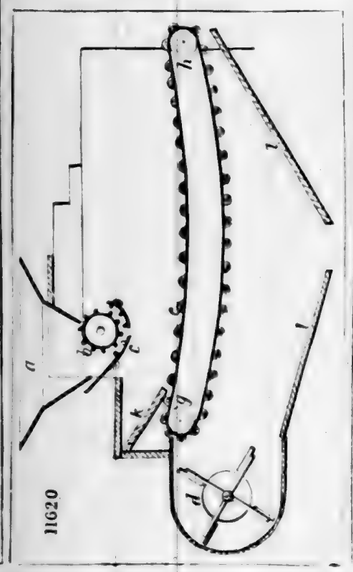

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Fig. 3.

Fig. 2.

Fig. 1.

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Fig. 4.

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Fig. 1.

Fig. 2.

Fig. 3.

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Fig. 1.

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Fig 1.

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Fig 1.

Fig 3.

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Fig 1.

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Fig. 1.

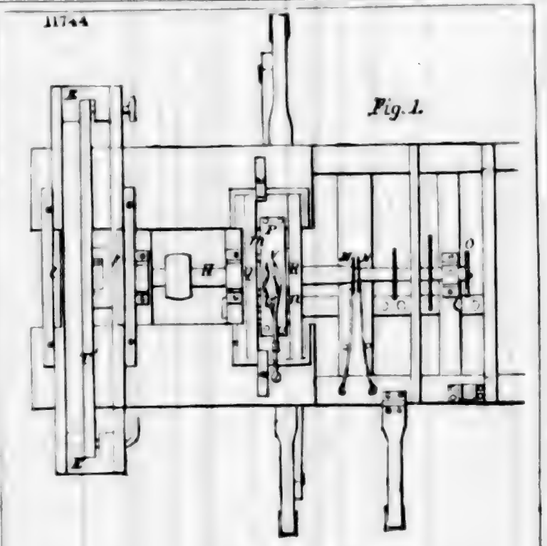
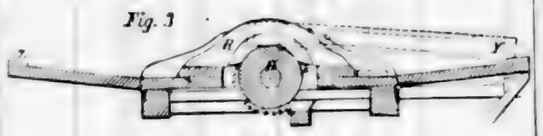


Fig. 2.



Fig. 3



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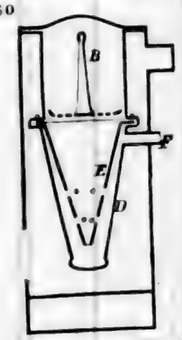
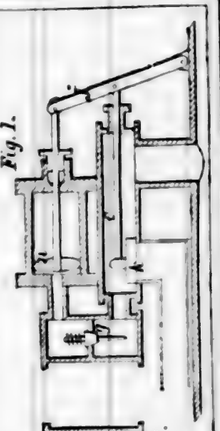
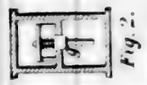


Fig. 1.



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Fig. 2.



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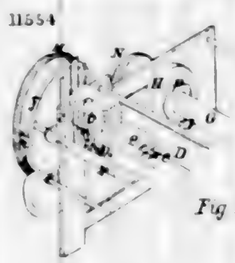


Fig 1.

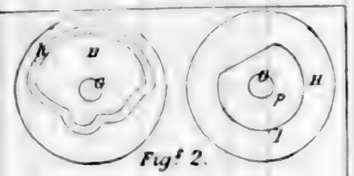


Fig. 2.

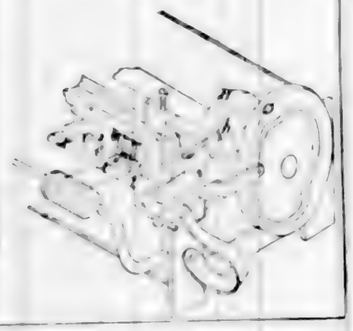
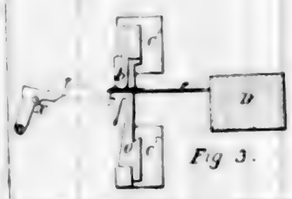


Fig 3.



11562

Fig. 1.

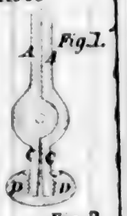


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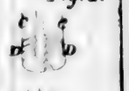
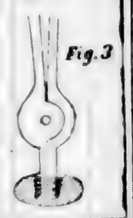


Fig. 3



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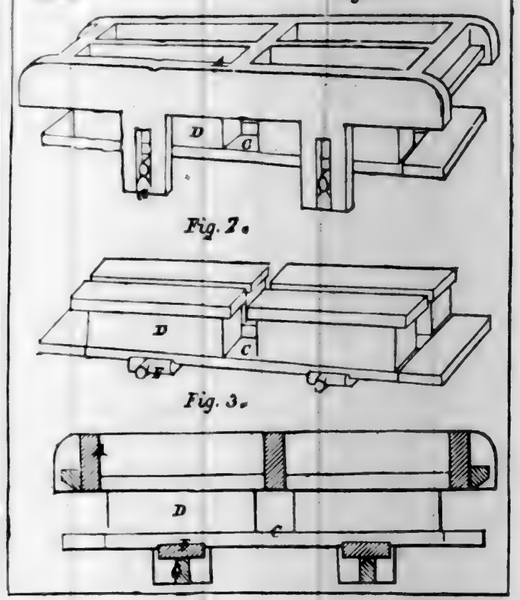


Fig. 2.



Fig. 3.



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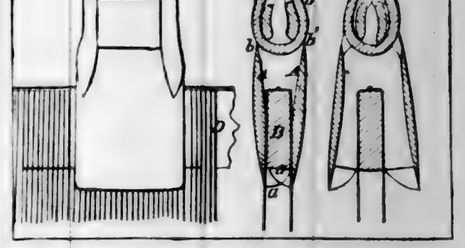
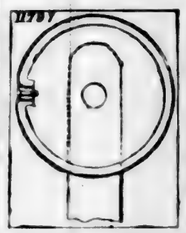


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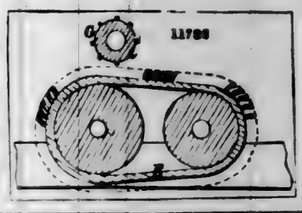
Fig. 2.

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Fig. 3

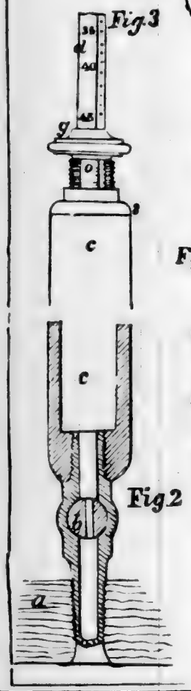
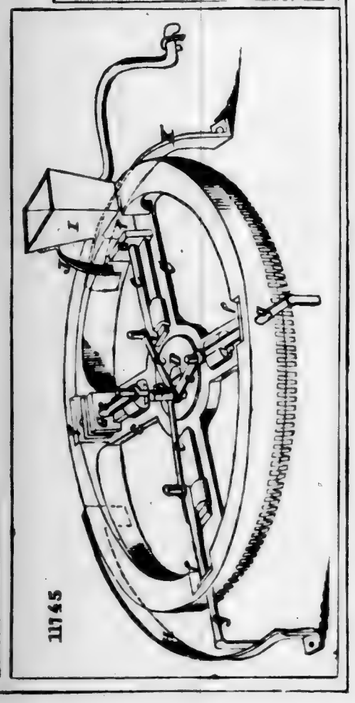


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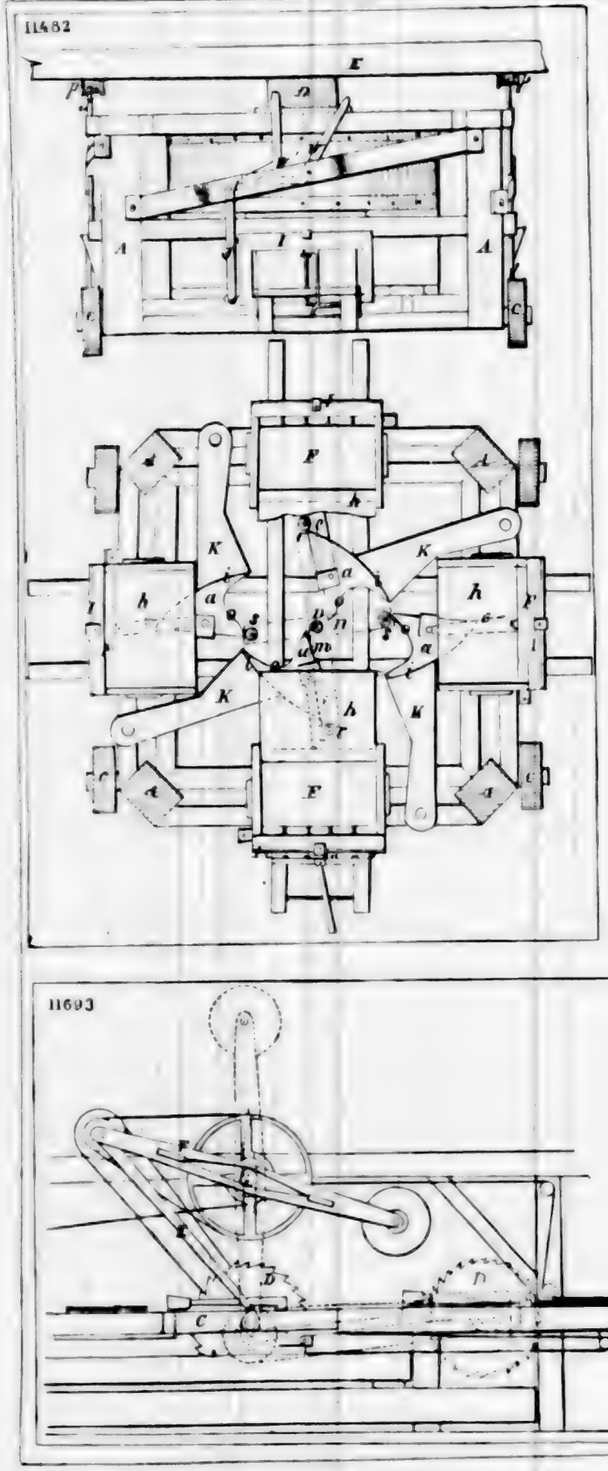


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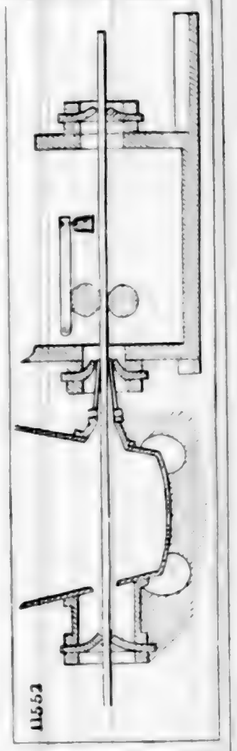
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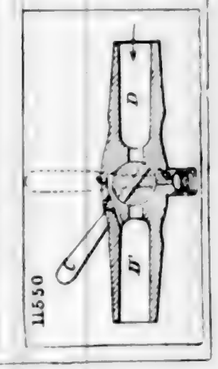


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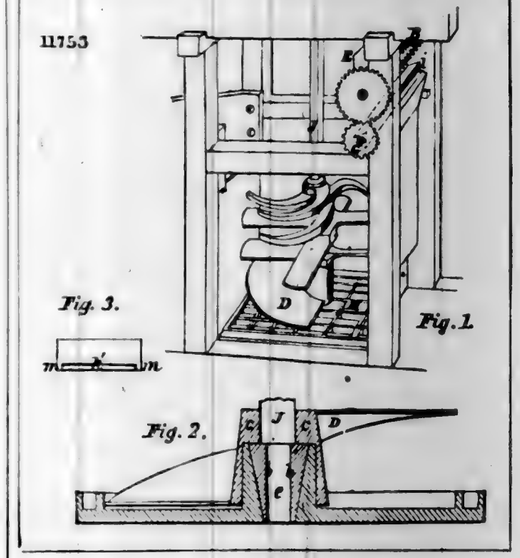


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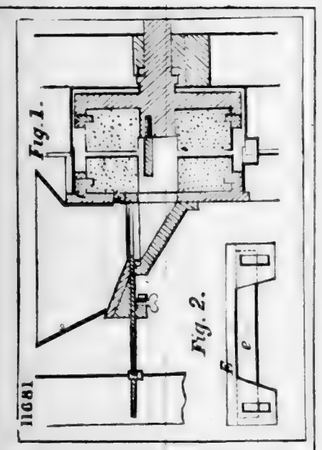
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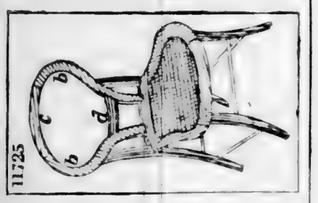
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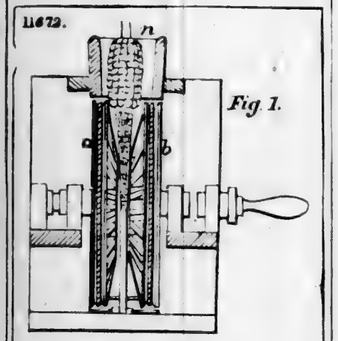
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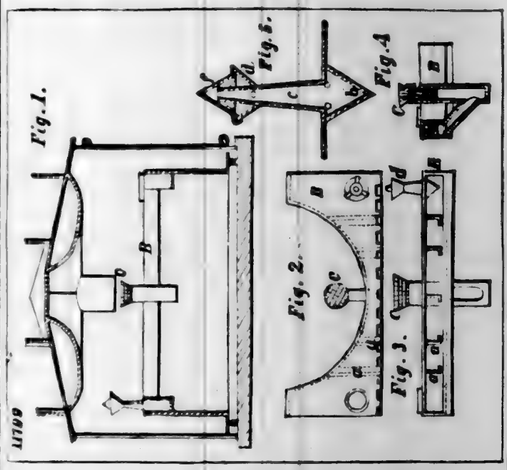
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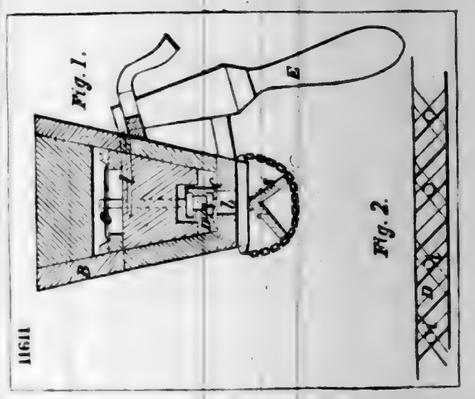
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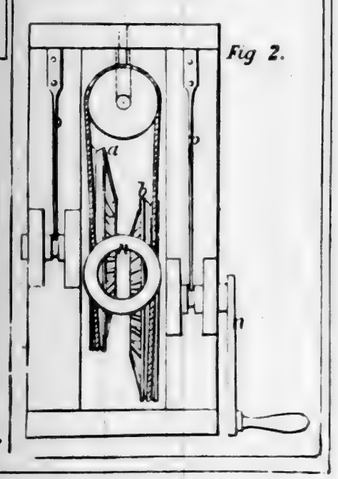


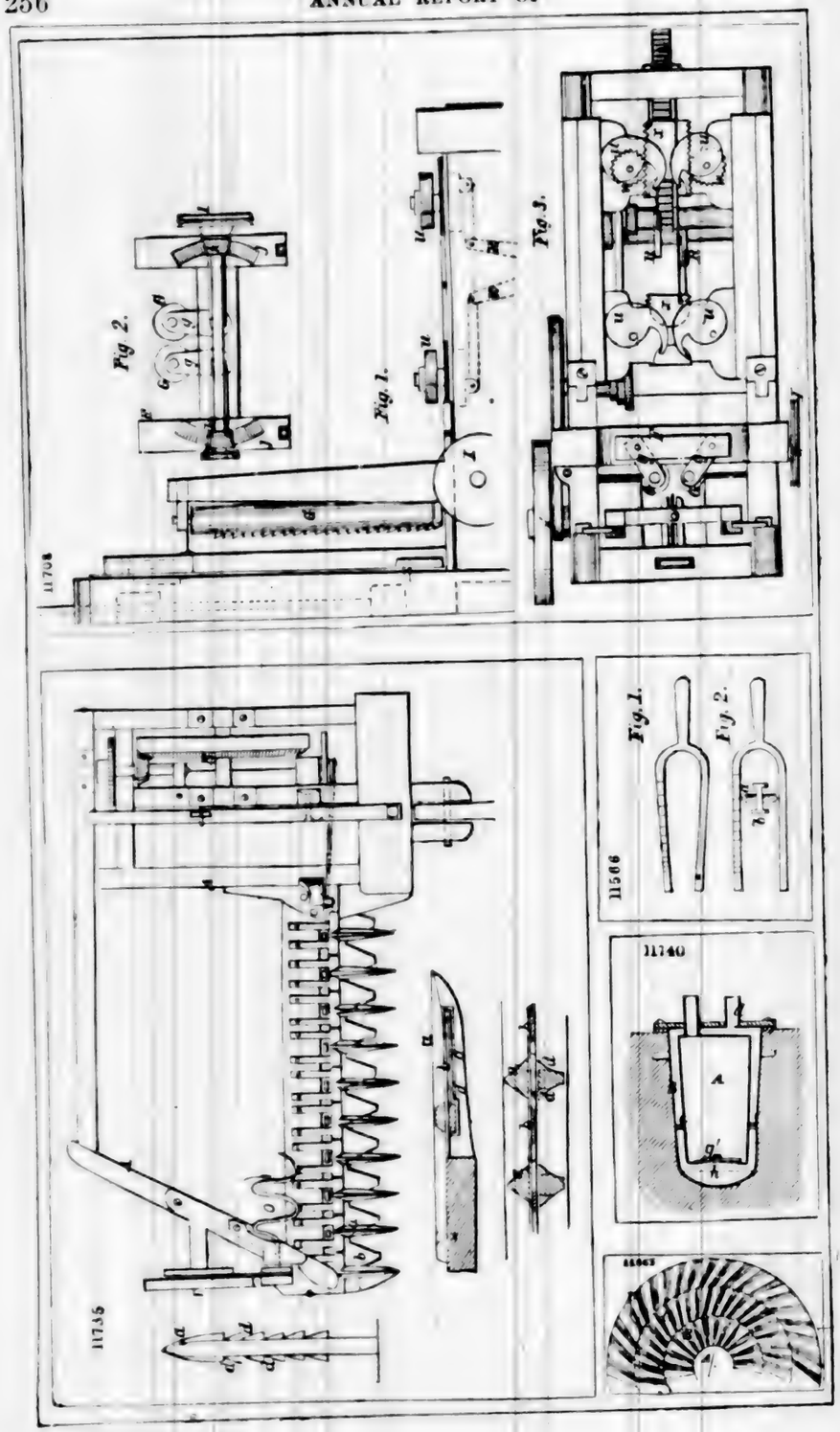
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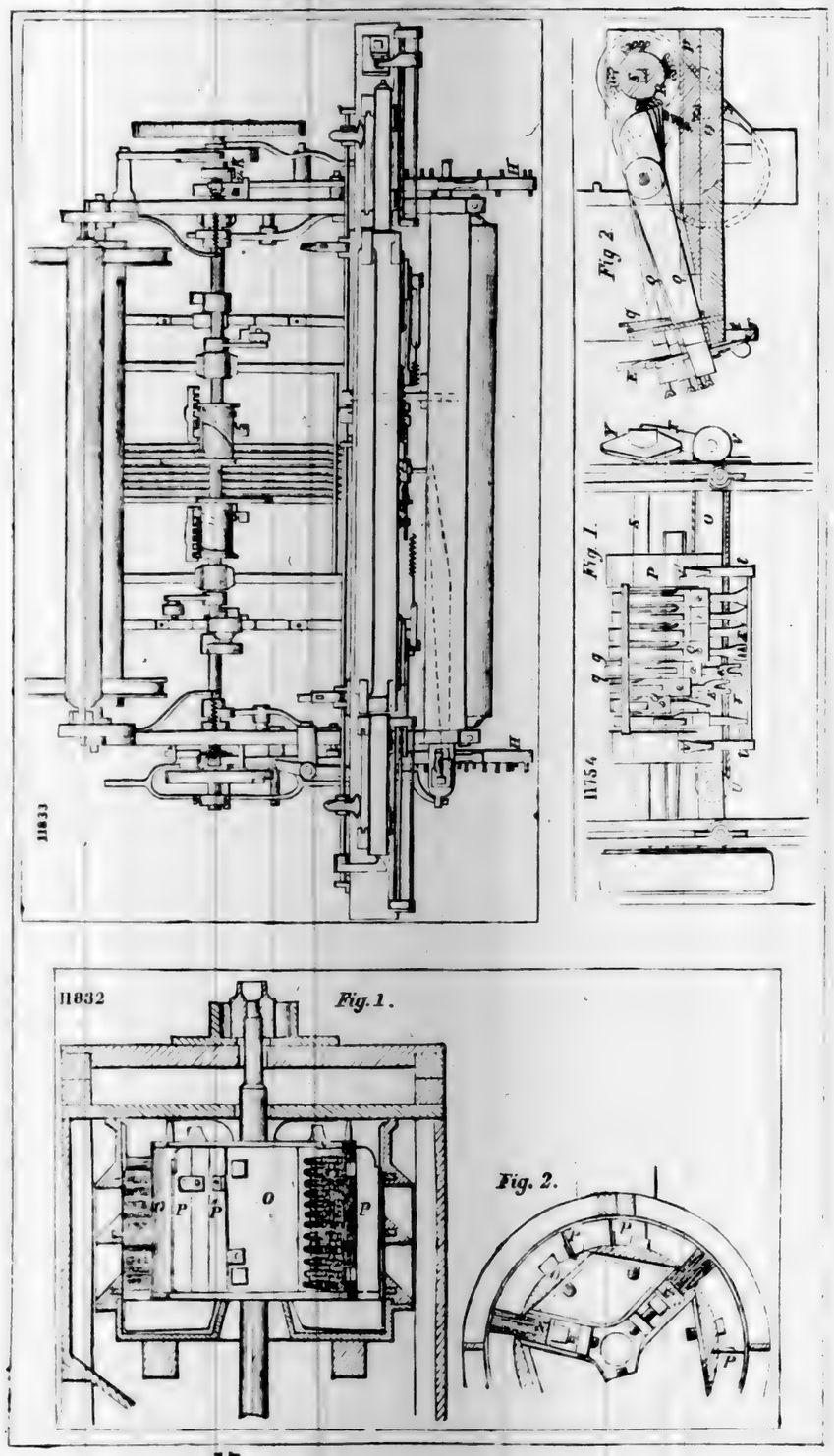


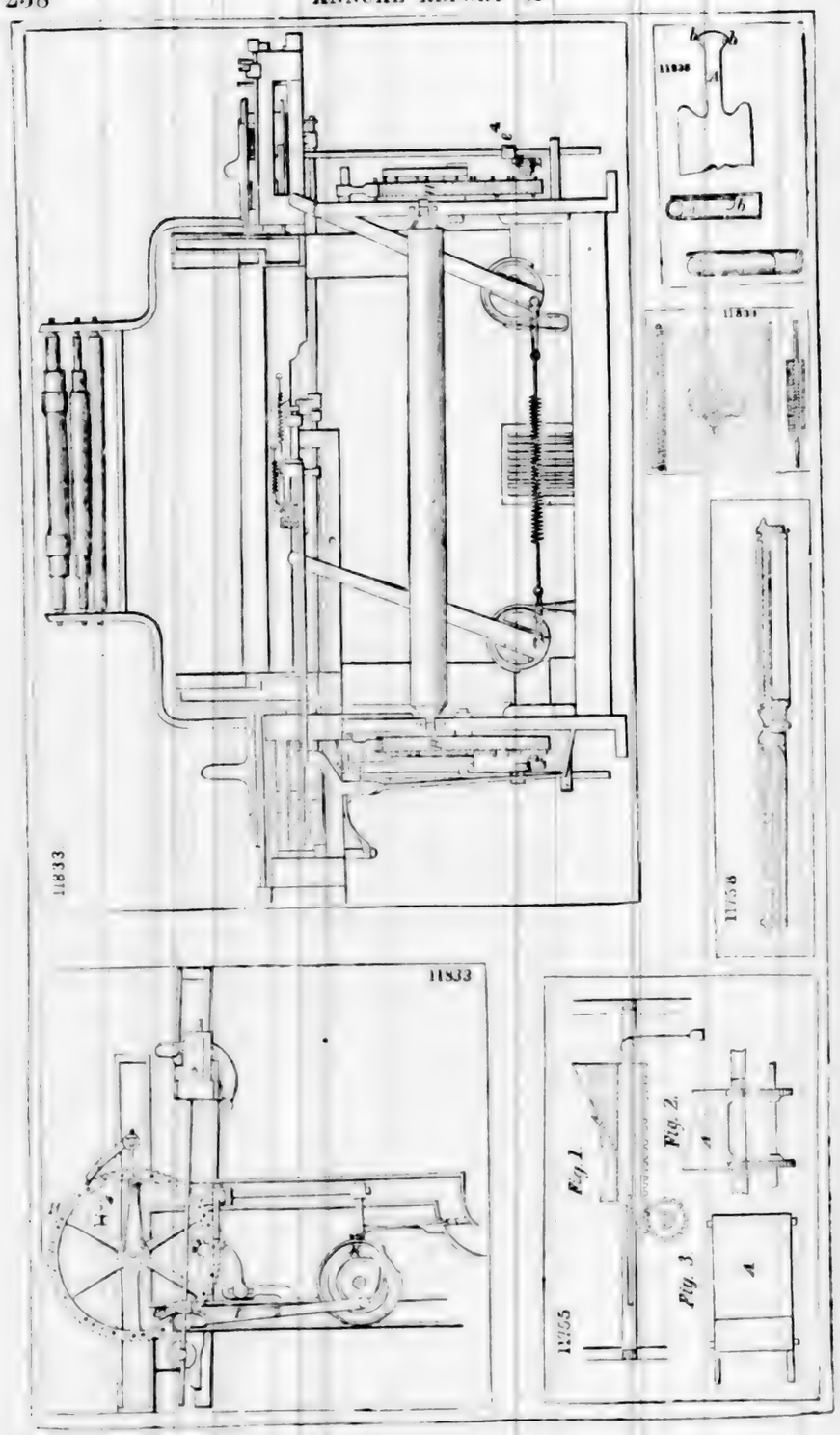
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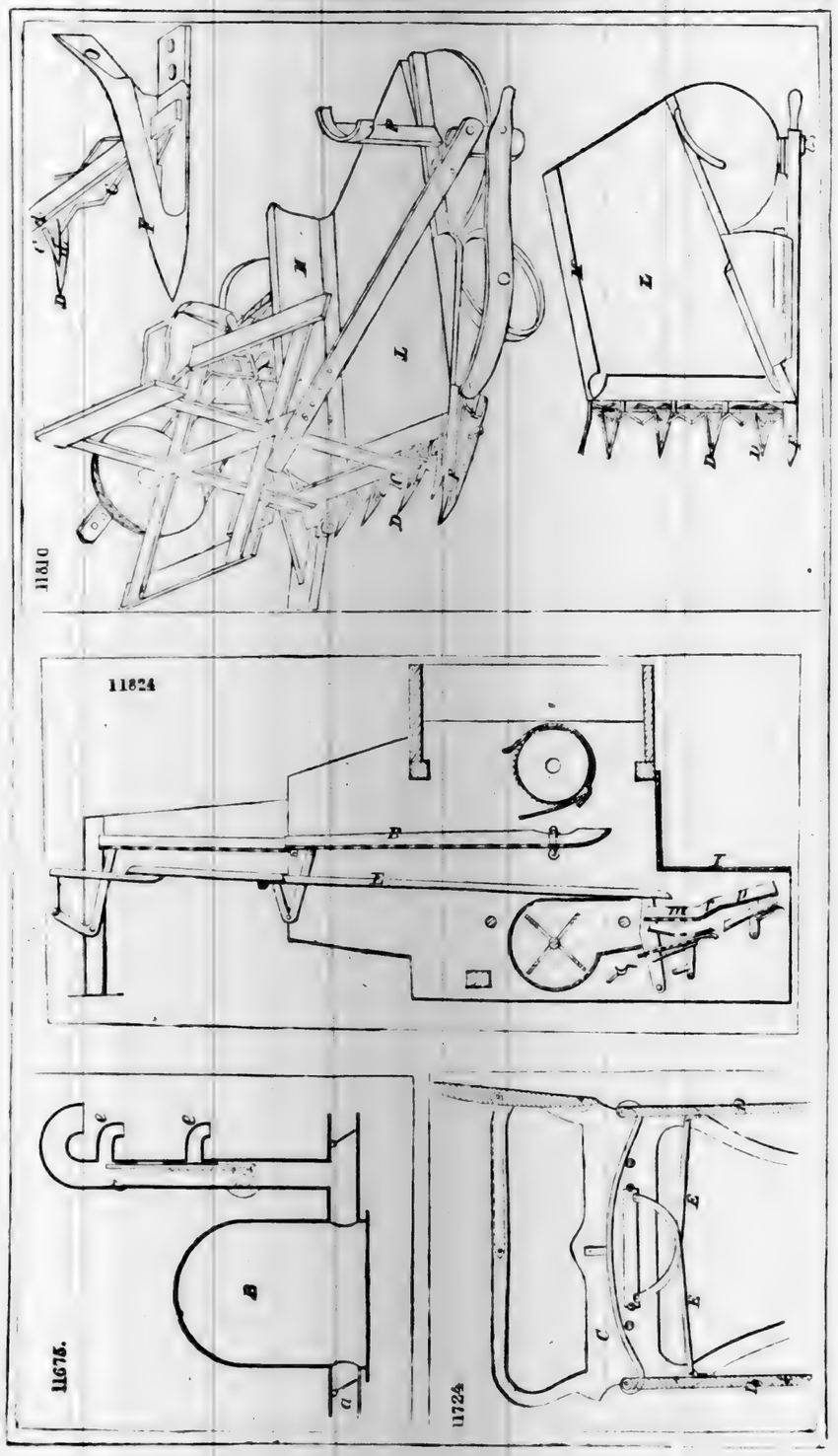





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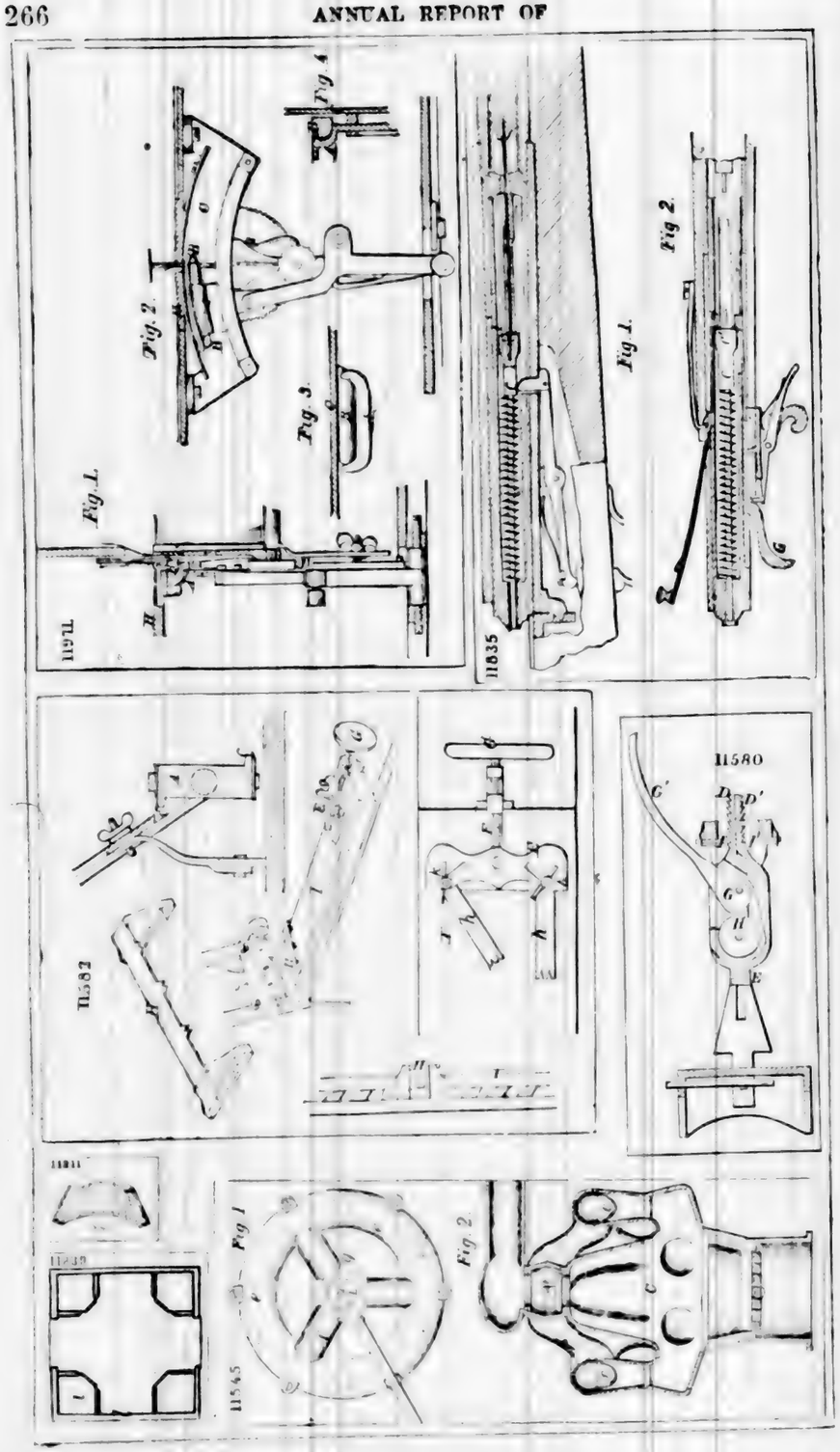
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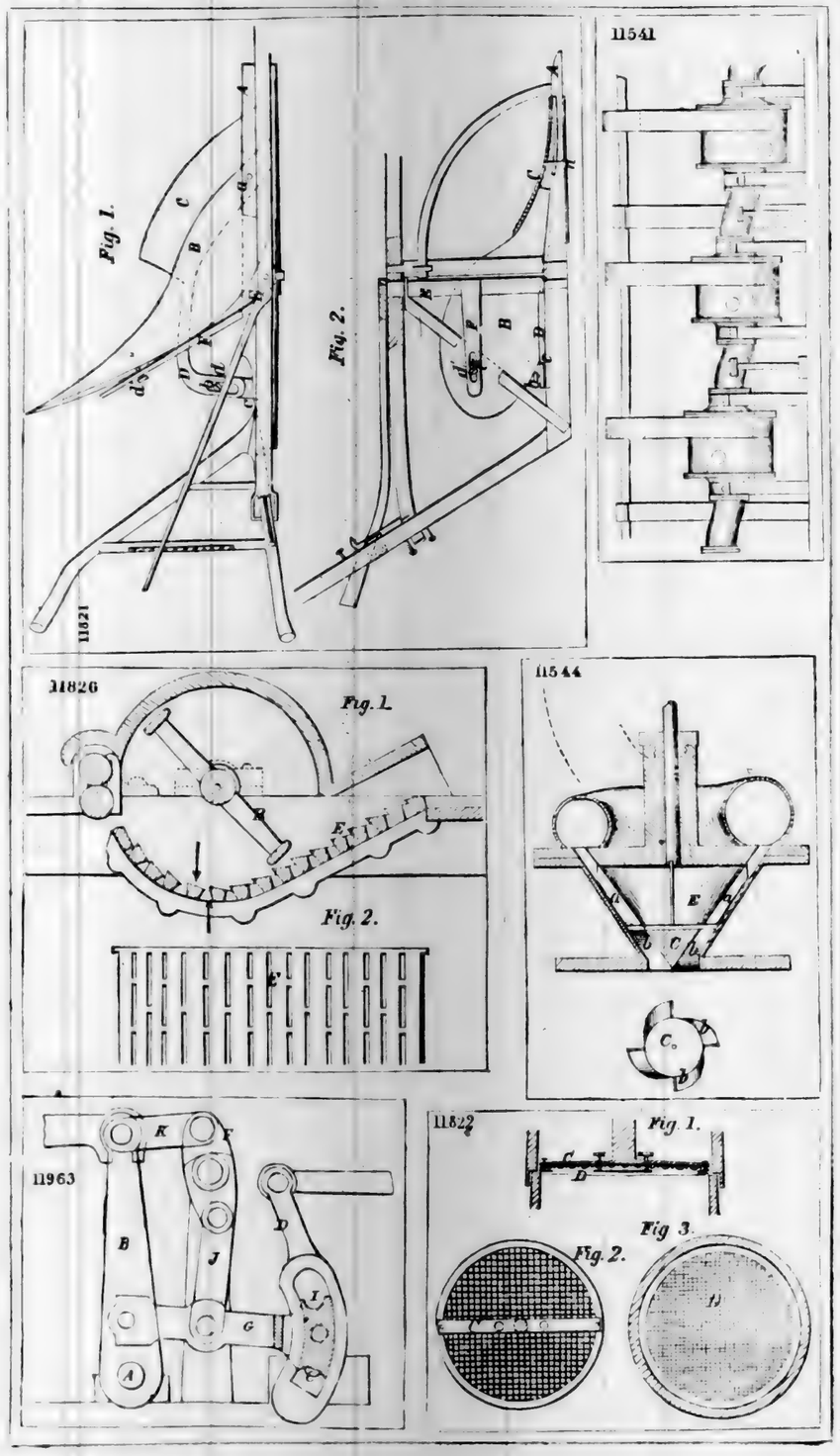
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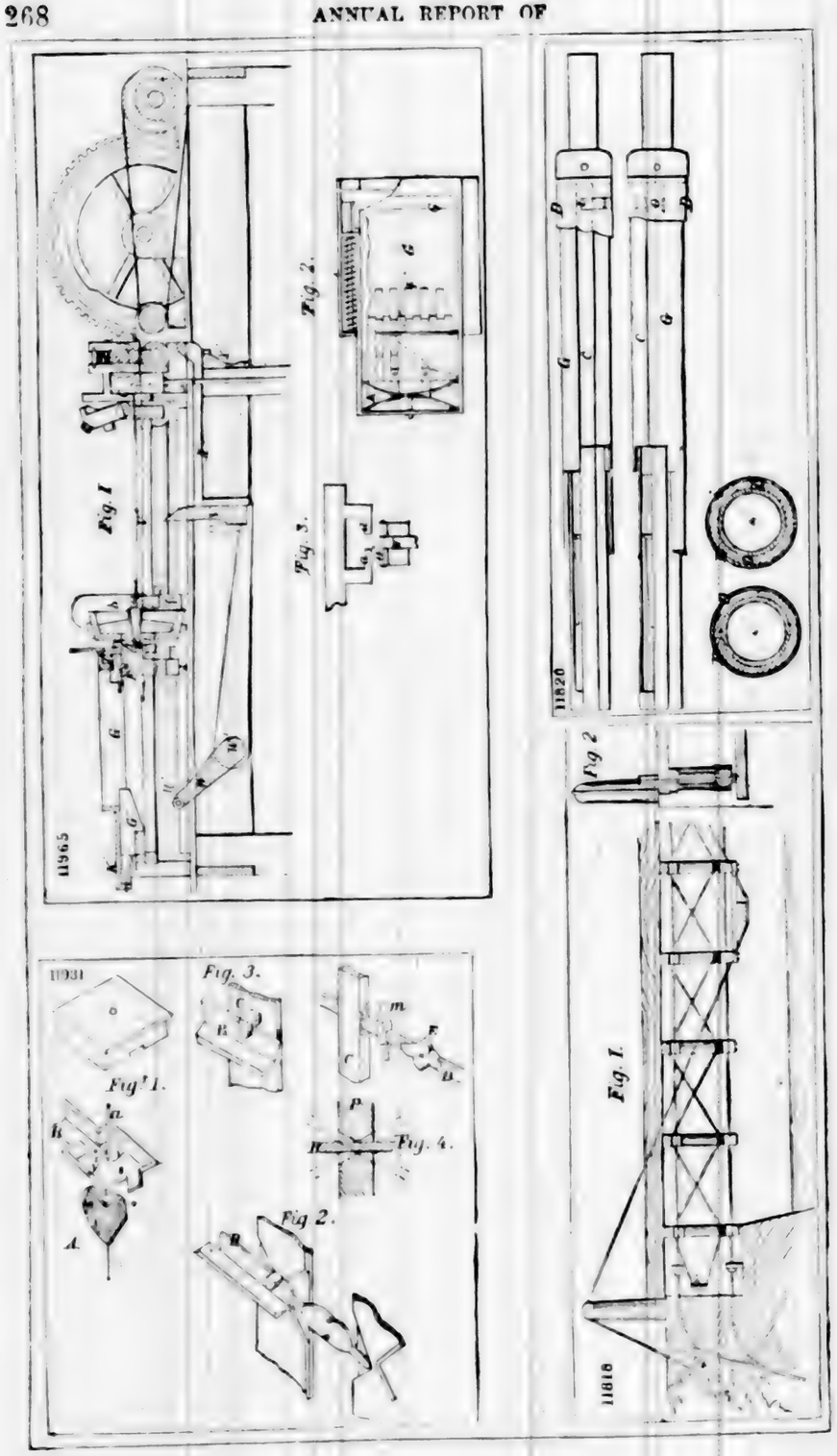
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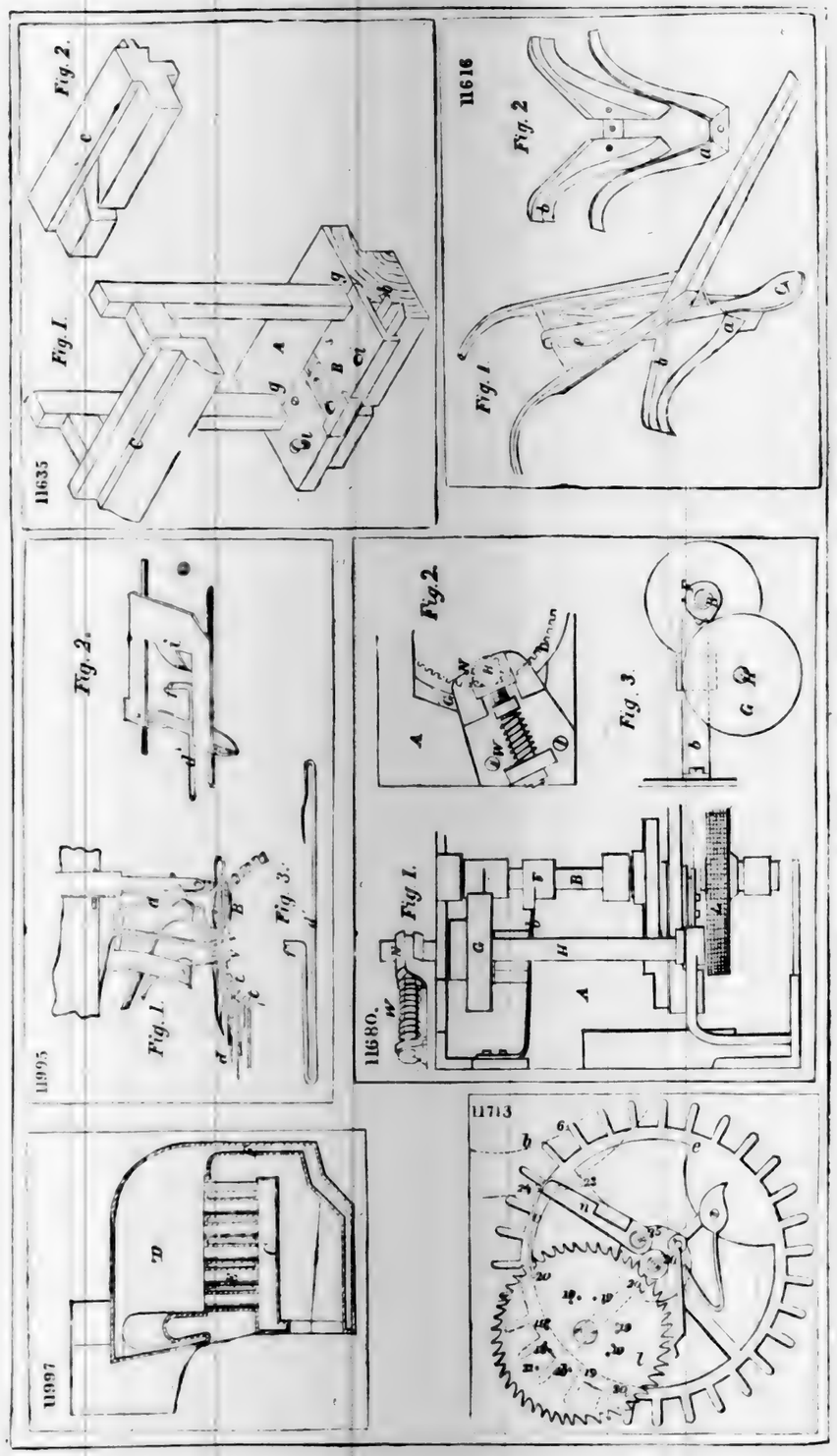
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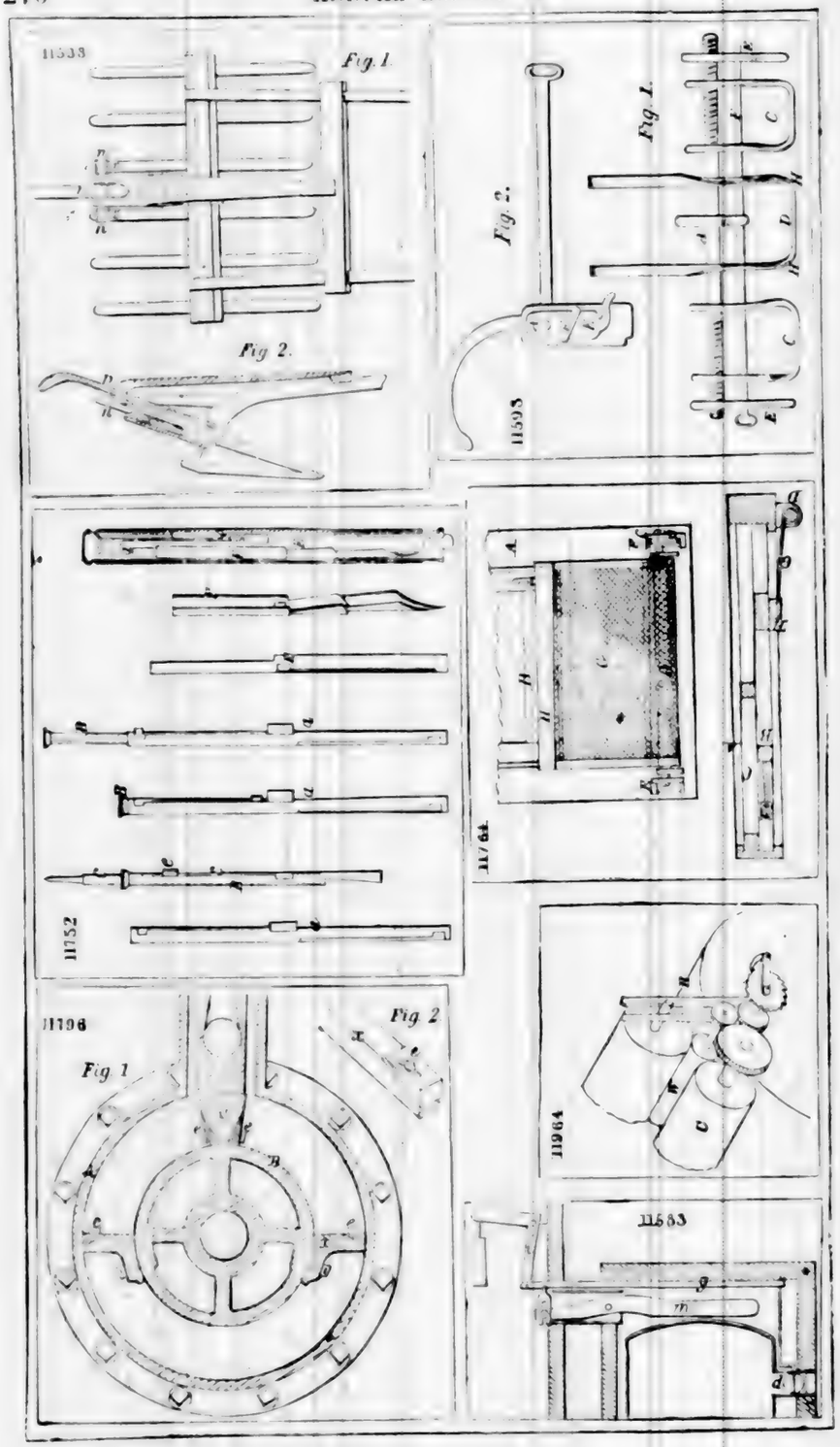
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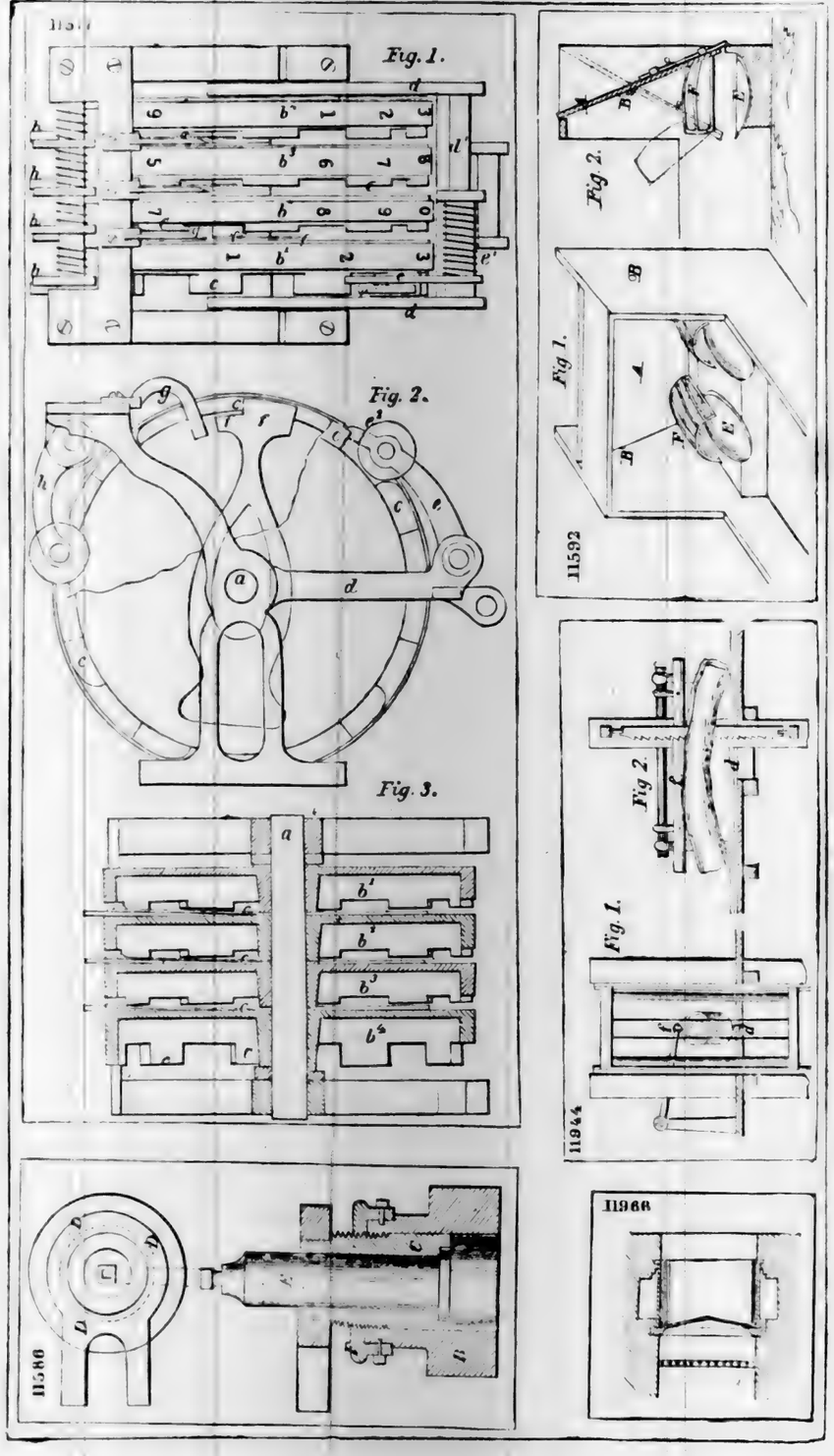

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Fig. 1.

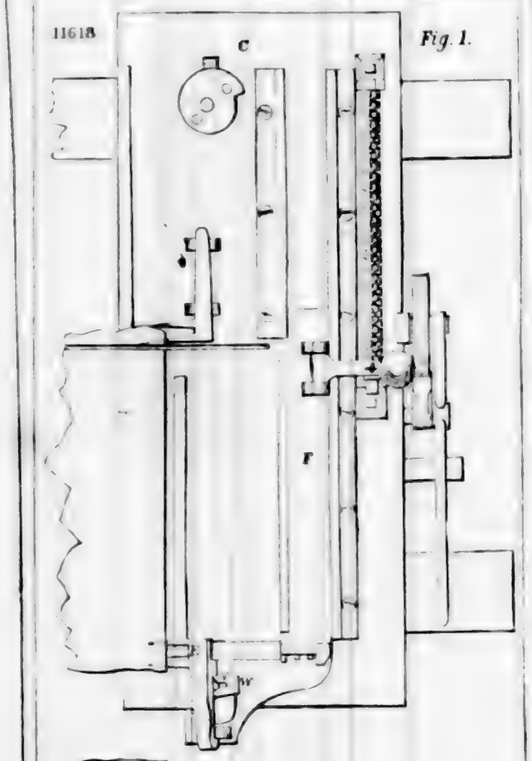
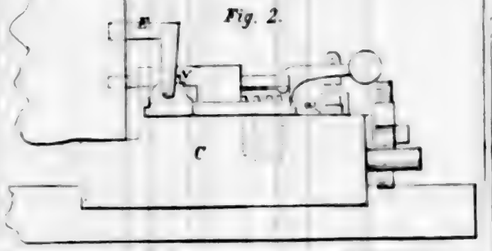
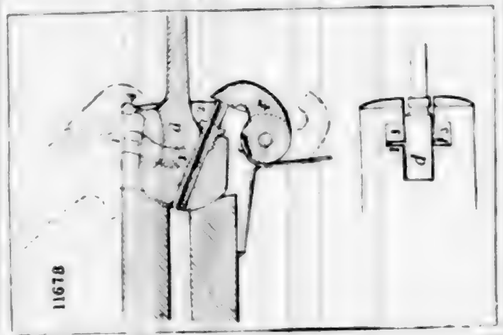


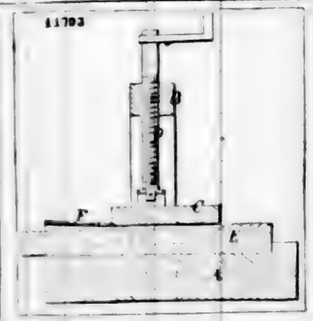
Fig. 2.



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11703 Fig. 1.

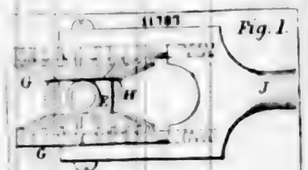


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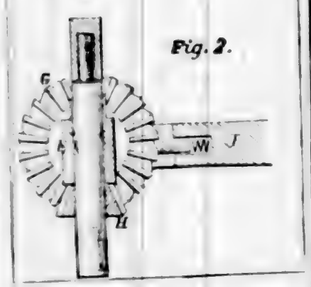
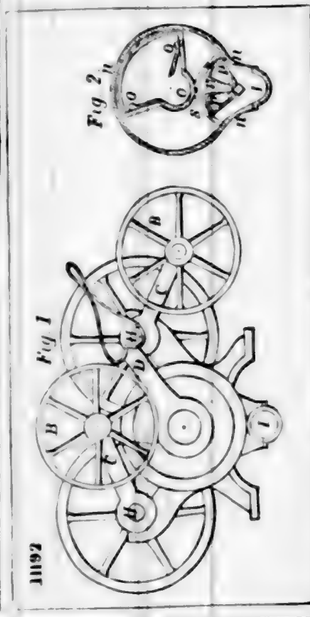


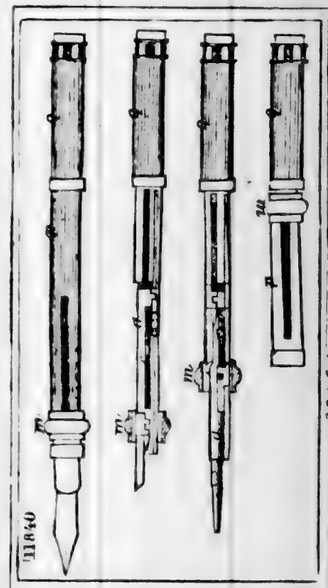
Fig. 2

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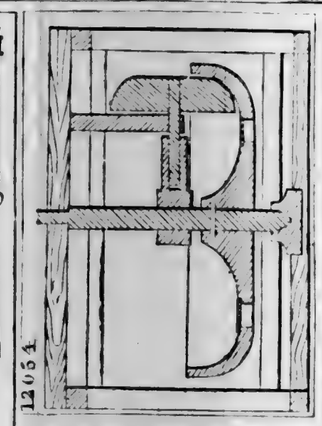


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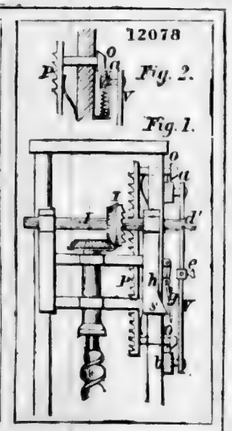
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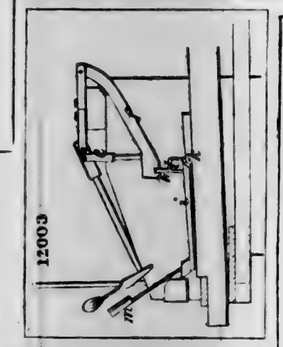
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Fig. 2.

Fig. 1.



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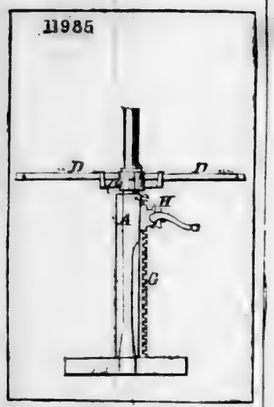
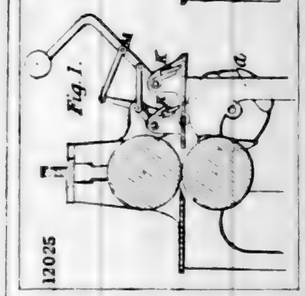


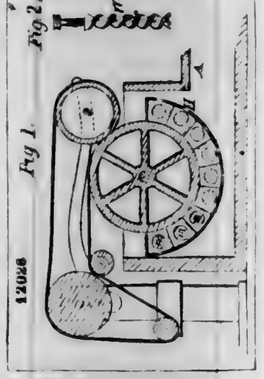
Fig. 2.

Fig. 1.



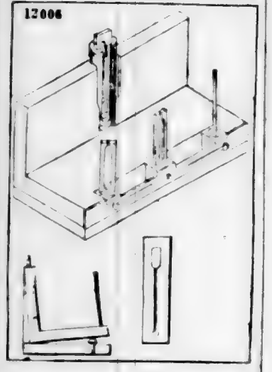
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Fig. 2.



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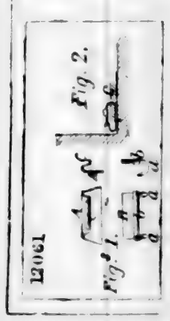
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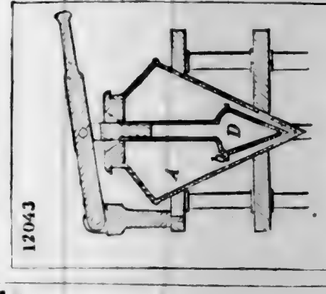
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Fig. 2.

Fig. 1.



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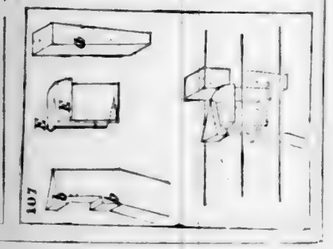


Fig. 4.

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Fig 2.

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Fig 1.

Fig 2.

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Fig. 1.

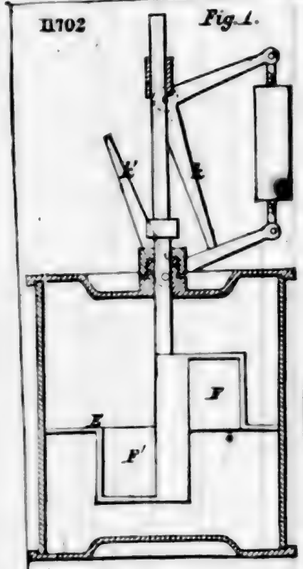


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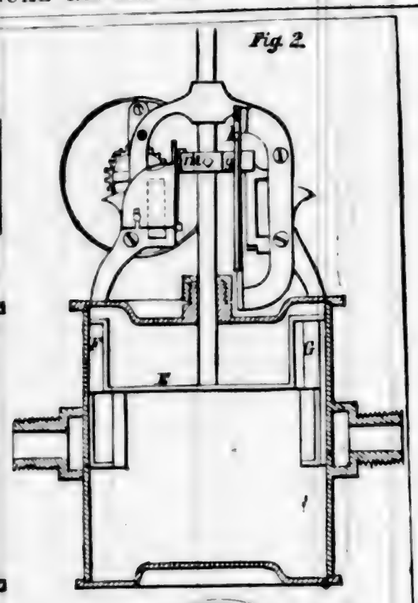


Fig 3

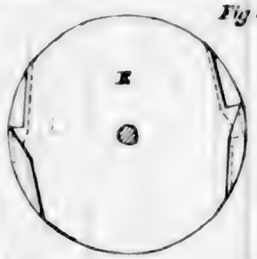
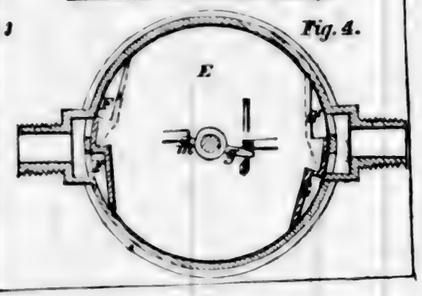


Fig. 4.



11849

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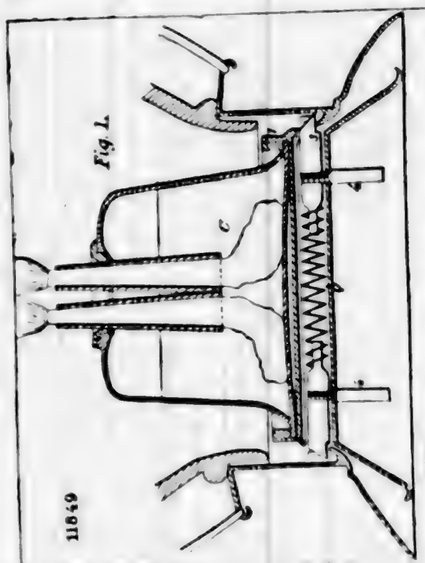


Fig. 2.



Fig. 3.

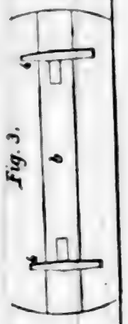


Fig. 3

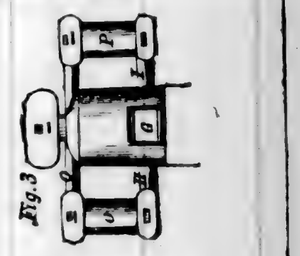


Fig. 2

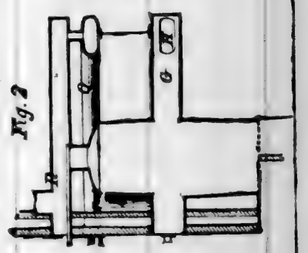
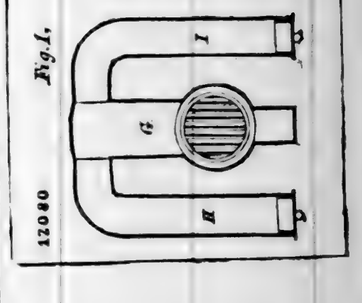


Fig. 1.



12080

Fig. 1.

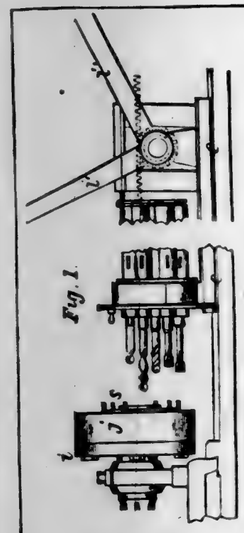
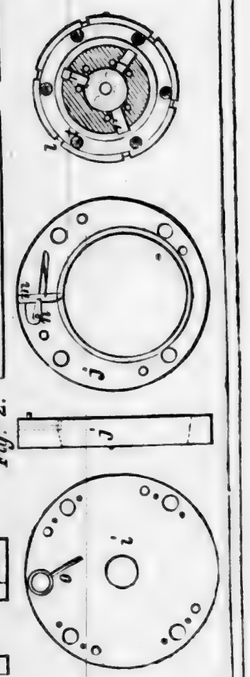
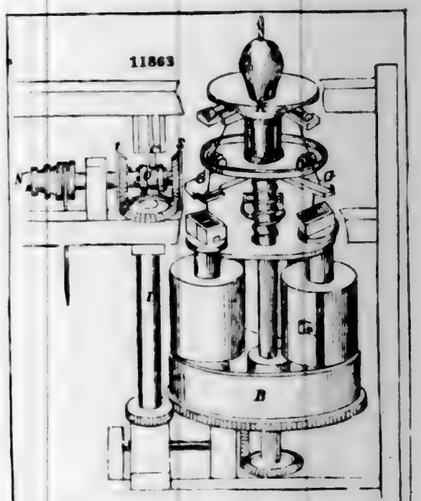


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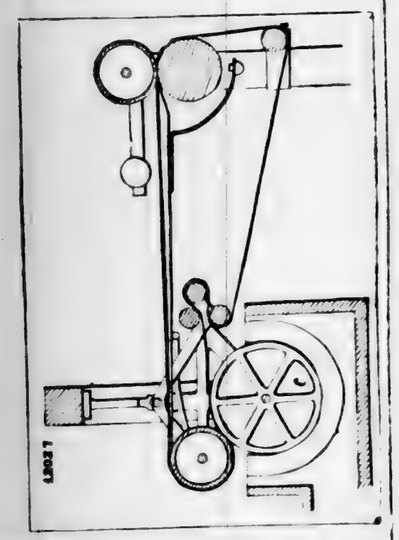


12002.

11863



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Fig. 1.

Fig. 2

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Fig. 1.

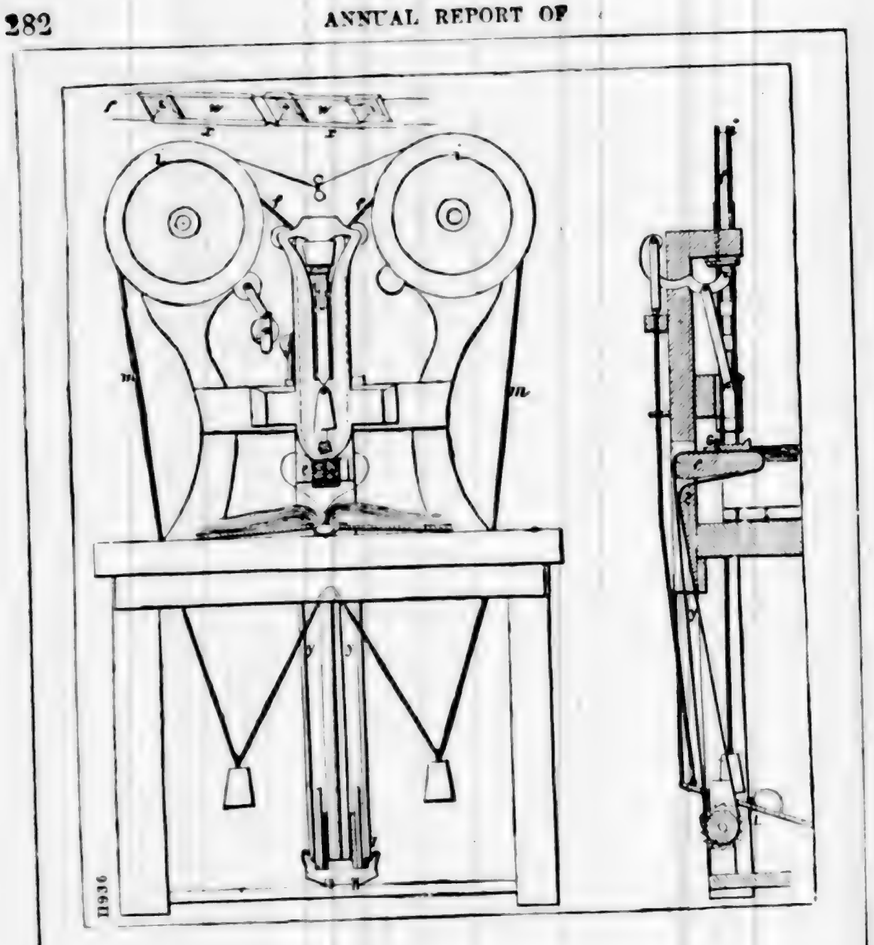
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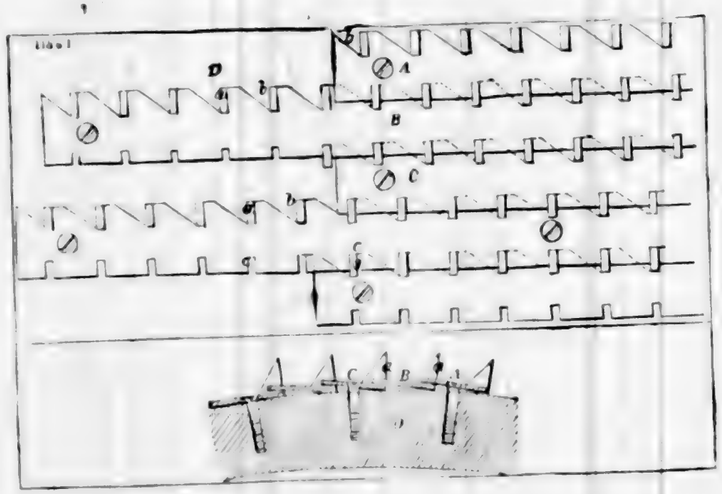
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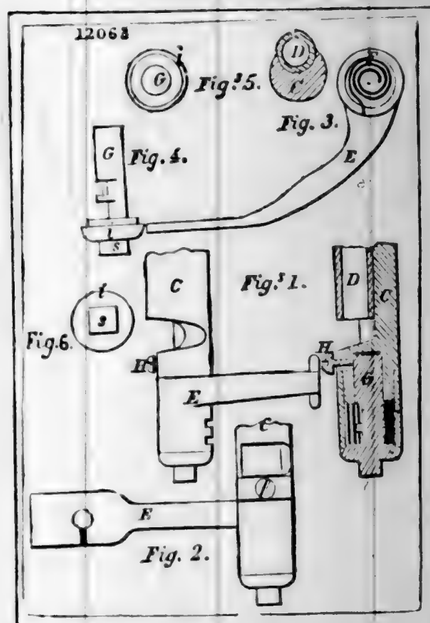
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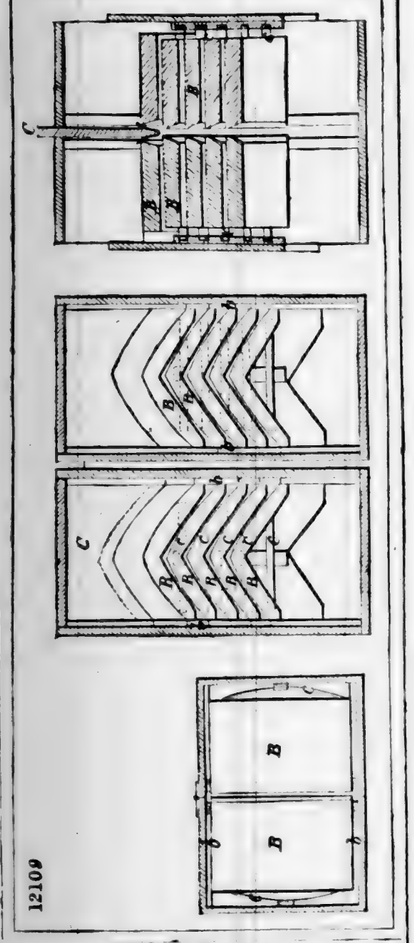
Fig. 1.

Fig. 2.


11936

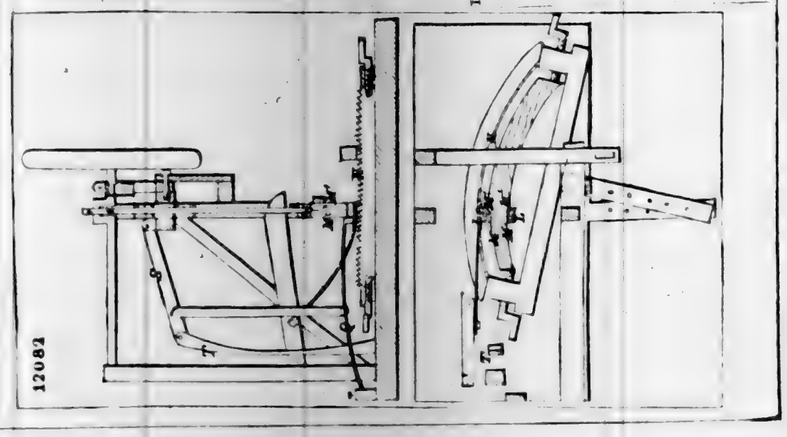

11961


12063
Fig. 5.
Fig. 3.
Fig. 4.
Fig. 1.
Fig. 6.
Fig. 2.


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Fig. 1.

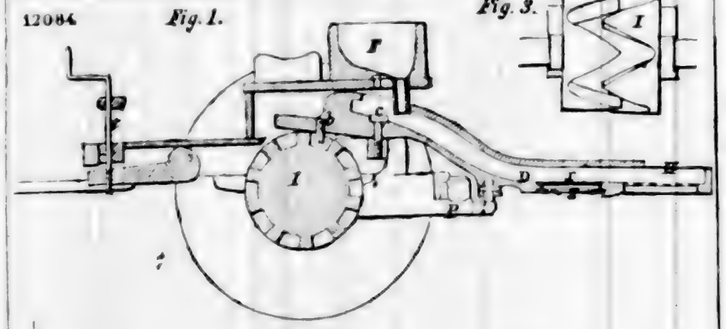


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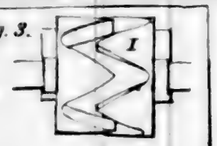
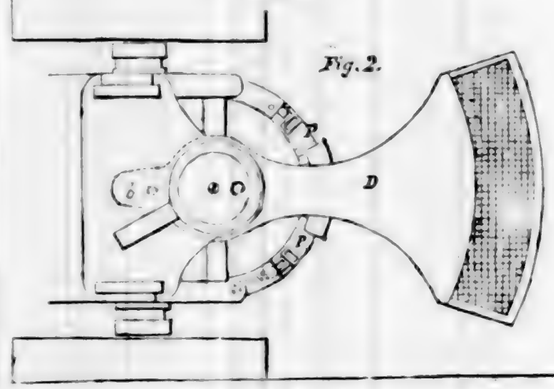


Fig. 2.



12110

Fig. 3.

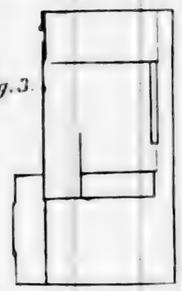


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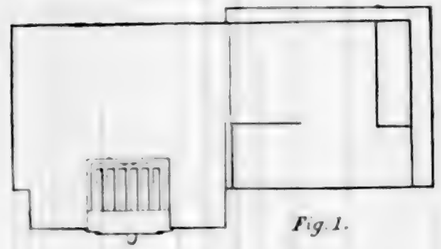


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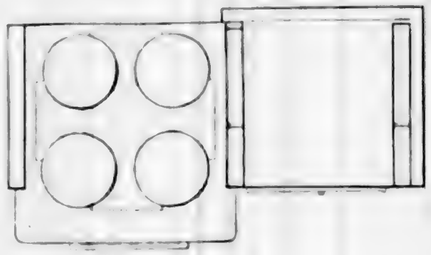
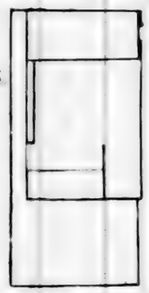
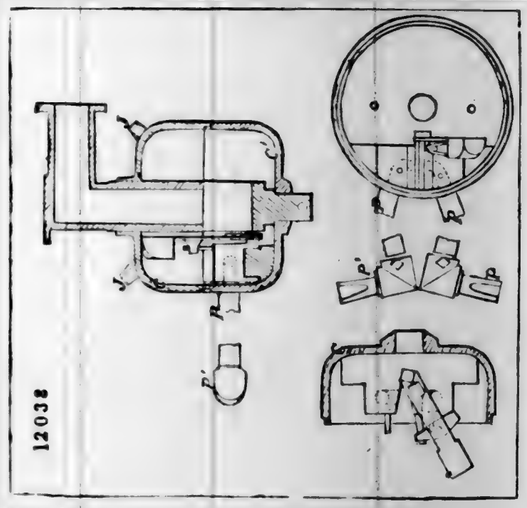


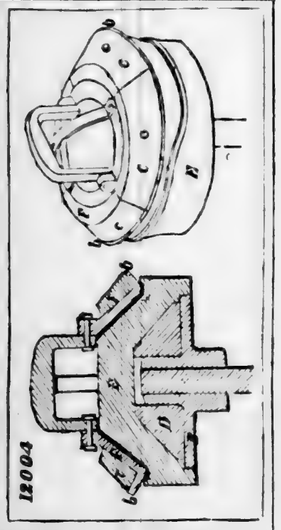
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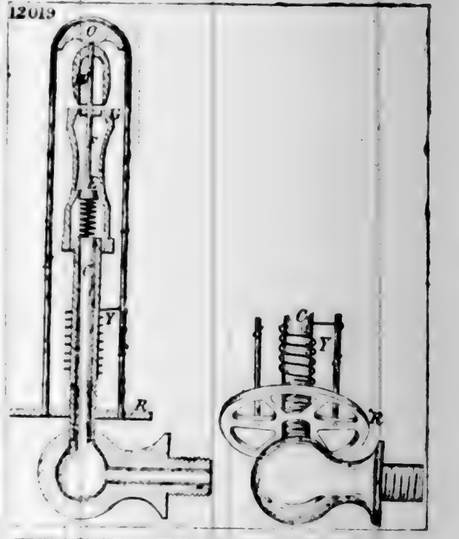
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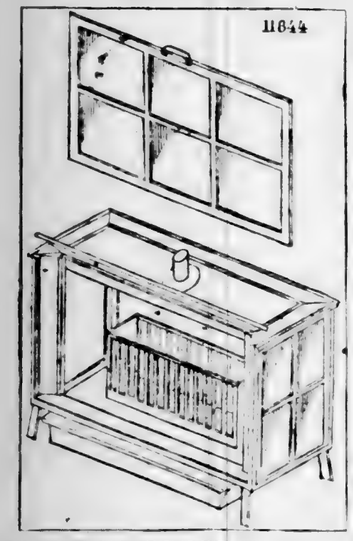
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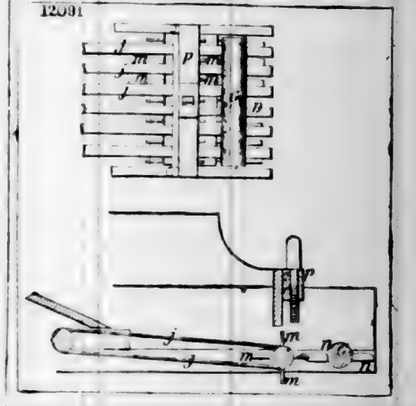
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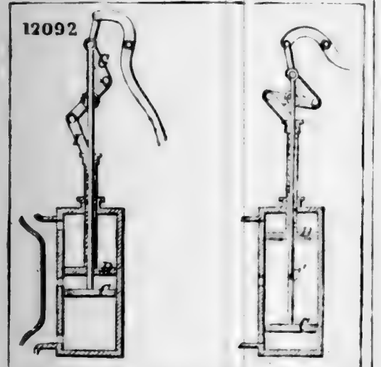
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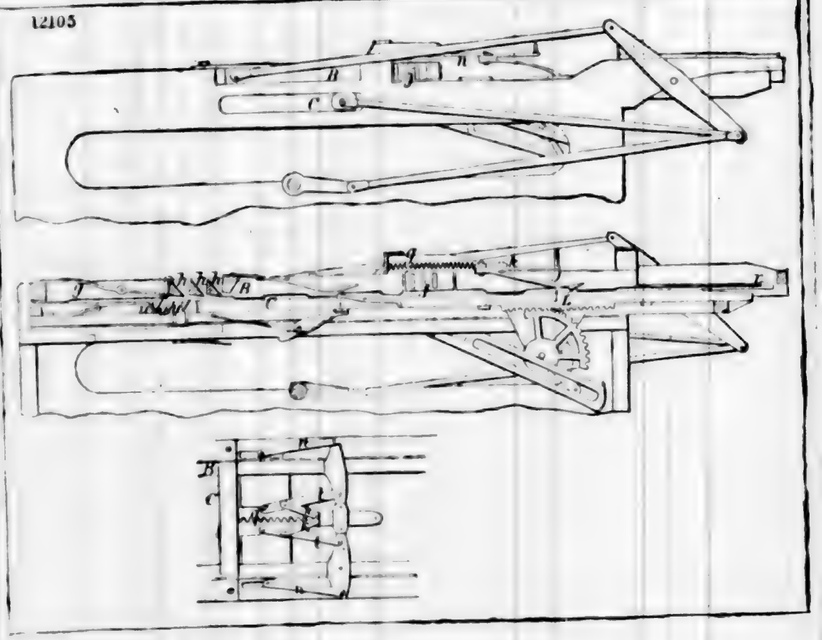
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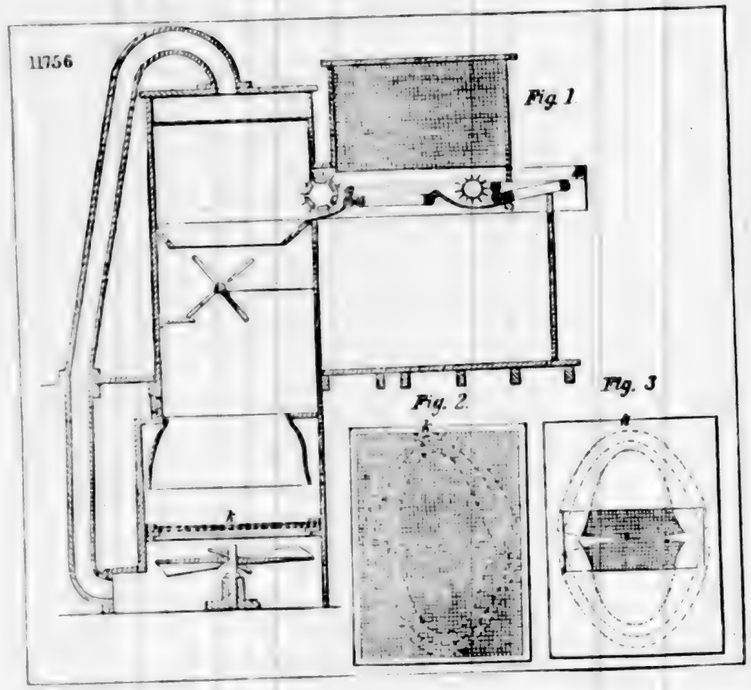
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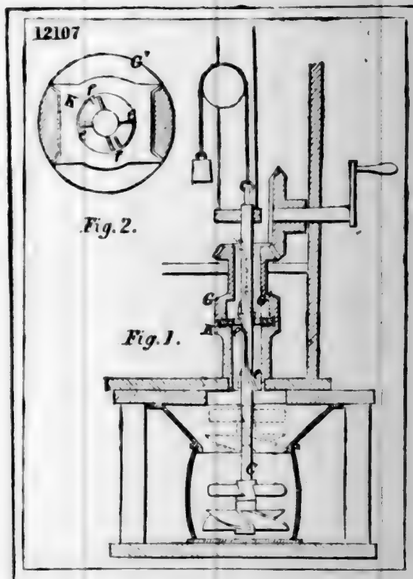
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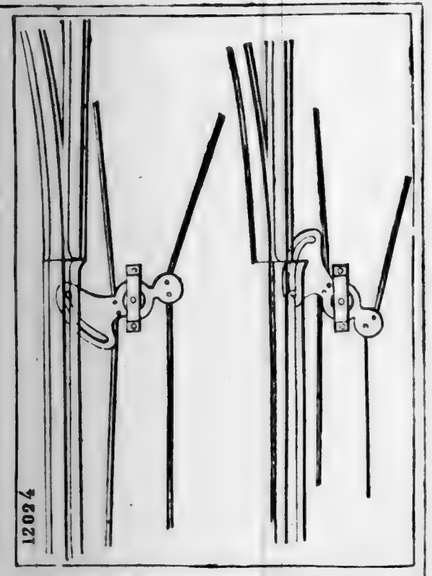
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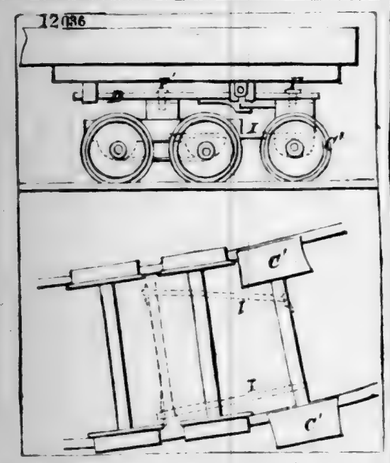
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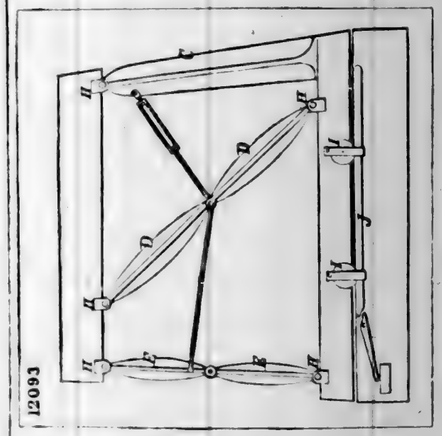
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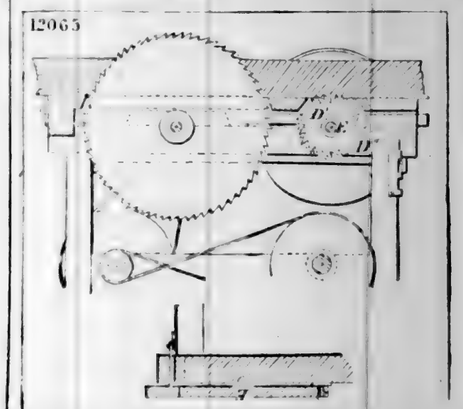
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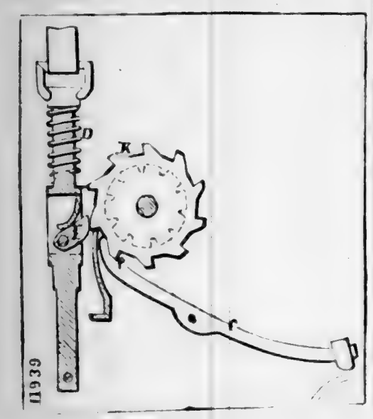
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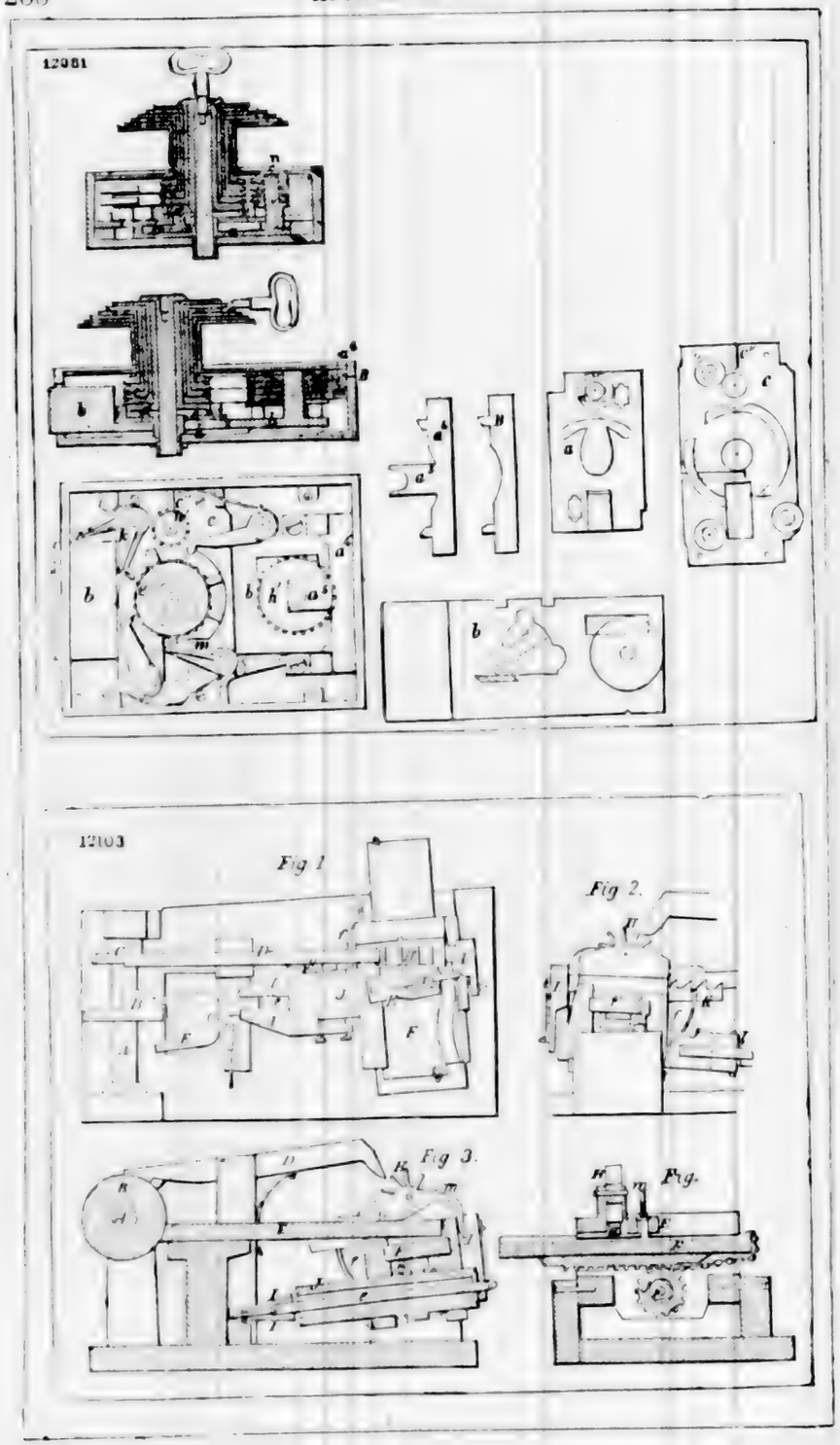


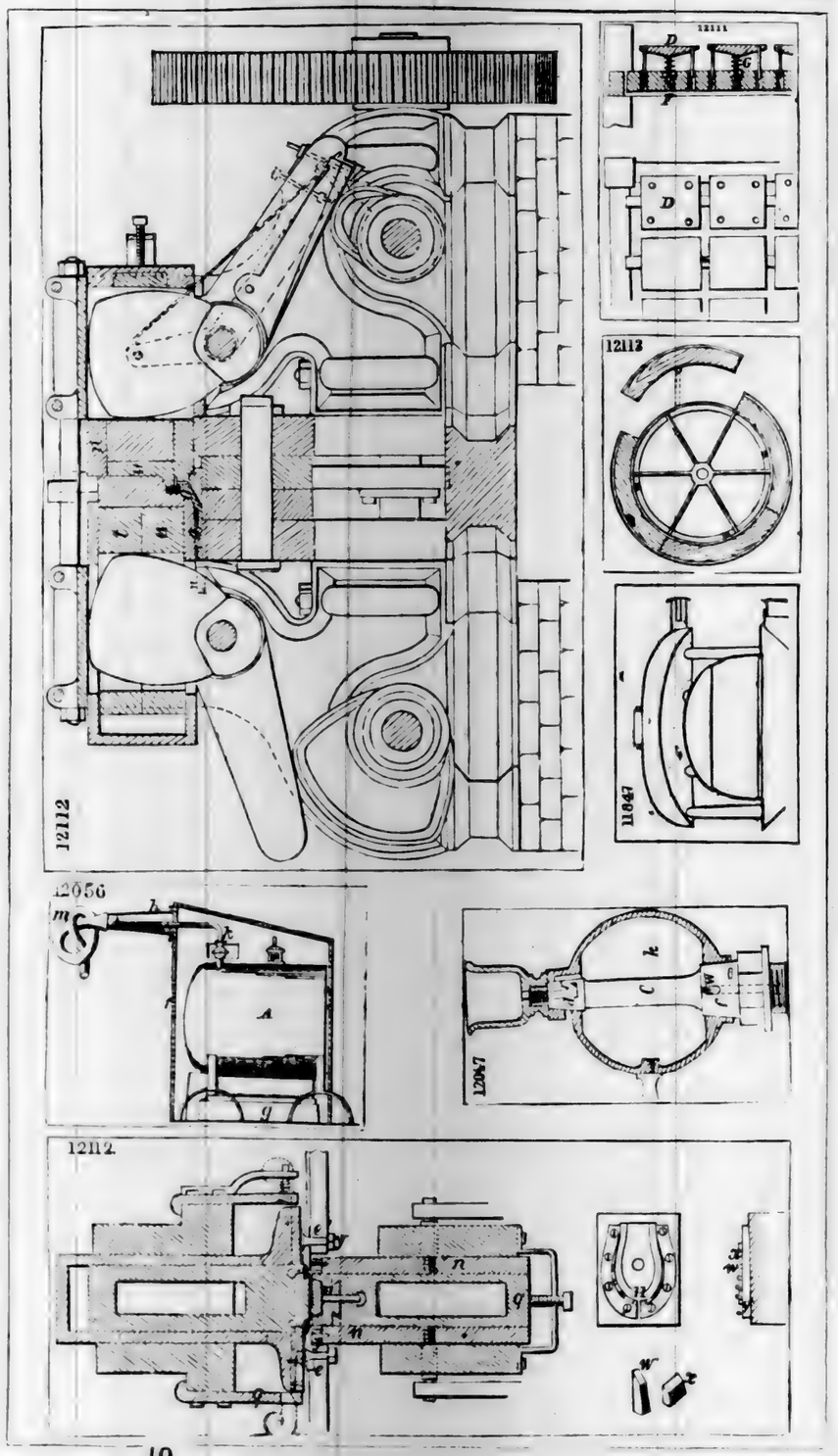
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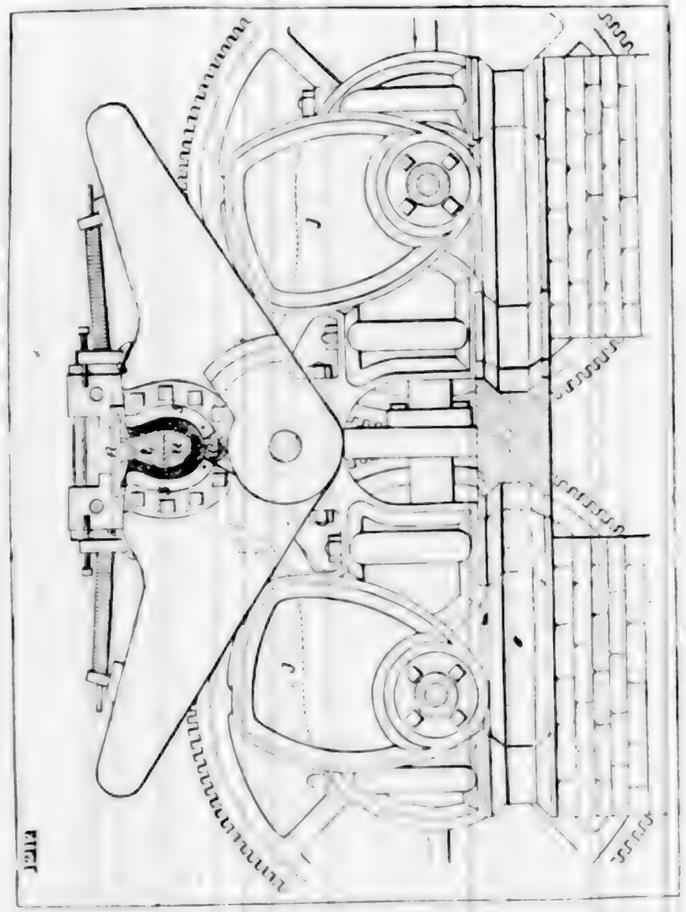


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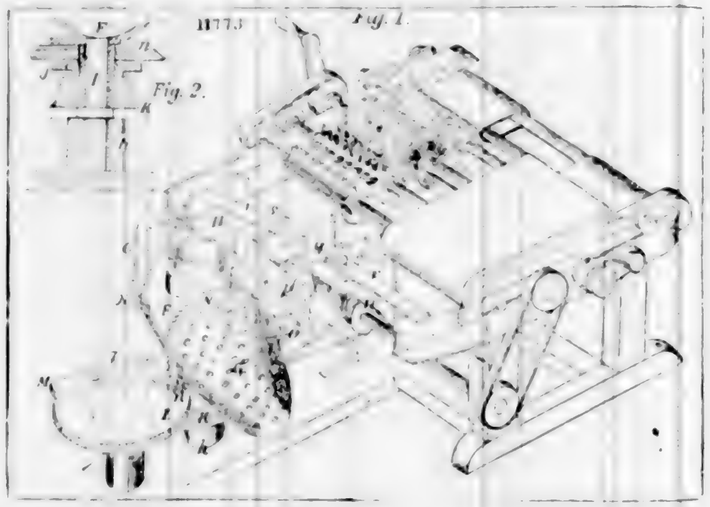



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Fig 1
Fig 2.
Fig 3.
Fig.

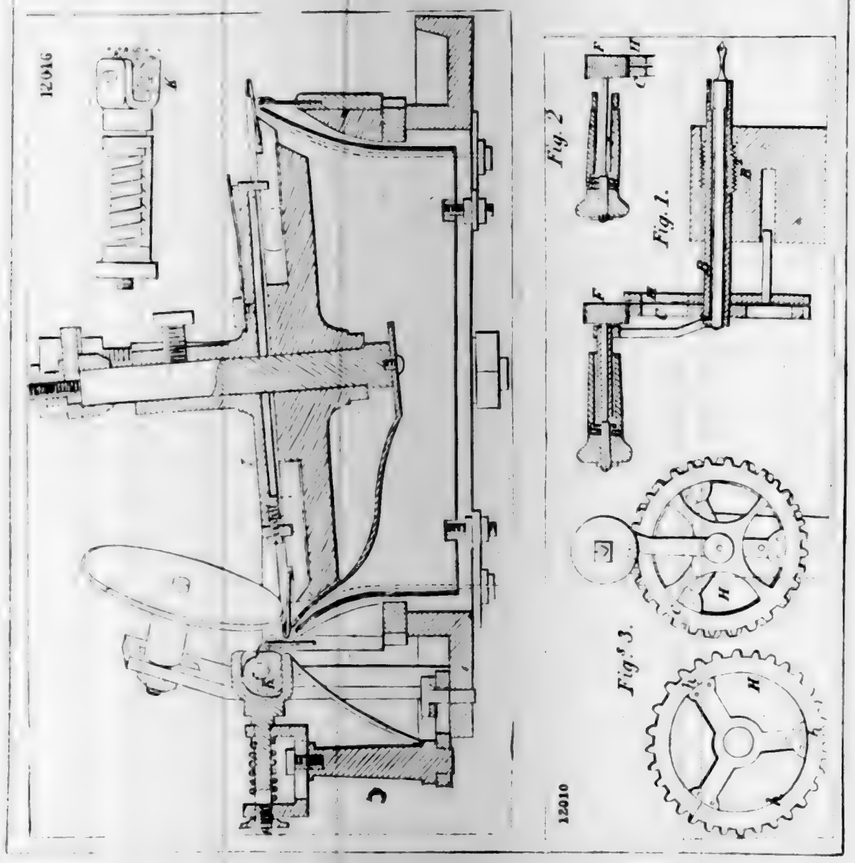

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Fig 1.

Fig 2.

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Fig 2.

Fig 1.

12055.

Fig 1.

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Fig. 2.

Fig. 4.

Fig. 3.

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Fig. 1.

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Fig. 2

Fig. 1.

Fig. 3.

Fig. 2.

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Fig. 1.

Fig. 2.

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Fig. 2.

Fig. 4.

Fig. 1.

Fig. 3.

Fig 2

Fig 1

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Fig 1.

Fig. 3

Fig 2

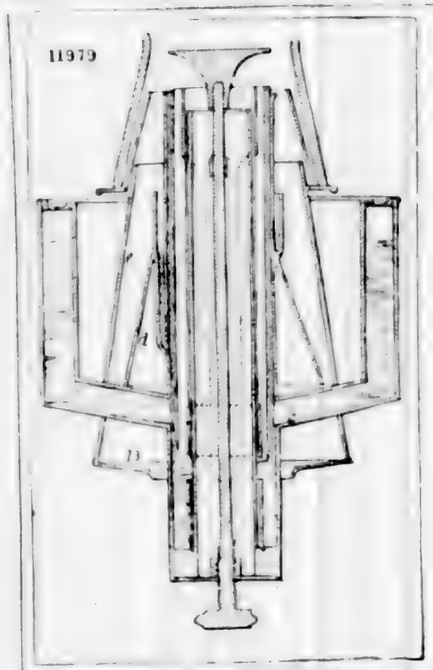
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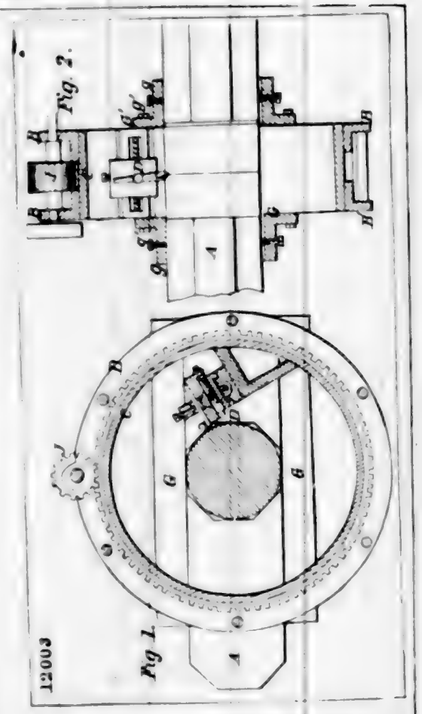
Fig. 1

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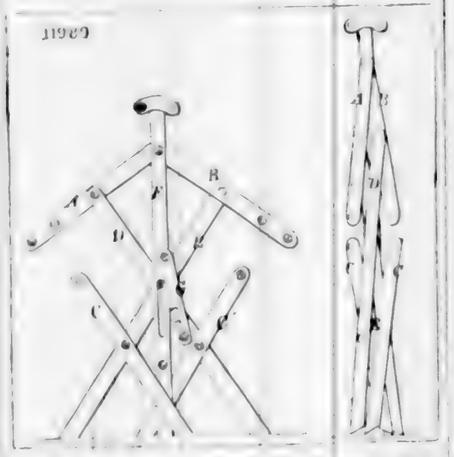
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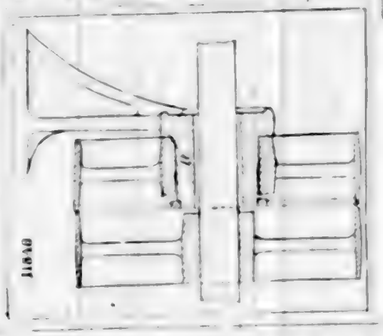
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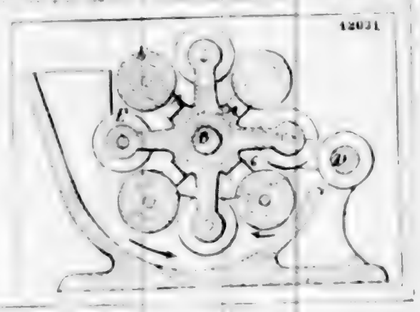

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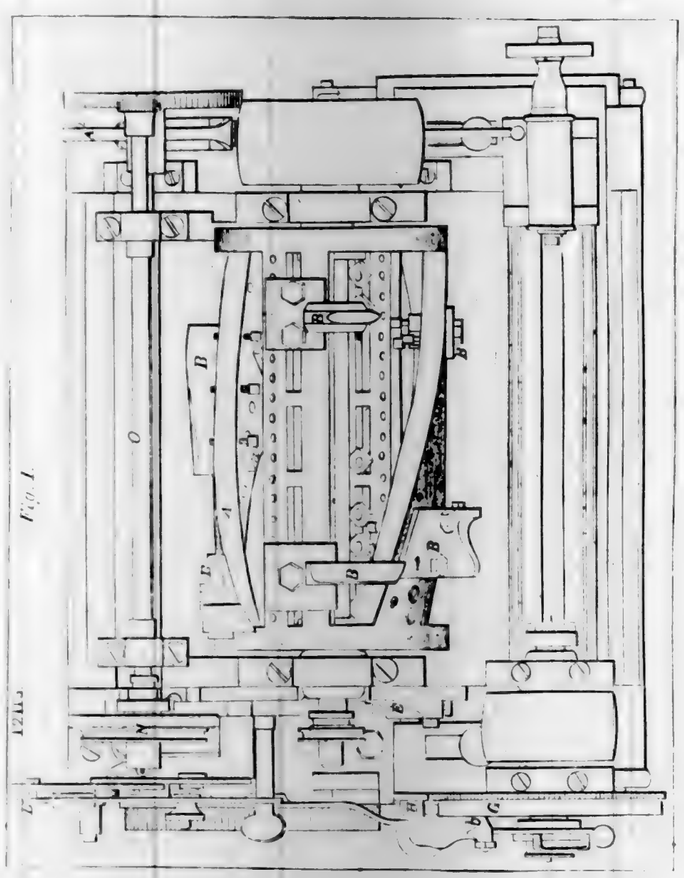

Fig. 2.
Fig 1.
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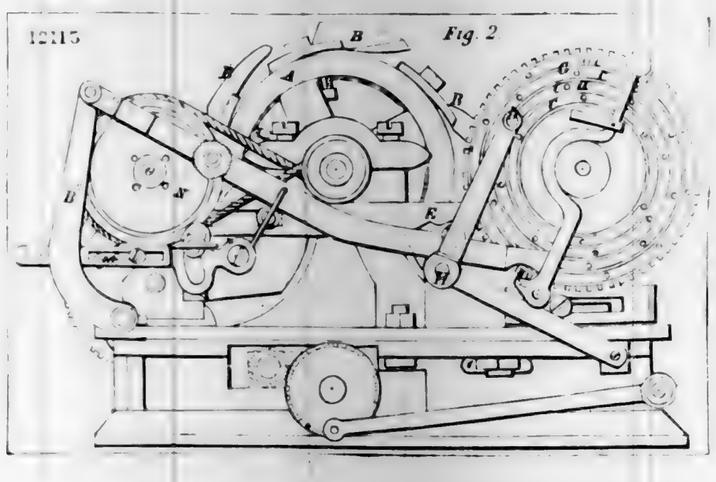

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Fig 1.
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Fig. 2

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Fig 1.

Fig 2

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12052

12085 Fig 1.

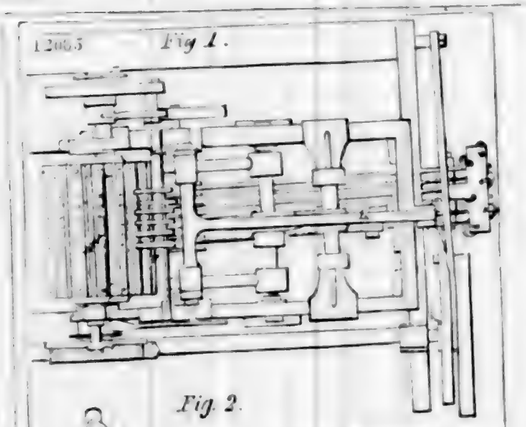
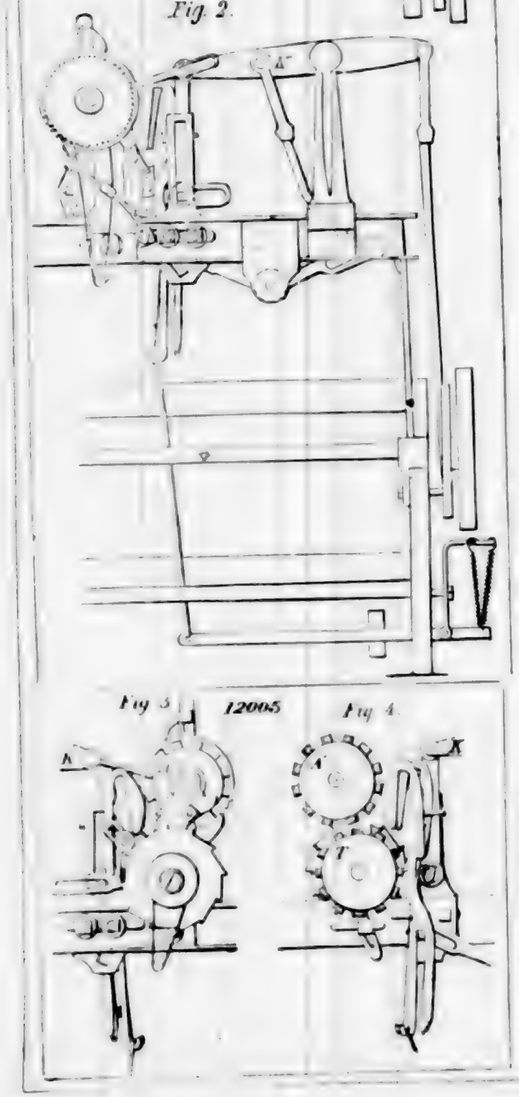
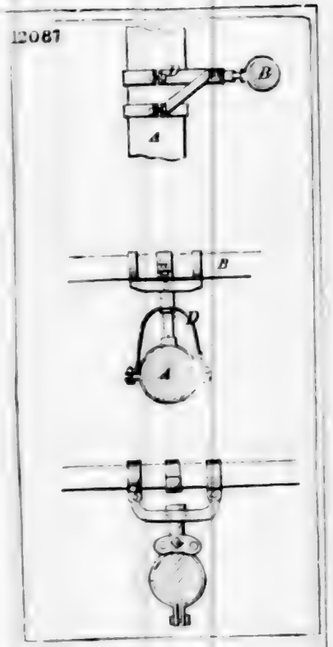


Fig 2.



12087



12085

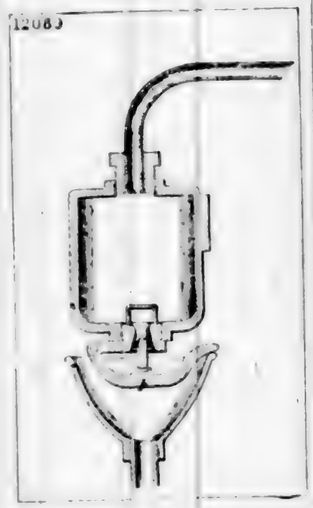


Fig 3. 12005 Fig 4.

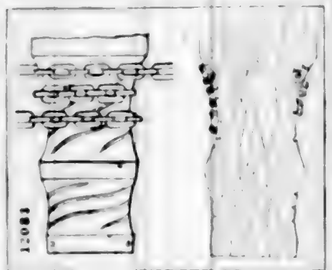
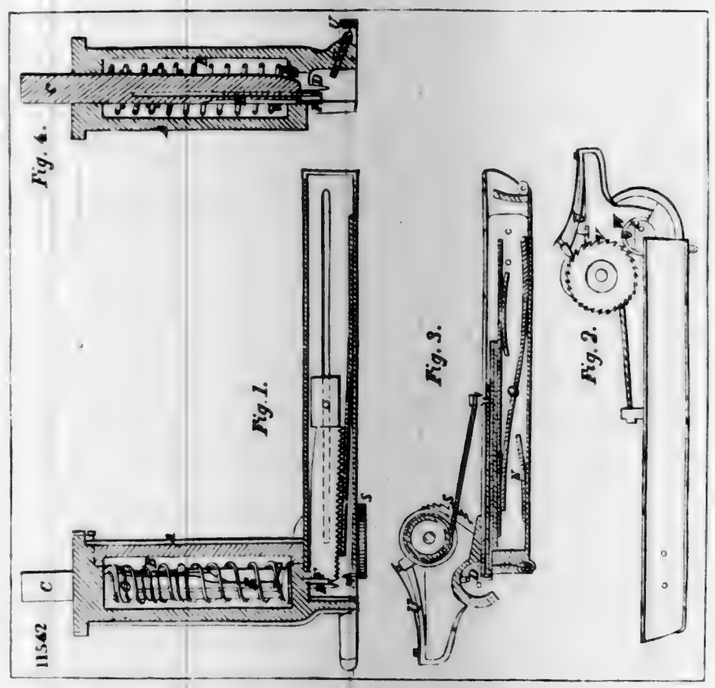


Fig. 4.

Fig. 1.

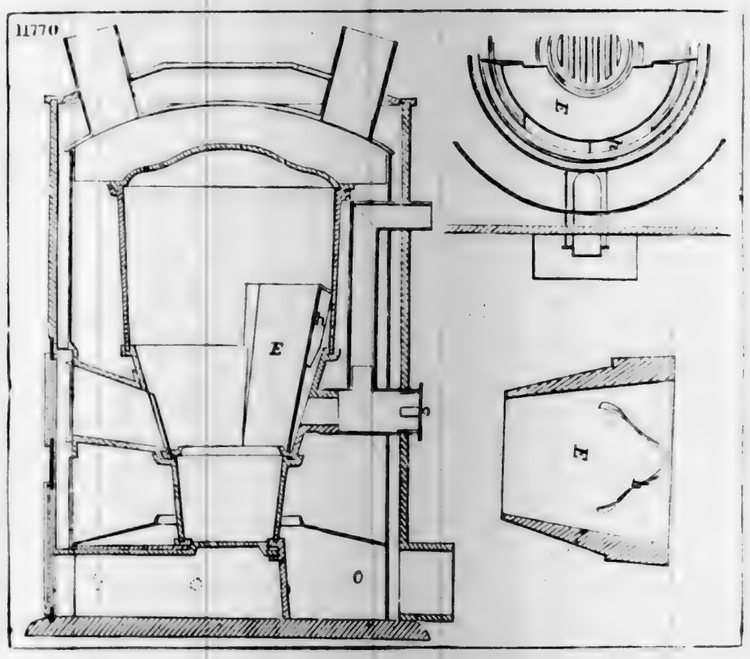
Fig. 3.

Fig. 2.



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Fig. 1.

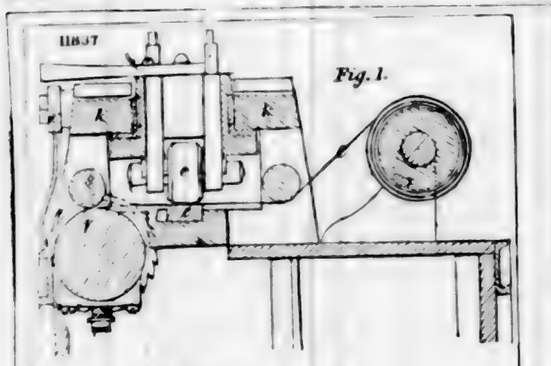
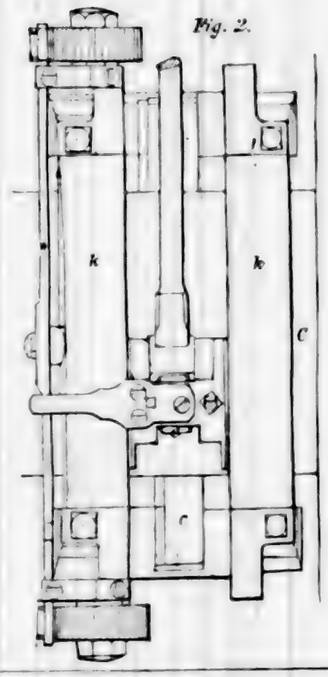
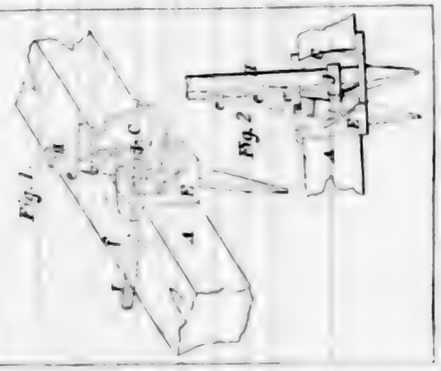


Fig. 2.



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Fig. 2.

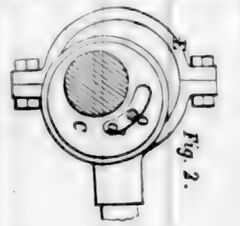


Fig. 1.

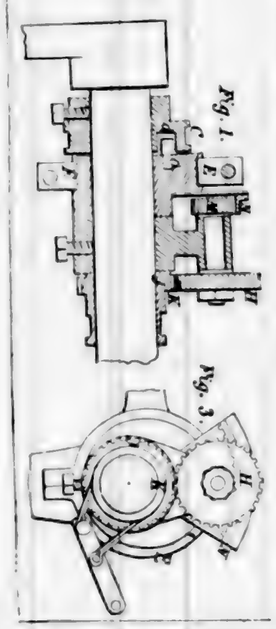
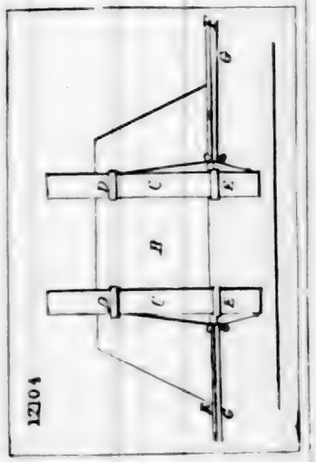


Fig. 3.

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Fig. 1.

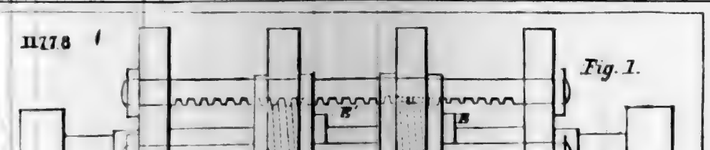
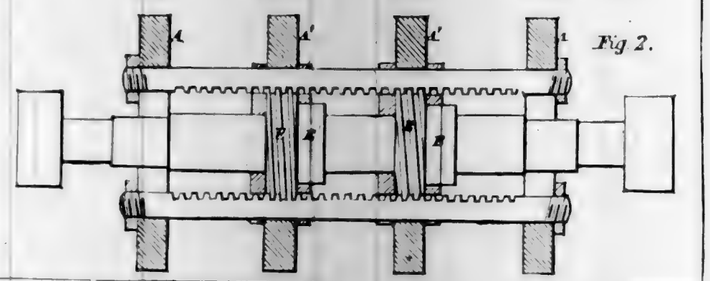
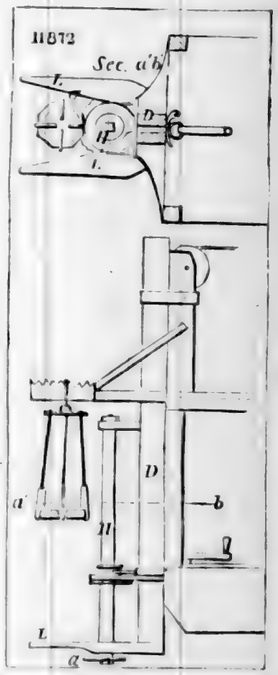


Fig. 2.



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Fig. 1.

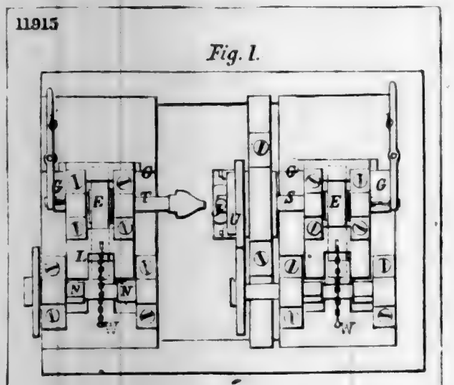
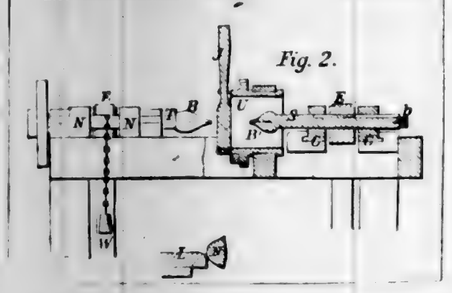
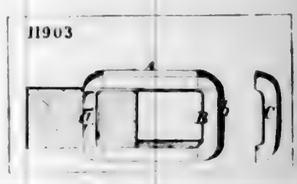


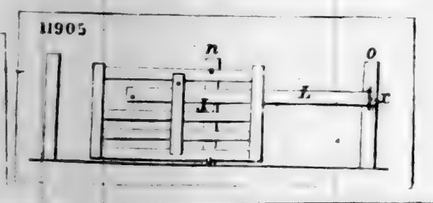
Fig. 2.



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Fig. 1.

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Fig. 4.

Fig. 1.

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Fig. 1.

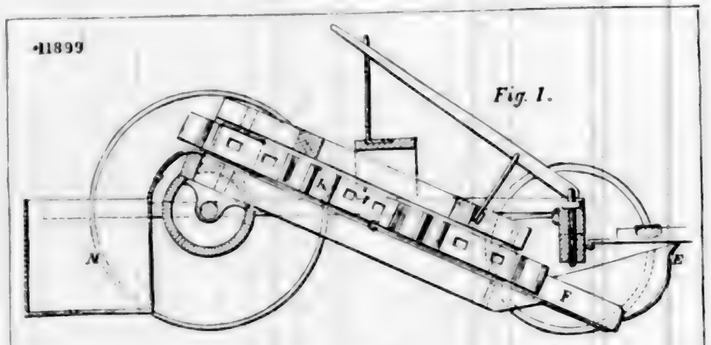
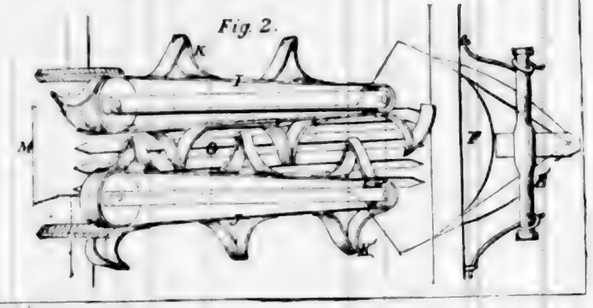


Fig. 2.



11760

Fig. 1.

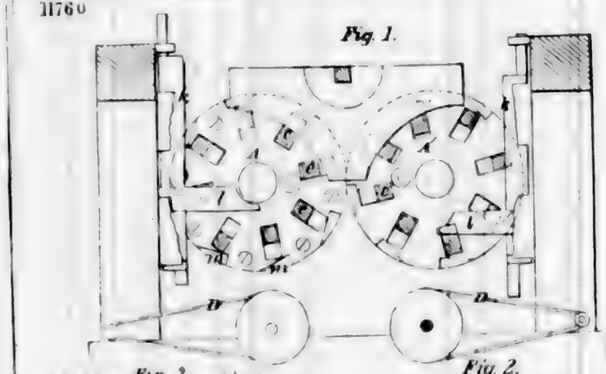


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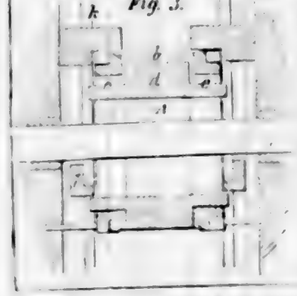


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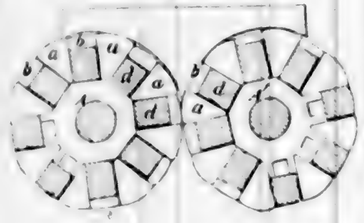
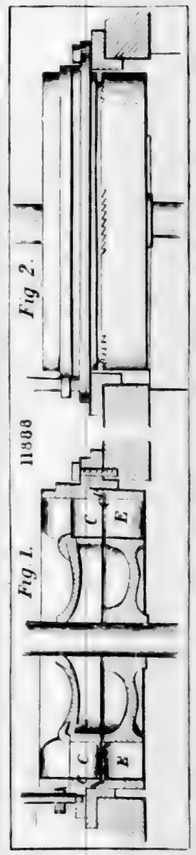


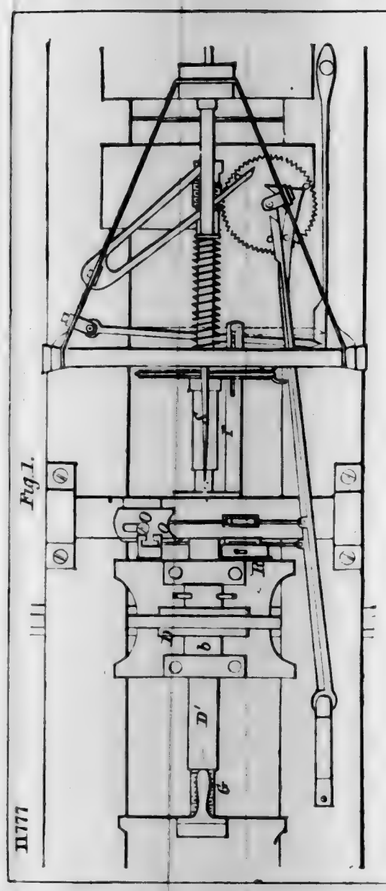
Fig. 2.



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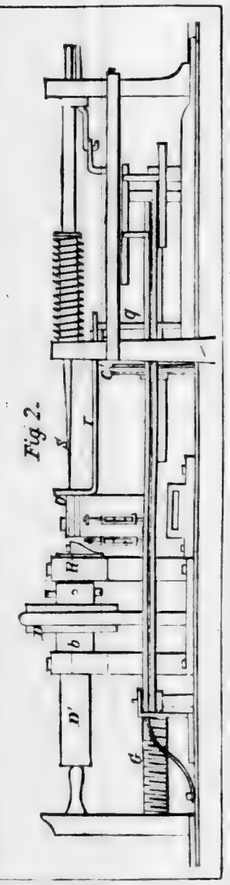
Fig. 1.

Fig. 1.

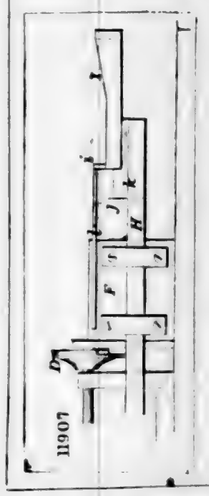


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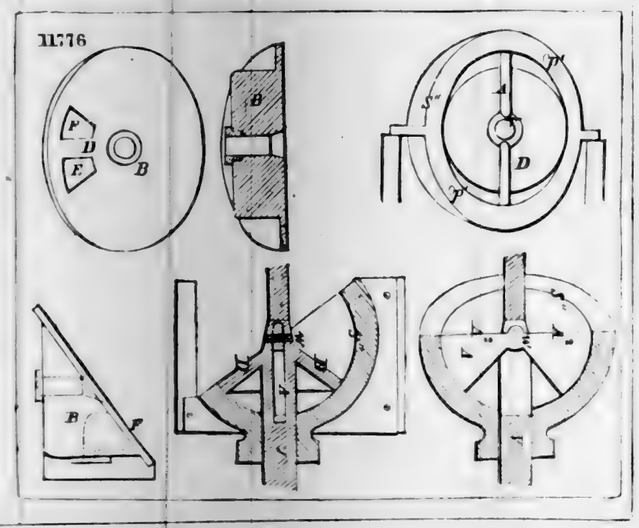
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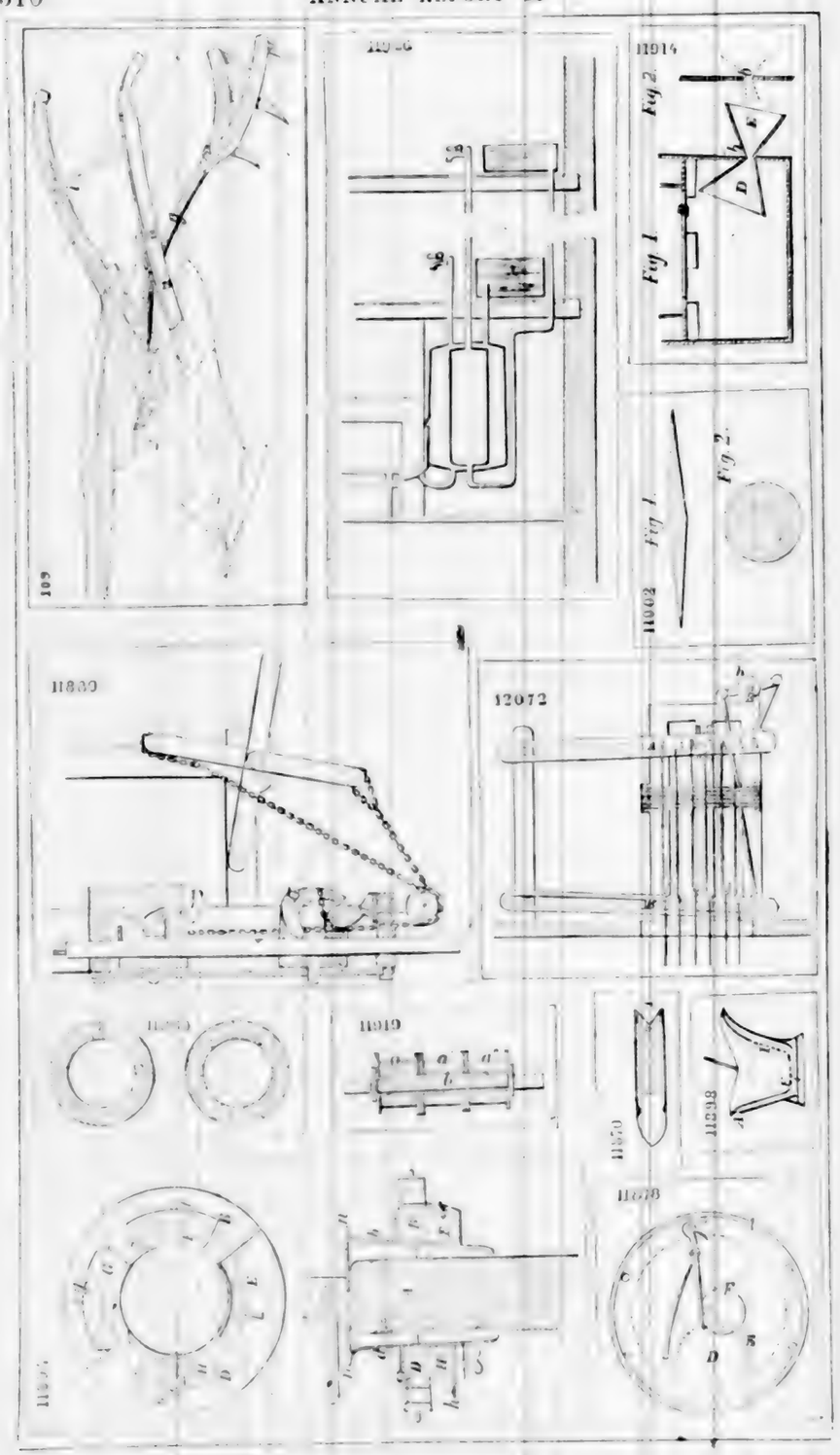


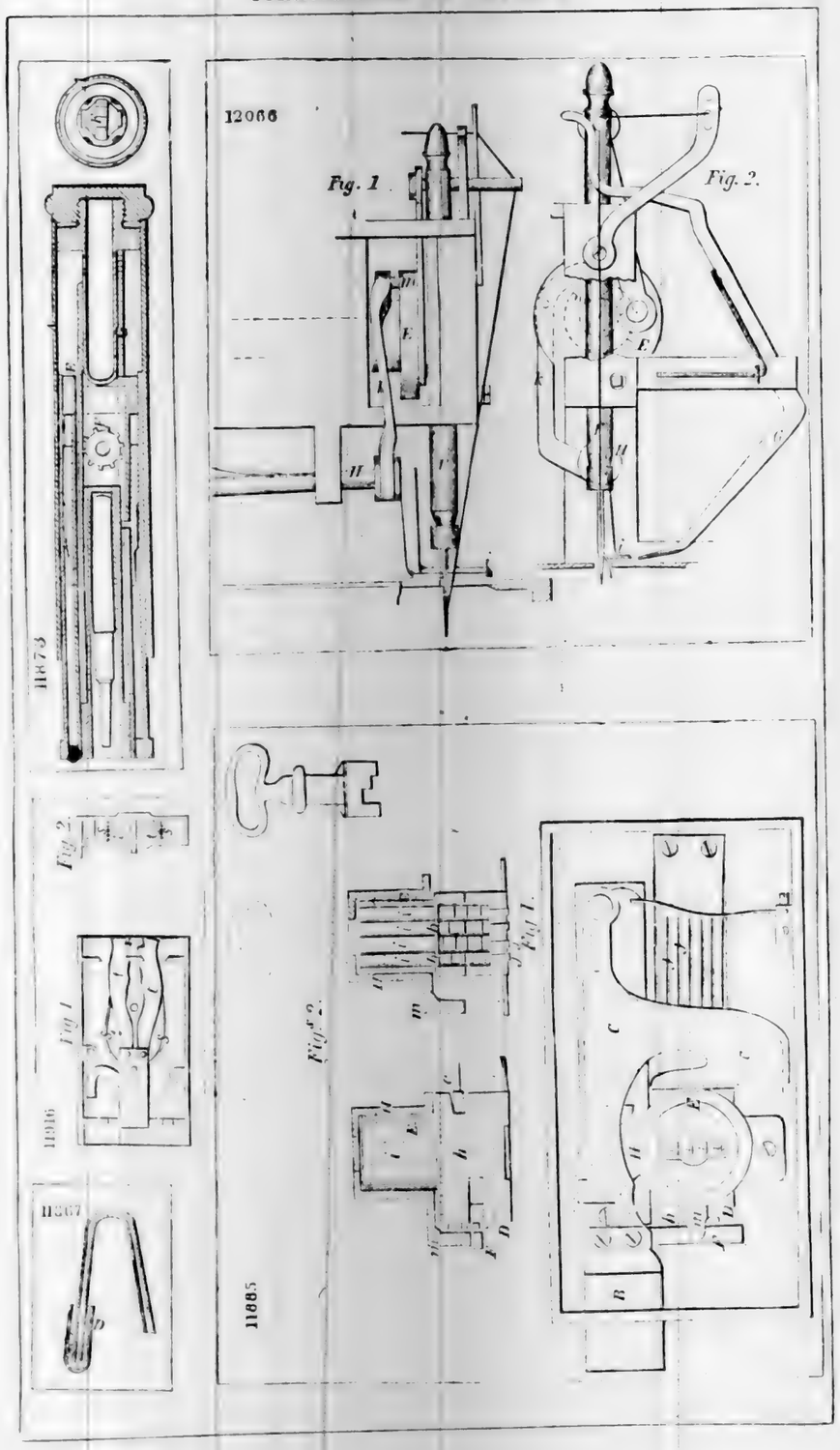
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Fig 2.
Fig 1.
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Fig 1.
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Fig. 1
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Fig 1.

Fig.s 2.

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Fig. 1.

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Fig. 1.

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Fig. 1.

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Fig. 1.

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Fig. 1.

Fig. 2.

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Fig. 4.

Fig. 6.

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Fig. 1.

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Fig. 3.

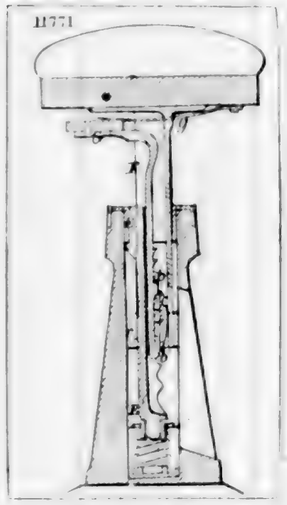
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Fig. 1.

Fig. 2.

Fig. 3.

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Fig. 1.

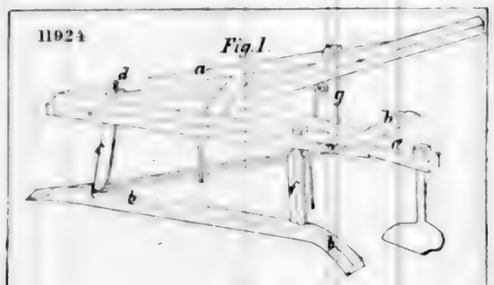
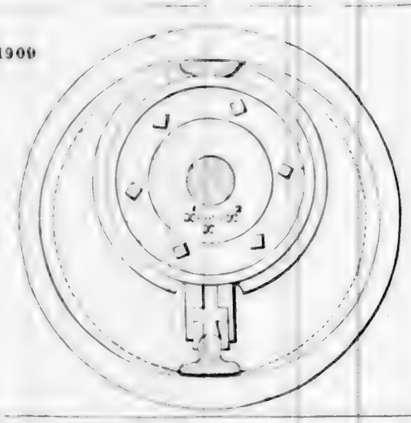


Fig. 2.



11909

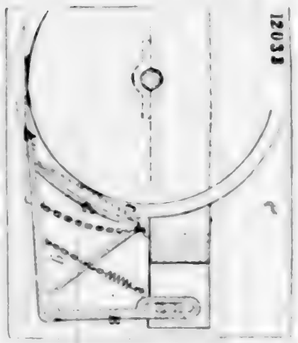


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Fig 1.



Fig. 2.



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Fig. 1.



Fig. 2.

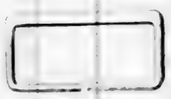


Fig. 3

Fig. 4.



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Fig. 1.

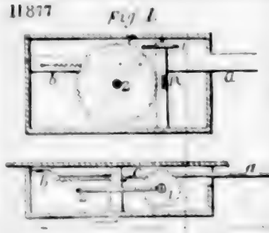


Fig. 2.



Fig. 3.

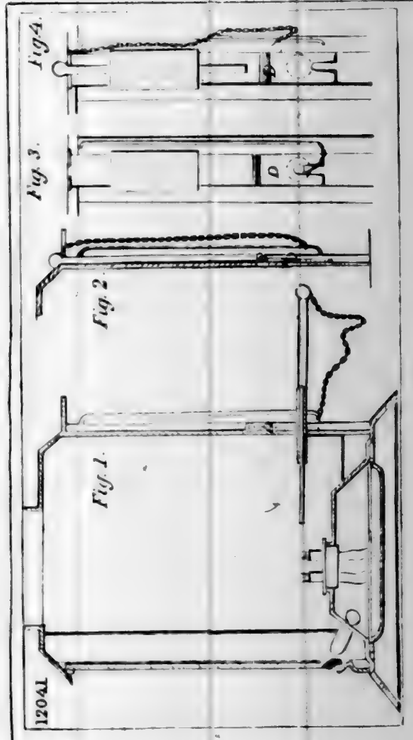


Fig 4.

Fig. 3.

Fig. 2

Fig. 1.



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Fig. 1

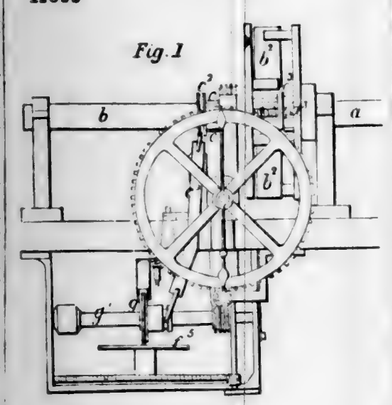
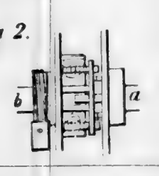


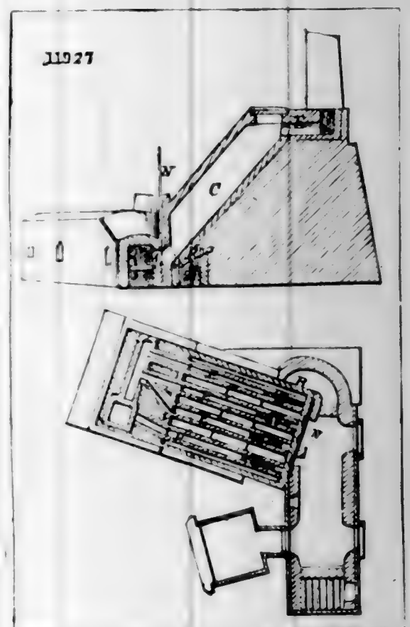
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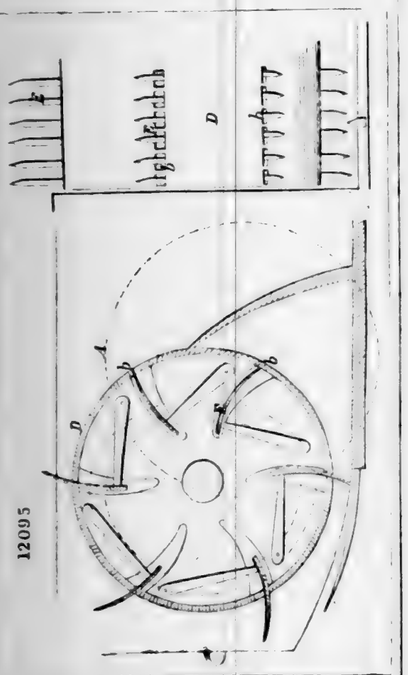
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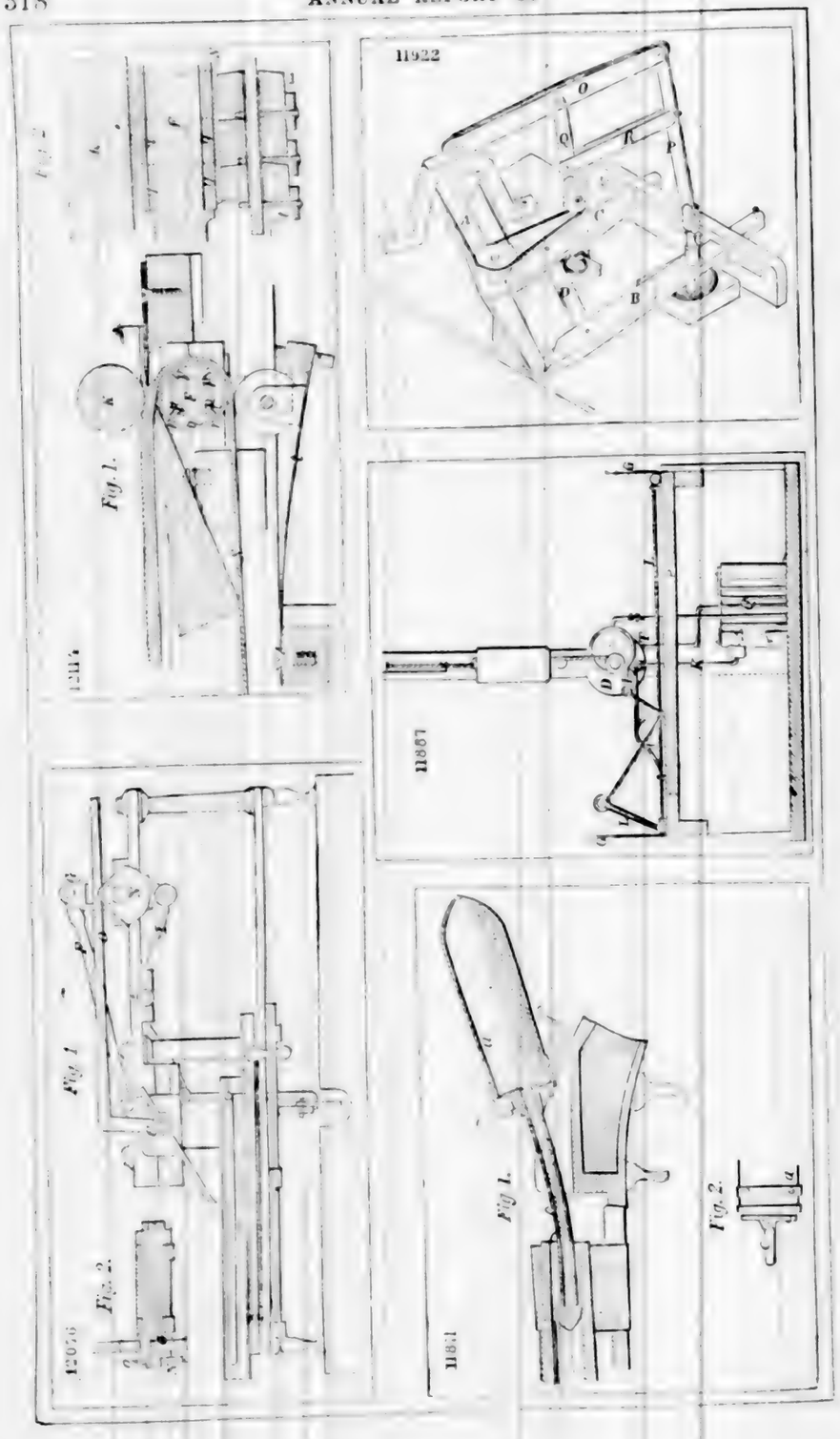


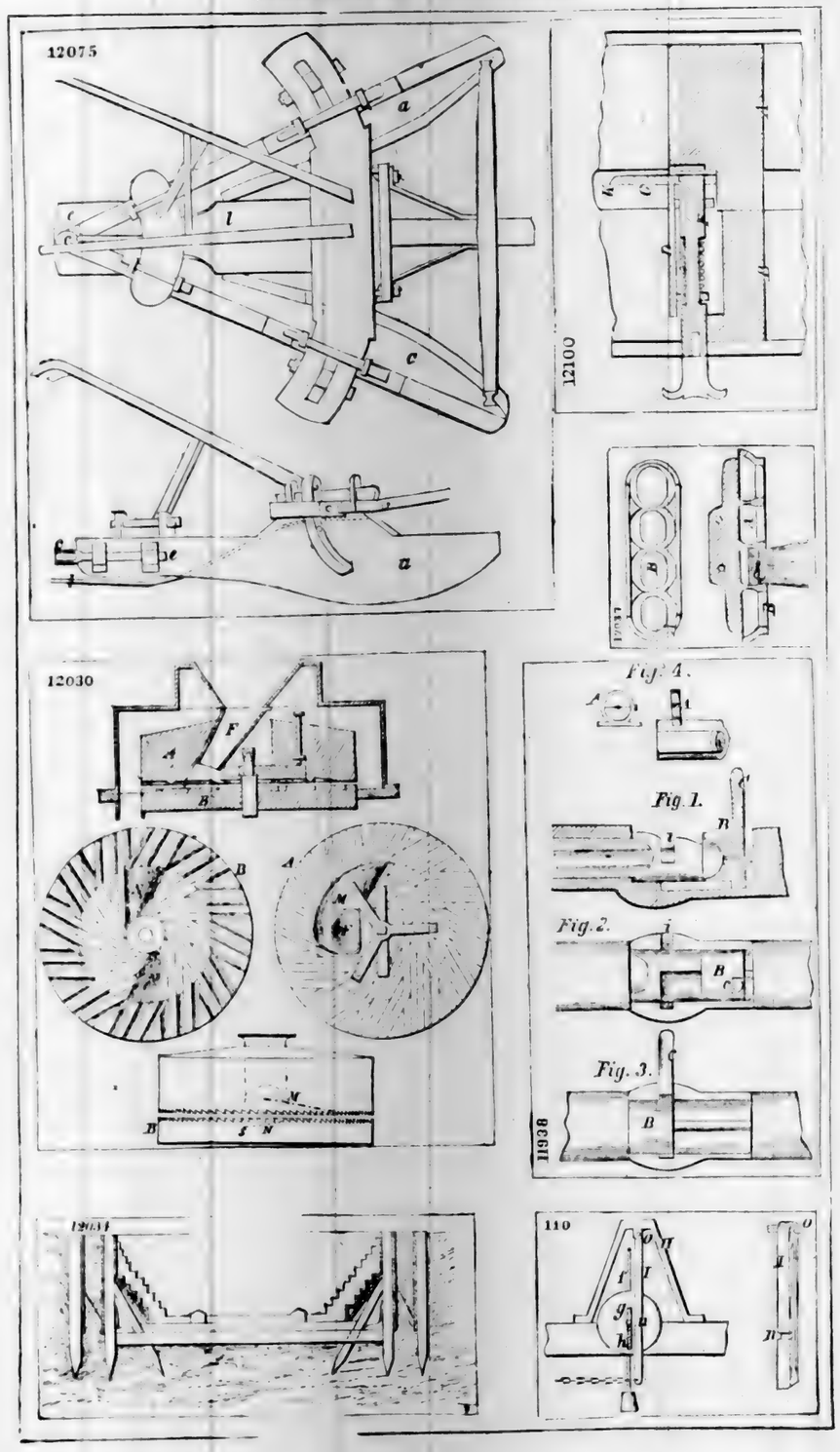
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Fig. 1.
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Fig. 1
Fig. 2.
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Fig 1.
Fig. 2.
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Fig. 4.
Fig. 1.
Fig. 2.
Fig. 3.
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Fig. 3.

Fig. 2.

Fig. 1.

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Fig. 2.

Fig 1.

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Fig 1.

Fig 2.

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Fig. 2.

Fig. 3.

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Fig 1.

Fig. 2.

Fig. 3.

Fig. 1.

Fig. 2.

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Fig. 1

Fig. 2.

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Fig. 2.

Fig. 1.

Fig. 2

Fig. 1.

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Fig. 3.

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 5.

Fig. 2.

Fig. 1.

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Fig. 1.

Fig 2.

Fig. 3.

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Fig. 1.

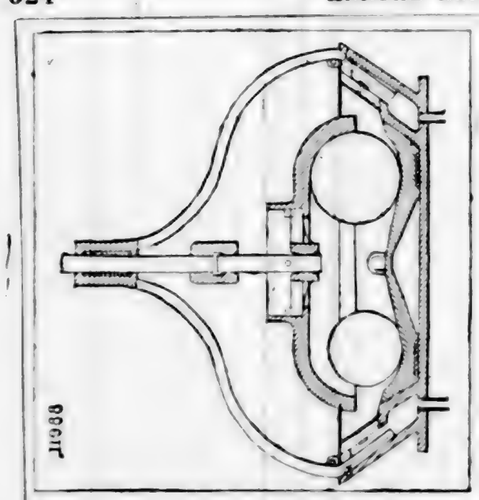
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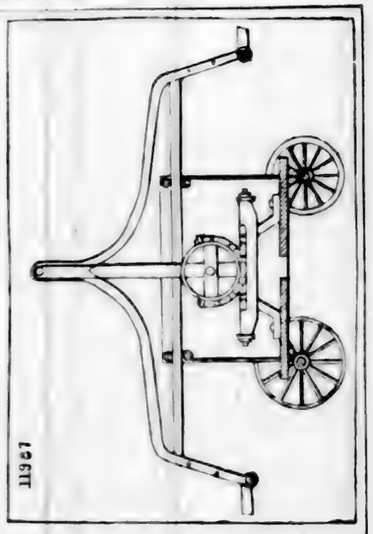
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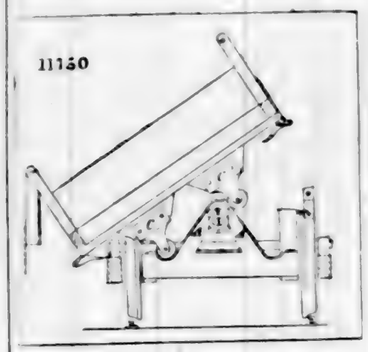
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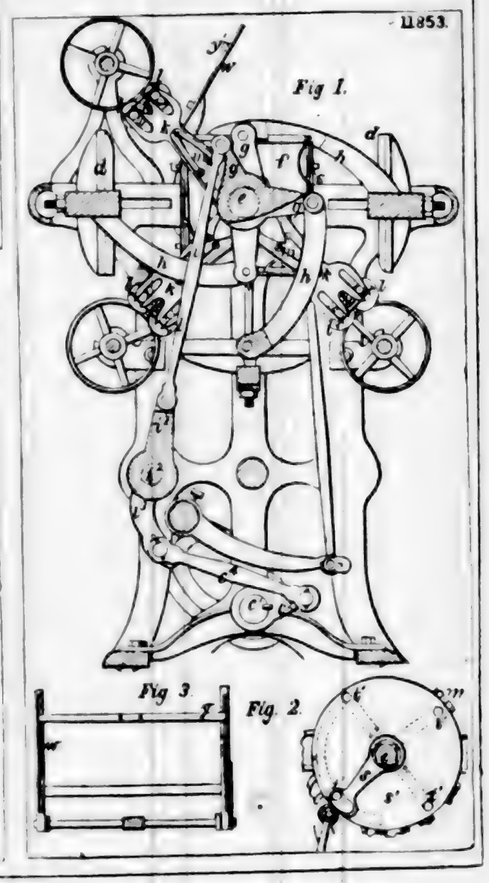
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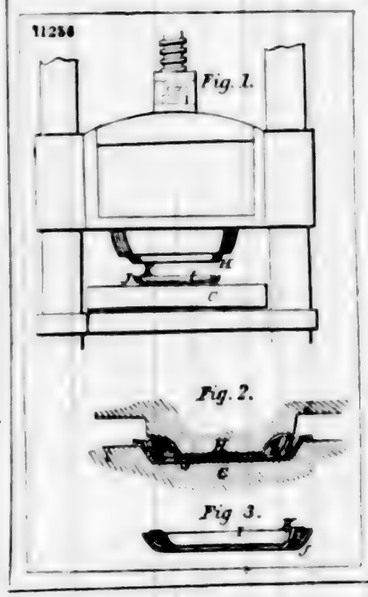
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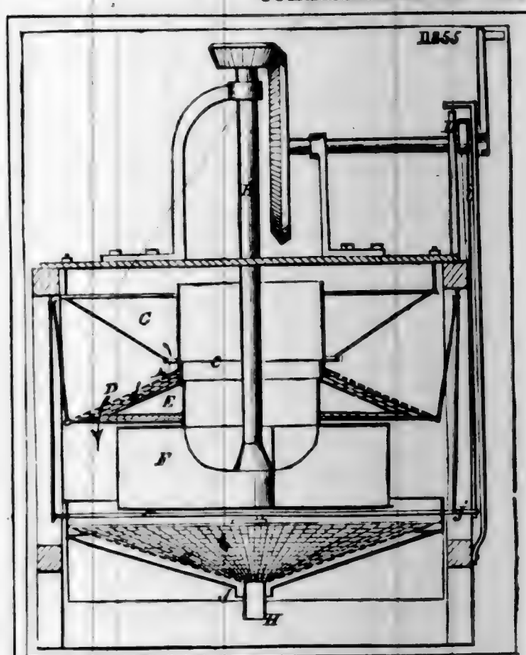

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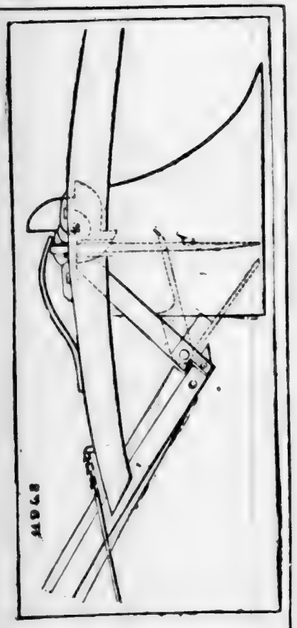

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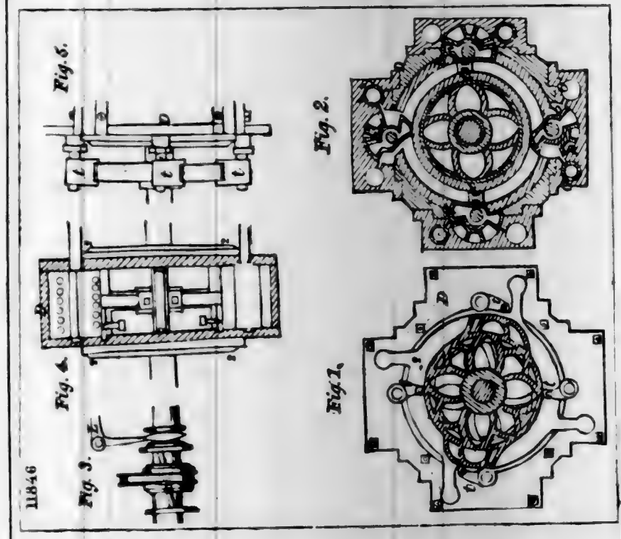

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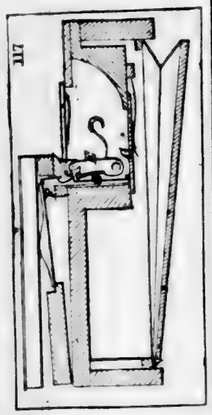

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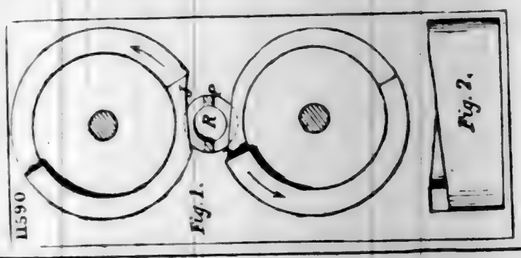

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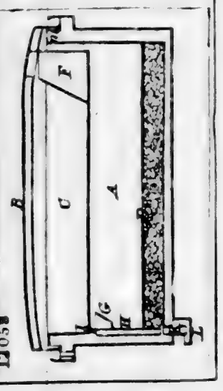

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Fig. 5.
Fig. 2.
Fig. 4.
Fig. 3.
Fig 2.


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Fig. 1.
Fig. 2.


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11564 Fig. 1. Fig. 2.

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11561 Fig. 1. Fig. 2.

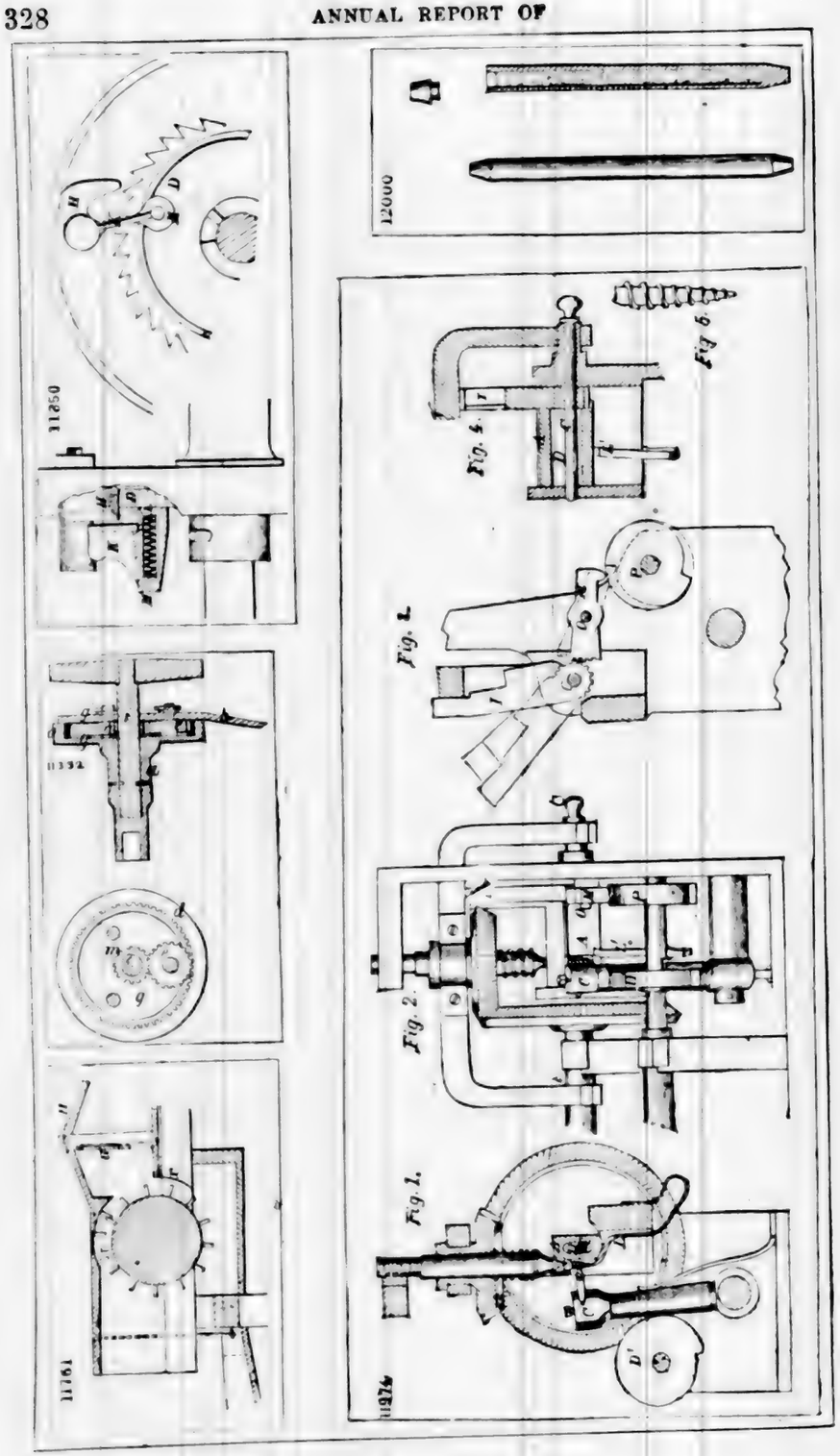
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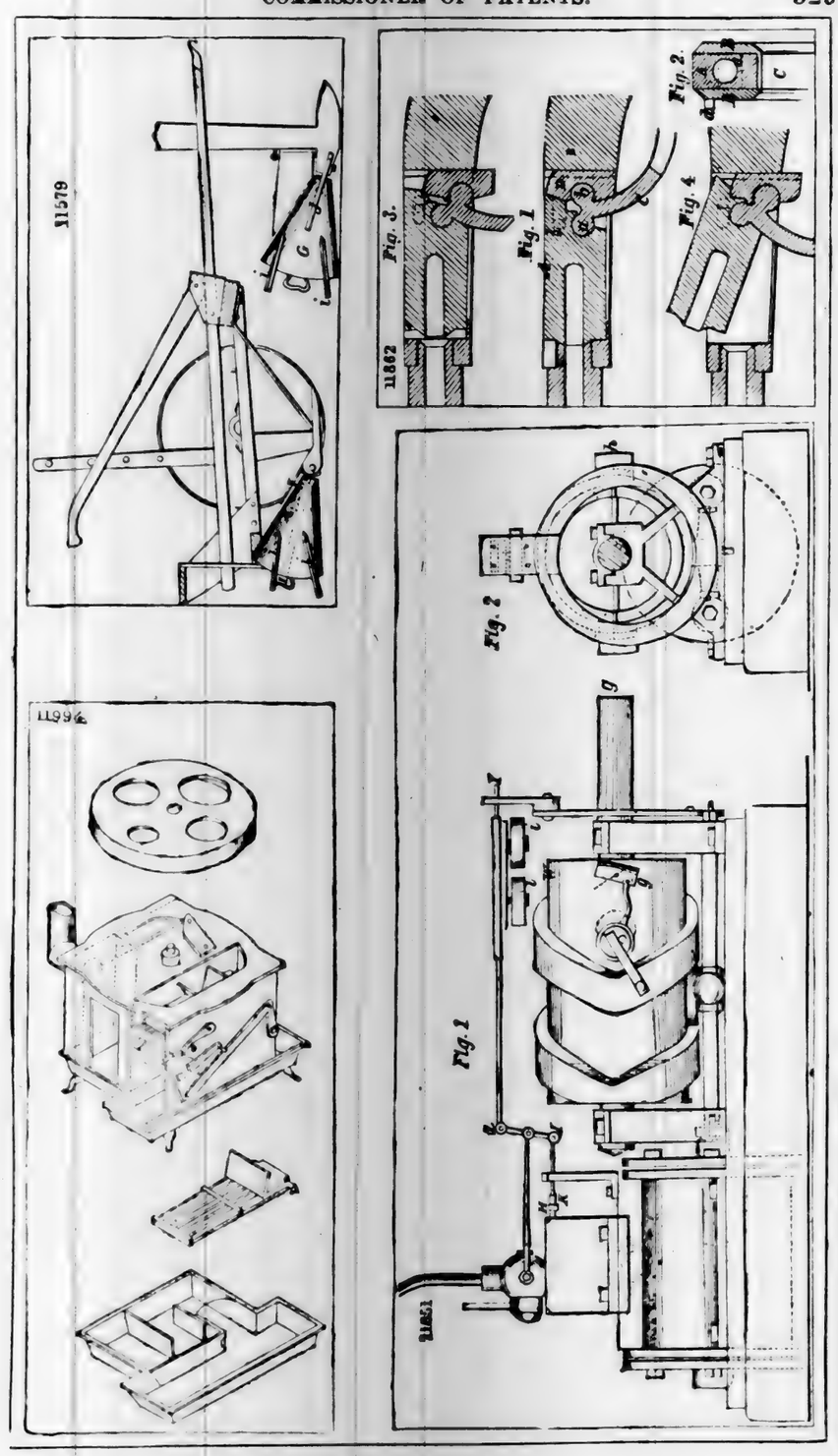
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11578 Fig. 1. Fig. 2.

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Fig. 3.
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Fig. 2
Fig. 1
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Fig 3.

Fig. 1.

Fig. 2.

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Fig. 2.

Fig. 1.

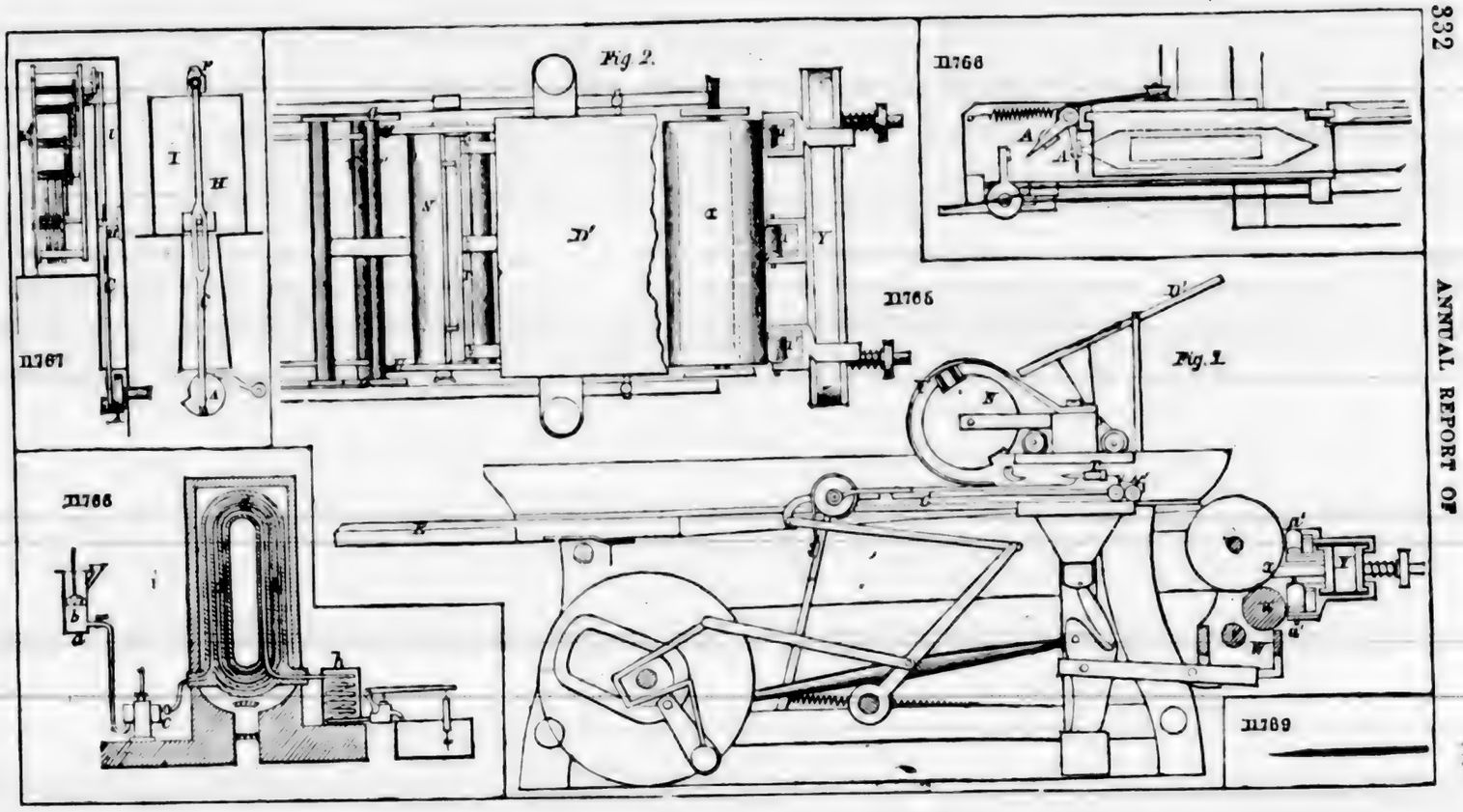
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Fig. 1.

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Fig. 2.

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Fig. 2.
D1768
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Fig. 1.
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ANNUAL REPORT OF THE COMMISSIONER OF PATENTS

VOL. 2 1854

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ANNUAL REPORT OF THE COMMISSIONER OF PATENTS

VOL. 1 1855

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N.Y.

34TH CONGRESS, 1st Session. } SENATE. { Ex. Doc. No. 20.

REPORT

OF THE

COMMISSIONER OF PATENTS

FOR THE YEAR 1855.

U.S. Patent office

ARTS AND MANUFACTURES.

VOLUME I.

WASHINGTON:
A. O. P. NICHOLSON, PRINTER.
1856.

IN SENATE OF THE UNITED STATES, *February* 27, 1856.

Ordered, That twenty-seven thousand extra copies of the Report of the Commissioner of Patents on Arts and Manufactures for the year 1855 be printed, two thousand of which shall be for the use of the Patent Office.

Attest:

ASBURY DICKINS, *Secretary.*

PATENT OFFICE,
Washington, February 11, 1856.

SIR: I have the honor to transmit herewith, to be laid before Congress, my annual Report for the year 1855, as required by the 14th section of the act of 3d March, 1837.

I have the honor to be, very respectfully, your obedient servant,

CHARLES MASON,
Commissioner of Patents.

Hon. JESSE D. BRIGHT,
President Senate United States.

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REPORT

OF THE

COMMISSIONER OF PATENTS,

FOR THE YEAR 1855.

UNITED STATES PATENT OFFICE,
January 31, 1856.

SIR: In obedience to the requirement of the fourteenth section of the act of March 3d, 1837, entitled "An act in addition to the act to promote the progress of science and useful arts," I now proceed to report the facts therein required, showing the transactions of this office during the past year, and its condition at the commencement of the present.

The total number of applications for patents during the year 1855 is	4,435
The entire number of patents issued	2,024
The whole amount of fees received	$176,380 57
The aggregate of expenditures	179,540 33
Excess of expenditures over fees	$3,159 76

But by the act of March 3d, 1855, the money which had been previously taken from the patent fund for agricultural purposes, amounting to $40,078 78, was refunded; adding this to the amount of fees received, shows the whole amount of income during the year to be $216,459 35, which exceeds the total expenditure by $36,919 02.

The receipts and expenses of the office for the past year, together with the present condition of the patent fund, will be seen by reference to the following statements:

No. 1.

Statement of moneys received at the Patent Office during the year 1855.

Received on applications for patents, reissues, additional improvements, and extensions, and on caveats, disclaimers, and appeals	$162,120

Brought forward	$162,120 00
Received for copies, and for recording assignments	14,227 57
Received for old sash	33 00
	176,380 57
Amount reimbursed to patent fund, per act of 3d March, 1855	40,078 78
Total	$216,459 35

No. 2.

Statement of expenditures from the Patent Fund during the year 1855.

Salaries	$67,629 05
Additional compensation, per act of 22d April, 1854	2,229 50
Temporary clerks	31,938 19
Books for the library	830 45
Contingent expenses	36,764 82
Payments to judges in appeal cases	450 00
Refunding money paid into the Treasury by mistake	225 00
Refunding money on withdrawals	39,473 29
	$179,540 33

No. 3.

Statement of the Patent Fund.

Amount to the credit of the patent fund on the 1st of January, 1855	$25,593 52
Amount paid in during the year, including $40,078 78, reimbursed to the patent fund by the act of 3d March, 1855, being the amount heretofore paid out for agricultural statistics, &c.	216,459 35
Total	242,052 87
From which deduct—	
Amount of expenditures during the year	179,540 33
Leaving in the Treasury on the 1st of January, 1856	$62,512 54

From the following table it will be seen how rapidly the business and revenues of the office have increased during the past fifteen years:

No. 4.

Table exhibiting the business of the Office for fifteen years, ending December 31, 1855.

Years.	Applications filed.	Caveats filed.	Patents issued.	Cash received.	Cash expended.
1841	847	312	495	$40,413 01	$23,065 87
1842	761	291	517	36,505 68	31,241 48
1843	819	315	531	35,315 81	30,776 96
1844	1,045	380	502	42,509 26	36,344 73
1845	1,246	452	502	51,076 14	39,395 65
1846	1,272	448	619	50,264 16	46,158 71
1847	1,531	533	572	63,111 19	41,878 35
1848	1,628	607	660	67,576 69	58,905 84
1849	1,955	595	1,076	80,752 78	77,716 44
1850	2,193	602	995	86,927 05	80,100 95
1851	2,258	760	869	95,738 61	86,916 93
1852	2,639	996	1,020	112,056 34	95,916 91
1853	2,673	901	958	121,527 45	132,869 83
1854	3,324	868	1,902	163,789 84	167,146 32
1855	4,435	906	2,024	216,459 35	179,540 33

The augmentation of the number of *applications* has been greater during the past year than at any previous period. That the increase in the number of *patents* is not proportionally great, is due to the fact that at the commencement of the year 1854 there were 823 cases undisposed of in the office, so that the whole number of cases acted upon during that year exceeded 4,000. At the beginning of the year 1855, there were but eighty-nine cases on hand, and on the first day of the present year only sixty-six.

There are papers in the office to show that, less than fifty years since, the annual income of the office was only about $1,500, and that for the seven years previous to 1826 the aggregate amount received was about $42,000, or an average of $6,000 per annum. These facts, taken in connexion with the last of the above statements, will show with what a constantly accelerated rapidity the march of invention has been progressing for the last half-century.

Hereto will be found appended a classified list of all the patents which have been granted during the past year, together with an alphabetical list of the patentees and their places of residence. Also a list of all patents which have become public property during the same period.

In addition to the classified list of the patents granted within the year, it has long been the practice to furnish in the report a brief description of each of those patents, so as to present a general idea of its nature and purpose. To render these descriptions more intelligible, illustrations have been added in the reports for the past two years. This seems to have met with general favor, and the present report is prepared in

the same manner. I trust it will also meet with the approval of Con gress.

The act of the last session, authorizing the appointment of six additional principal examiners, limited the continuance in office of two of that number to the end of the present session, unless further extended by a new law. I deem it indispensable to the prompt transaction of the business of the office, that the present force should not be diminished.

The number of applications in 1854 was twenty-five per cent. greater than in 1853, and the increase during the past year is more than thirty-three per cent. of the whole number of applications of the year previous. This increase during the past year alone is sufficient to furnish employment for three principal examiners and as many assistants, reckoning by the average number heretofore acted on by each set of examiners. If anything like the same ratio of increase is to be continued hereafter, the present number of examiners will, before the end of the present year, be found inadequate to the discharge of the duties which will devolve upon them.

Still there are very grave objections to a further increase of the number of principal examiners. The system is already overgrown in that respect, and seems almost imperatively to demand some modification to give it a proper harmony and uniformity of action.

Each of the twelve principal examiners has charge of certain prescribed classes of cases. They necessarily act, to a considerable extent, independently of each other, and, possessing very different minds and views, they follow different rules of action and of decision.

The multiplicity of business in the office renders it wholly impossible for the Commissioner to exercise a personal supervision over the decisions in each of the numberless cases presented for official action. When the examiner reports in favor of granting a patent, it is issued without further question or examination.

In case of the *rejection* of an application, the law and the practice of the office permit an appeal to the Commissioner, and finally to one of the judges of the circuit court of the District. But such appeals are attended with much trouble and expense, so that, in most cases, especially where the applicant resides at a distance, a rejection by the examiner is, in point of fact, final. Under such circumstances, the importance of correctness and uniformity of decision upon the first examination can hardly be too highly appreciated. They cannot reasonably be hoped for under the system now in operation, and the more that system is extended the greater the evil becomes.

To remedy this difficulty several plans have been suggested, but they generally resolve themselves into one of the two following, or modifications thereof:

1st. The appointment of an *examiner-in chief*, whose sole duty would be to review the actions of the present examiners, with a view of introducing correctness and uniformity of decision. As a modification of this plan, it has been sometimes proposed to increase the number of examiners-in-chief to three, some one of whom should make a final decision upon each of the various questions, which should first be fully

and clearly presented by some of the members of the corps of examiners as now constituted, and who might all three act conjointly on appeals and other cases of unusual difficulty.

2d. To return to the former practice of the office, making the duties of the examiners simply advisory, and allowing a patent in all cases, provided the applicant should finally insist upon it, notwithstanding the opinion of the office as to its invalidity.

The main objection to the former of the above plans grows out of the difficulty of obtaining competent and suitable persons to fill the chief places. I doubt whether there is a situation under the government for which it would be more difficult to find a suitable incumbent. Qualities would be required for the satisfactory discharge of such a duty which are rarely found united—a well-trained capacity for comprehending and investigating all subjects connected with natural and mechanical philosophy, and a high order of legal acumen and experience. The difficulty is still further increased by the fact, that very few of our lawyers have ever turned their attention in this direction. The law relating to patents is less understood by the profession than any other branch of that noble science. And as the cherished rights of inventors are to be submitted to the sound discretion of these officers, habits of patient and laborious investigation and the high moral qualifications of integrity and impartiality are quite as indispensable as those of an intellectual character.

If the difficulty of securing the services of persons possessing a union of all the above-mentioned qualities could be overcome, the plan we are now contemplating would probably be the readiest and most judicious mode of effecting the desired improvement of the present system. But the doubt of success in such an effort is so great, that something in the nature of the second plan, as above stated, seems worthy of some consideration.

That plan, however, would necessarily be subjected to some important modification before it would be admissible. When a meritorious inventor has obtained a patent which proves of high value, there are not wanting unscrupulous men, who are willing to trespass upon his well-earned rights. To permit a person of that character to take out a patent, valid on its face, for precisely the same invention, would be not only countenancing intentional wrong, but the office would almost become a participant in a design to impose upon the public. Persons taking assignments of either patent, would have no sufficient means of distinguishing between the spurious and the true, and would be as likely to purchase a property in the invention from the infringer, as from the real inventor—both being armed with the same evidence of legal ownership. This would be nearly akin to authorizing forgery and counterfeiting by law.

But if every patent granted contrary to the opinion of the office were required to bear conspicuously upon its face the evidence of that fact, or if the option of the applicant to demand a patent were limited to cases which would authorize no infringement of any pre-existing American patent, the difficulty above intimated would, to a great extent, be obviated. Perhaps, even when an application was held by

the office to conflict with the rights of a previous patentee, the applicant might be permitted to insist upon his patent after due notice to the patentee, and a full opportunity given him to contest, in some proper court, the validity of the patent sought by the new applicant.

Should anything of the kind above intimated be adopted, it would, doubtless, be proper to provide a means by which any patent, wrongfully claimed and granted, might be invalidated and cancelled. In fact, some provision of this nature would seem eminently proper and valuable under any system of patent laws.

The modifications we have last been considering would relieve the office from much of the judicial labor now devolving upon it, and would render the same high order of qualifications and experience less absolutely essential in the examining corps. Most of the legal controversies now arising in the office would be turned over to the courts of law, which are not only so much better qualified to adjudicate, but which possess the requisite machinery to investigate and conduct such matters, so as to lead to a result more satisfactory than can be done here.

All our republican notions of propriety revolt at the idea of making the substantial rights of property of any citizen depend upon the mere discretion of an executive officer. Such a system seems rather Asiatic than Anglo-Saxon in its type and origin. The present patent laws are certainly, to some extent, liable to this objection. It is true, they provide in some manner for bringing many of the decisions of the office before the regular judicial tribunals; but when an application which should be patented is rejected by the office, no opportunity is allowed the applicant for showing the justice of his claims before a court or jury. If he has a natural right to what he has created, may he not, in such circumstances, be regarded as having been "deprived of his property without due process of law"—without the intervention of that great constitutional bulwark which he regards as a birthright—a fair trial before a regular judicial tribunal?

That he has now the privilege of appealing to the judge of the circuit court, does not change the case essentially. That judge is only (for the occasion) a part and parcel of the Patent Office. He does not hear the case anew, but founds his opinion upon the necessarily imperfect facts and statements which are presented to the office.

The question of patentability is often one of the most delicate and difficult that can ever arise before any tribunal. A resort to the testimony of experts is frequently essential to a just and correct decision. The law now makes no provision for this or any other kind of testimony. No witness is obliged to appear, or to give testimony, unless he does so at his own option; and even if he swears falsely, there is no statute penalty.

Without the means of proving the practical working of his machine, or without any other legal testimony, the inventor sometimes provides himself with a few certificates or *ex-parte* affidavits—often of doubtful authenticity, and always regarded with suspicion; presents himself before the office; is rejected; appeals to the judge, who has no adequate means of arriving at a correct conclusion; and thus is frequently

deprived of his rights without an opportunity of establishing them in the manner guarantied to all other citizens.

Nor ought it to be supposed that these are matters of trivial moment; at least they are not so to the individual most immediately interested. To him, the offspring of his mental energies are something more than property; they are his children, for whom he has often labored through much of the fairest portion of life's meridian, and on whom he relies for consolation and support in the evening of its decline.

That he has now no sufficient opportunity of establishing his rights before a properly constituted tribunal, is doubtless a great defect in the present system. Whether that defect shall be remedied, and if so, in what manner, will be for Congress to determine.

The above suggestions are not intended as proposing any definite plan for modifying the present laws, but merely as presenting the difficulties experienced, and furnishing some hints which may serve as a basis for future consideration by the body to whom the matter is submitted.

The present insecurity of the property of inventors, even after patents are obtained, is a source of great discouragement, and often of peculiar hardship. A patent gives to the holder only a presumptive right of property. When it is infringed—no matter how wantonly—the trespasser is permitted to protect himself by proving at the trial that the invention was first made by some other person, and not by the plaintiff; though it may have been kept a profound secret, and would never have seen the light, but for the subsequent invention of the patentee;—or he may defeat the action by showing that the same contrivance is described in some publication printed in any foreign language, and which publication was never seen or heard of in this country before the date of the trial when this proof is made.

The liability to be set at defiance in this manner continues throughout the entire life of the patent; and no matter how often the validity of the patent may be established in court, it is equally liable to be called in question on any new trial. The disheartening and prostrating influence that this is calculated to exert upon those who devote their lives and energies to the improvement of all the arts of civilized life, and to making those discoveries which have given a character to the present age, can readily be perceived without comment.

In the opinion of many, however, any remedy that can be contrived would be more to be feared than the evil which was sought to be remedied. But is there any good reason for such a conclusion? Why should the holder of a patent, which is presumptive evidence of title, be forever liable to have his right called in question by every mere trespasser? Such a course is not permitted in relation to any other species of property. The wrong-doer is not in other cases permitted to protect himself by calling in question the title of him who has *prima-facie* evidence of ownership. Why should he do so in relation to this species of property?

It is true, that if a patent should be granted for a machine already in common use, and which is therefore fully the property of the public, any person sued as an infringer should be permitted to protect himself

by showing the facts of the case. But why should a person who has trespassed upon what he does not pretend to be public property, be allowed to defend himself by showing the property to belong rightfully to some other individual?

The analogies of the law relating to tangible property lead to this same conclusion. If one person make an enclosure upon the lands of another, his right of action against any trespasser is complete and unquestionable; but if he were to enclose a portion of the public highway, no such action would be maintainable, for his enclosure is itself a nuisance, which any one may disregard or remove.

Analogy also suggests another provision, still more important and effectual. So great are the evils resulting from uncertainty of title to real estate, that in most of our codes means are provided by which the presumptive owner may file a bill in equity, and bring such uncertainty to an end. Is there anything in the species of property we are considering, which renders a similar provision out of place or objectionable? If the holder of a patent were permitted, under proper regulations, to file a bill to quiet his title, either in one of the federal courts already organized, or in a special tribunal created expressly for that purpose, would not the result prove as harmless and as beneficial as though the patent were for real estate? The patentee would then be enabled to feel that security which would give double value to his property, and would be free from that continued series of vexatious lawsuits which often render the most valuable inventions the sources of continual annoyance, if not of eventual pecuniary ruin to their authors.

As a short and effectual remedy for all these difficulties, it is the opinion of some who have thought upon this subject that the whole system of granting patents ought at once to be abolished; but is it not one of the cardinal purposes in the establishment of all governments to protect the citizen in undisturbed enjoyment of his property? This species of property is by the Constitution placed under the special guardianship of Congress, and it is difficult to perceive why it is not as much entitled to legislative favor and protection as any other property. If inventions are not to be made capable of being effectually appropriated, why should lands, or any tangible article of personal property be so? And yet no one proposes to return to the savage state, so far as these kinds of property are concerned. To do so in regard to inventions, would be a retrograde in civilization, as well as a departure from the plainest principles of justice.

No title can be more unquestionable than that resulting from discovery, unless it be that which is derived from actual creation. The recognition of either, if not instinctive in the brute, is certainly found in the lowest and most uncultivated orders of human intelligences. The bird seems to have a sense of property in its nest, the beast in his lair, the savage certainly in the cave he has discovered or the weapon he has made; even the first occupant of a tract of land which he has neither discovered nor created, has a title which, in the absence of a better, is protected by the governments of all civilized countries.

To none of these is the title of the inventor at all inferior. He has created or discovered all that he claims the right to possess. The

property for which he asks protection might never have existed but for him, who has created it out of nothing. At least, he has called it into active being, and made it the servant of mankind, subject to the limited right of ownership, which he claims for himself. And when it is remembered that it is chiefly through the exercise of this inventive faculty that civilized man has risen above the savage, or that even the savage is to be distinguished from the brute—that it is the inventor who has either directly or indirectly been, and still is, the great instrument of human progress—that his has been the wizard wand which has called forth from the latent powers of nature messengers and servants, surpassing in fleetness and power, and mute obedience, the fabulous genii of eastern tale—which has seized and fixed, as by enchantment, the transient and varying lineament, or the flying sound, and transmitted them unchanged to the latest posterity; or that, in humbler, but perhaps equally useful endeavors, he wears out his life in often unrequited efforts to benefit mankind, it must be a mistaken or perverted impulse which would grudge him that protection which is accorded to all others, or that would fail to encourage, in all suitable ways, efforts from which the world is now reaping such incalculable benefits.

The evil effects which would be the result of a departure from the rule of right in this case are easily perceivable. Were the law to afford no protection to the inventor, his only means of reaping any particular benefit from his invention would be by hiding it from the knowledge of the world, as in Turkey the peasant secretes his wealth lest it should become the prey of that rapacity against which the laws afford no sufficient protection.

But the knowledge that is thus hidden is often lost; at all events, its utility is greatly lessened. The ancients were known to have been possessed of many valuable arts which modern ingenuity has tried in vain to re-discover. They are, perhaps, lost to the world forever; which would not have been the case had there been a judicious system of patent laws in existence.

Besides, in relation to many kinds of inventions, secrecy cannot afford any protection. Many machines, utensils, and manufactures are useful to the inventor only as they are publicly sold and used, and cannot, therefore, be hidden from the world. Without some other protection, therefore, that great moving power of human action—the stimulus of pecuniary gain—would never arouse to their full energies the efforts of human ingenuity.

The reason why hundreds of intellects in all parts of our country are strained to their utmost tension in the attempt to discover something that shall prove useful to mankind, is attributable to the fact that individual profit is inseparably blended with the general welfare. But who would cultivate a field if others were to have an equal right to reap the harvest? The acknowledgment and protection of private property are the parents of industry and effort, as much in relation to inventions as to any other species of possession or estate.

For reasons like these, some have claimed that the property of the inventor in the creations of his own ingenuity should be perpetual; and the argument, founded on natural justice, is not without great weight. The main objection against it is drawn from expediency.

Original inventions are always imperfect, leaving much to be done by subsequent inventors. The patentee of each improvement upon any invention must obtain the license of previous inventors before he can avail himself of his own property. Were all these patents perpetual, as well as those for improvements made upon improvements, and combination upon combination, we should, in the course of time, find ourselves surrounded by inextricable confusion. The inventor must, therefore, be satisfied with such a modification of his rights as is required by the public good. Whether the present limit be not too narrow, is a matter worthy of consideration. It certainly is so, if the whole period of its duration is to be consumed in contest after contest—all leading to no final result.

Some modifications of the present rates of official fees have been recommended in former reports. They still seem desirable—not so much for the purpose of increasing our revenues to any greater extent, as with a view to a more accurate adjustment of the amount of compensation to the labor and trouble occasioned by the respective cases.

In pursuance of the general idea of rendering the Patent Office merely a self-sustaining establishment, it seems desirable that every case should, as nearly as practicable, be taxed with the expenses it occasions, but no more. This rule might easily be much more strictly observed than it is at present.

The most signal departure from it is seen in the exorbitant fees demanded of foreign applicants. Where the citizen or immigrant alien pays a fee of thirty dollars, the subject of the Queen of Great Britain, who resides at home is obliged to pay five hundred dollars. And yet the application of the latter occasions no more trouble than that of the former.

The plausible reason for this difference is, that our citizens are obliged to pay as great a fee when applying for a British patent as is required of the British subject at our office. It should, however, be remembered, that the British government makes no discrimination in this respect between subjects and aliens; all are taxed at the same exorbitant rates.

The patent office in that country is made a source of revenue. The net receipts into the treasury from the patent fund, in 1854, were about $75,000, after having paid more than $300,000 in salaries and other expenditures. It will require little argument to prove that this is a course of policy which is not in any degree worthy of our imitation.

These inordinate rates of fees produce to a great extent the same evils which would result from the entire abolition of all patent laws. Invention is thereby greatly checked; for why should any one exert himself to create what he cannot afford to secure? Many seek to protect their rights by secrecy, and on both of these accounts the world loses many of the advantages which, under a better system, it would secure forever.

Our law co-operates with that of Great Britain in producing this very result. The inventive genius of other nations, checked or disheartened at home, finds itself repulsed here also; and that faculty which was intended to promote the progress and happiness of the race

of mankind, lies comparatively inert and useless throughout a large portion of our brethren of the human family.

If all patents were to be regarded as gratuities to the patentees, there would be some reason in the rule that the subjects of other governments should be treated as those governments treat our own citizens in this respect. But patents for inventions are no more to be so considered than patents for lands. In either case, the government receives a full consideration for what it grants. The inventor reveals his secret—receives a sole property in the invention for fourteen years, and surrenders it to the public afterwards, paying all the time the expenses occasioned by the transaction of the necessary business. Can any one doubt that this is a transaction advantageous to the public? If it be so, need we ask of what nation the other contracting party is a citizen? It is not usual for our countrymen to be thus fastidious, when they are making profitable contracts. Our government grants patents for its lands, without asking such questions. Our citizens ransack the world for customers who will offer them bargains of that description.

Or if a patent granted to an alien were in any way antagonistic to the legitimate interests of the home inventor, there would be some reason for discouraging foreign applications by high rates of fees. But such is not the case, unless we are prepared to advocate the smothering of a valuable truth discovered in another country for the doubtful possibility of the same discovery being made afterwards by one of our own fellow-citizens.

Every real invention is a point gained, not by the country where the invention is made, but by the world to whom it is revealed. It is one more step in advance made by our common humanity in the progress of that development to which it is ultimately to attain. It matters little by whom those inventions are first given to the world. The learning, the science, the arts of Europe are as much ours as though they had originated in America; they advance us in the scale of existence in the same manner as though they were indigenous here; and as well might we refuse to improve our agriculture, by the importation of better varieties of grains, or plants, or animals, as to shut out or discourage those improvements in the arts or sciences which are first discovered in a foreign country. This is a Chinese policy, unworthy the intelligence and civilization of our age and country. A feeling of national prejudice, or a disposition to encourage the immigration of foreign inventors, may urge a continuance of the discrimination in favor of the home applicant for a patent; but that philanthropy which embraces within its scope all the children of our common parents, and that enlightened self-interest which rejects not a reciprocity of benefits by which the general welfare of all is manifestly promoted, alike forbid a continuance of this illiberal regulation.

Fully confident that the interests of the country and the usefulness of this office would be alike promoted by the course herein recommended, the candid consideration of Congress is again invited to this subject; and some reasons are given in support of the proposed change, additional to those presented in the two last reports of this office.

All which are respectfully submitted.

CHARLES MASON.

ALPHABETICAL LIST OF PERSONS WHOSE PATENTS HAVE EXPIRED DURING THE YEAR 1855, WITH THEIR INVENTIONS OR DISCOVERIES, AND CLASS.

No.	Patentees.	Inventions or discoveries.	Class.
2035	Abbe, Alanson	Corsets	XXI.
2265	Abbott, John	Paving blocks of wood, prismatic	IX.
1940	Adams, Elizabeth	Corsets	XXI.
2204	Aldrich, Elisha F	Propeller	VII.
2351	Allen, Horatio	Cocks, stop	XI.
2227	Allen, Horatio	Valve of steam-engine, cut-off	VI.
2326	Allen, John P	Bedsteads, securing and fastening rails of	XVII.
	Allen, Samuel S	Husking and shelling corn	Addit'l imp't.
2322	Allison, Peter and Wm. C	Axle of railroad car, strengthening	X.
2365	Anderson, Levi	Files, cutting	II.
2276	Andrews, Solomon. (Improvement on patent of January 11, 1836.)	Lock, door, combination	II.
1977	Andrews, Solomon	Lock, door, combined snail wheel	II.
	Arnold, Edward. (See Chas. B. Rogers.)		
2036	Arnold, Job	Press, cheese	XII.
1987	Austin, Frederick J	Inking type, machine for	XVIII.
2134	Austin, Frederick J	Paper, cutting, and trimming books	III.
	Axtell, Jehiel F. (See Thos. D. Burrall.)		
2150	Babcock, Joseph B	Engine, fire	XI.
1981	Backus, John and Evens	Stoves, parlor	V.
2172	Bailey, Thos. R, and Ezra Rich.	Smut machine	I.
2390	Baldwin, David	Smut machine	I.
2297	Ball, Jonathan	Ferules of canes, &c., bottom end of	II.
2182	Ballard, William	Spikes and nails, forming	II.
1982	Barrett, Asa	Engine, fire	XI.
1935	Batchelor, Solomon C	Barge and army boat, portable safety	VII.
2340	Beach, Benjamin	Slitting timber and making splints, laths, &c.	XIV.
2191	Beach, Waldren, and Ephraim Lukens.	Brick machine	XV.
2156	Bean, Alexander F	Stoves, cooking and heating	V.
2045	Beard, Ebenezer	Propeller, screw	VII.
	Beck, Levi. (See Jacob Demuth.)		
2384	Beers, Jonathan T	Smut machine, cleaning grain, &c	I.
2264	Benson, Robert N	Pile-driving machine	IX.
2193	Bentz, Samuel	Smut machine, cleaning grain, &c	I.
	Bickford, Wm. A. (See Lemuel Bolles.)		
2050	Bissell, John B	Stoves, cooking	V.
2307	Bissell, Levi	Springs, railroad cars, &c, in which compressed atmospheric air, &c., is employed	X.
2355	Blanchard, Alonzo L	Stoves, parlor and dumb, combined	V.
2069	Blanchard, Hiram	Stoves, cooking	V.
2194	Bogardus, James	Mill, universal, for grinding, hulling, &c	XIII.
1979	Bolles, Lemuel, Jedediah Prescott, and Wm. A. Bickford.	Press, cotton, hay, &c	XII.
1945	Boninger, Rudolph, and Gustava, assignees of M. J. Funcke.	Sulphate of alumine, process of manufacturing.	IV.
	Bowman, Benj. (See Jacob Demuth.)		
2049	Bradley, George	Boilers, steam, ascertaining pressure of steam.	VI.
2165	Brett, James	Screw wrench	II.
2071	Bridges, Albert, and Charles Davenport.	Carriages, railroad	X.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
	Briggs, Jedediah. (See Stephen Chubbuck.)		
2312	Brown, Charles G	Brick machine	XV.
1956	Brown, Josiah, assignee of Theophilus Goodwin.	Alarm, fire	VIII.
2385	Brown, R. B	Springs, carriage	X.
2127	Bryant, William	Saw-mill	XIV.
2398	Bucey, Joseph	Press, tobacco	XII.
2162	Buck, Henry A	Smut machine	I.
2325	Bulkley, William, and Otis M. Inman.	Tin and other metals, cutting	II.
	Bullock, Isaac. (See Perry G. Gardner.)		
2012	Burger, Henry	Sawing machine, cross-cut	XIV.
	Burgess, Phineas. (See Daniel Dodge.)		
2409	Burnham, George	Inkstand	XVIII.
	Burrall, Thomas D	Propelling threshing machines by horse power.	Disclaimer.
2258	Butrick, R. P	Stoves, cooking, railway	V.
1964	Calderhead, Alex	Loom, weaving figured cloths, Jacquard machinery for.	III.
2278	Calvert, Francis A	Wool, &c., combing and preparing	III.
2373	Calvert, Francis A	Wool and cotton, ginning, burring, or cleaning.	III.
2175	Calvert, Wm. W. and Alanson Crane.	Wool and cotton, cleaning from burrs, &c.	III.
2233	Campbell, Ethan	Boilers, steam, apparatus for supplying with water.	VI.
2041	Campbell, John A	Truss for prolapsus uteri	XX.
1966	Carey, Stephen	Paving, blocks of wood, &c	IX.
2411	Cary, Thomas C	Window-shutter fastenings	II.
2238	Carr, George	Lamps, burning lard, tallow, &c	V.
2288	Carr, William H., assignee of Thomas Shepherd.	Hinges, butt, &c., casting of iron, brass, &c.	II.
2195	Carsley, William	Harpoon	VII.
2358	Cate, Norman S., and James H. Putnam.	Lamps, burning lard, tallow, &c	V.
2094	Cavanaugh, Luke F	Stump extractor	IX.
	Chaffee, Edwin M. (See Chas. B. Rogers & E. Arnold.)		
3304	Chapman, John Lee	Cocks for hydraulic and pneumatic purposes	XI.
2059	Chase, A. Ralston	Press, seal	XII.
2216	Chase, Samuel L	Stoves, cooking	V.
	Chase, Samuel L	Stoves, cooking	Reissue.
2222	Cheek, Pendleton	Millstones, dressing, with ventilators for cooling the flour.	XIII.
2017	Cherry, George W	Excavating ditches	IX.
2159	Childs, Charles D	Smut machine	I.
2246	Chilson, Gardner	Grates of stoves, constructing and arranging.	V.
1926	Chubbuck, Stephen, & Jedediah Briggs.	Furnaces, blast	II.
2074	Church, Damon A	Mowing, harvesting machine for cutting, threshing, and winnowing grain.	I.
2072	Church, Damon A	Press, cheese	XII.
2051	Church, Damon A	Sawmill dogs	XIV.
2007	Churchill, Alfred	Mowing, harvesting grain	I.
2317	Clark, John	Pump, valves and pistons of	XI.
1936	Clark, Aaron	Silk reel and light machinery, driving with the foot.	III.
	Cochrane, John. (See William Craig.)		
2054	Coes, Loring	Screw wrench	II.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
2356	Cole, Thomas	Bedstead, cutting tenons and boring holes in the rails of.	XVII.
2126	Colman, Sidney E.	Fulling mill	III.
2118	Collins & Wistar, assignees of Stacy Costill.	Lathe, turning handles, poles, &c.	XIV.
1947	Conklin, Thomas	Brick press	XV.
2395	Connison, Alex.	Springs, pneumatic, piston of, &c.	X.
2179	Cooch, Richard M.	Mowing, cutting and gathering flax, hemp, &c.	I.
2237	Cook, David B.	Suspender straps, attached to pantaloons.	XXI.
	Cooper, Thomas	Puddling furnaces for manufacturing iron with anthracite coal.	Reissue.
2125	Copeland, Charles W.	Steam engine, low pressure, arranging to adapt its parts for vessels in ocean service.	VI.
2313	Copeland, George M.	Grist mill, bush for.	XIII.
2066	Coppuck, James	Smut machine	I.
2008	Cornelius, Robert	Lamps, gas	V.
2329	Cornell, Thomas J.	Stone cutting and dressing	XV.
2019	Cordes, James J., & Edward Lock.	Steam engine, rotary	VI.
	Costill, Stacy. (See Collins & Wistar.)		
2334	Cottrell, Albert	Bridge building	IX.
2377	Craig, Wm., & John Cochran	Loom temples, self-acting rotary	III.
1973	Crane, Aaron D.	Clocks	VIII.
1962	Crane, Ebenezer, & Alanson	Carding machine, cotton or wool	III.
	Crane, Alanson. (See W. W. Calvert.)		
2274	Cromwell, Joseph and Henry F.	Plough, wrought iron	I.
2321	Crosby, Pearson	Saw mill, re-sawing boards, &c.	XIV.
	Cross, Jefferson	Cooking stove	Addit'nl imp't.
	Crossman, Alfred B. (See Jos. B. Wilson.)		
	Cushwa, Benjamin	Self-adjusting log brace	Addit'nl imp't.
2378	Custis, John	Raising sunken vessels, machine for.	IX.
1960	Damon, Isaac	Gridiron, constructing	V.
1974	Dampier, C. E.	Balance, weighing apparatus	XII.
2077	Danforth, Charles	Spinning and twisting machinery, improvements applicable to.	III.
1983	Danforth, Charles	Spinning, cotton roping	III.
2277	Darling, Riley	Crackers, making	XVII.
	Davenport, Charles. (See Alfred Bridges.)		
	Davenport, John A. (See John G. Hotchkiss.)		
2239	Davenport, Moses	Horse power	XIII.
2209	Davis, Perry	Steel, mode of hardening	II.
2211	Davis, Perry	Stove pipes, ornamental slides or plates for covering flues of.	V.
2215	Davis, Perry	Windmill	XI.
2286	Davison, William	Copy books, and method of binding the same.	XVIII.
2287	Davison, William	Pen, fountain, &c.	XVIII.
	Delcambre, Adrien. (See Jas. H. Young.)		
2087	Demuth, Jacob, Benjamin Bowman, and L. Beck.	Smut machine	I.
2337	Derby, Joseph H.	Corn sheller	I.
2105	Detterer, Isaac	Files or ready binders for pamphlets, &c.	XVIII.
2226	Dillaway, Hiram	Glass, moulds for pressing	XV.
2147	Dircks, Henry	Wheels for rail and other roads	X.
2281	Dodge, Daniel, and Phineas Burgess.	Dock, floating dry	IX.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
2397	Dole, Albert	Balance, portable	XII.
2092	Douglass, Stephen P. W.	Legs, apparatus for relief of debility in the.	XX.
2104	Douglass, Stephen P. W.	Power, maintaining, to drive machinery.	XIII.
1928	Duff, William	Springs, railroad cars, &c.	X.
2290	Dutton, John	Raising water, endless chain bucket	XI.
	Dwight, John. (See Newhall and Wilkins.)		
	Dyott, Michael B.	Camphene lamp	Addit'nl imp't.
2212	Echols, Josephus	Condensers of steam engines, and apparatus for supplying the boilers with water.	VI.
2360	Edwards, David A.	Springs, elliptical	X.
2034	Eltonhead, Thomas	Spectacles, forming joint on end piece of frame.	VIII.
2154	English, Robert	Canal lock gate	IX.
991	Ernst, Herman C.	Bedstead, fastening of.	XVII.
2396	Etzler, John A.	Steam engine, locomotive propelling by stationary power.	VI.
2166	Evans, David	Keyhole of door and other locks, closing and opening.	II.
1925	Evarts, Russell	Steering steamboats, apparatus for	VII.
2042	Fansher, Sylvanus	Window blind fasteners	II.
	Farley, John. (See J. M. Moss.)		
2370	Farnam, Joel	Pump	XI.
2345	Farnam, Joel	Pump, double-acting, for raising and forcing water.	XI.
2387	Farnam, Joel	Pumps, double acting suction and force	XII.
2301	Feinour, Joseph, jr	Stoves, parlor	V.
	Fisk, Almond D. (See N. W. Fisk.)		
2324	Fisk, Joseph E.	Stoves, air-tight or Arnott	V.
2335	Fisk, Nelson W., assignee of Almond D. Fisk.)	Stoves, cooking	V.
2294	Fitzgerald, Daniel	Boats, sub-marine gun	VII.
2292	Fitzgerald, Daniel	Propeller	VII.
2319	Fitzgibbon, John	Trunks, travelling	XVI.
2341	Flenner, Lewis	Garments, tailors, instruments and mode of measuring.	XXI.
	Fobes, Edwin. (See Timothy Gilbert.		
2180	Fobes, Charles P.	Crackers, cutting	XVII.
2364	Forrist, Martin C.	Gudgeon, applying friction rollers to	XIII.
2088	Foster, Charles	Forges, blacksmiths', bellows-box attached	II.
2231	Foster, Leonard	Door-fasteners, mortise latch	II.
2208	Fox, Selah W., and Aretas Ferry.	Mowing scythes, fastening the thole upon the snath.	I.
2018	Francis, Joseph	Boats, life and other	VII.
2293	Francis, Joseph	Constructing boats, vessels, &c.	VII.
2131	French, Richard	Spark arresters	VI.
2323	Frost, James	Steam-engine, repeating expansive engine.	VI.
1945	Funcke, Max. J. (See Rudolph Boniger.)		
	Gail, Titus D.	Butter, making and pressing	Addit'nl imp't.
2405	Gamble, James, and Joseph S. Hill.	Candles, moulding	IV.
	Garber, Samuel, and Henry Swartzingrover.	Burning, lime	Addit'nl imp't.
2076	Gardiner, Perry G.	Propeller, arranging paddles of paddle wheels.	VII.
2316	Gardiner, Perry G., assignee of Isaac Bullock.	Car, railroad, turning curves	X.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
2298	Garlin, William	Valve of steam-engines, throttle	VI.
2300	Garretson, John G	Water-wheels	XI.
2109	George, William S	Shingles, riving and dressing	XIV.
	Gibbons, Joseph	Seed-planters	Addit'nl imp't.
2167	Gilbert, Lemuel	Piano forte	XVIII.
1970	Gilbert, Timothy	Piano forte action, part of	XVIII.
1971	Gilbert, Timothy, assignee of Edwin Forbes.	Piano forte, hammer heads used in	XVIII.
2289	Gleason, Lyman	Splints, cutting, for manufacturing brooms, &c.	XIV.
2009	Goell, Alvin C.	War rockets, boring	XIX.
1986	Goell, Alvin C.	War rockets, press for filling	XIX.
1998	Gold, Job S.	Refrigerator	XVII.
2168	Gold, Stephen J.	Lamps, burning camphene, &c.	V.
1975	Goldsborough, Nicholas	Corn-sheller	I.
2328	Goodell, Frederick, and Thos. W. Harvey.	Saw-mill, self-setting	XIV.
2048	Goodwin, Samuel	Cement, hardening manufactures of, and rendering them impervious to moisture.	IV.
1956	Goodwin, Theophilus. (See Josiah Brown.)		
2311	Goudy, Levi L.	Carding machine, condenser for woollen	III.
1965	Grandy, Lewis, and Thomas Osgood.	Cannon balls, &c., manufacturing from malleable iron, lead, &c.	XIX.
2308	Granger, Ransselaer D.	Flues of elevated ovens combined with cooking stoves.	V.
	Grannis, Sidney S. (See Abraham Howe.)		
	Graves, Joseph S. (See R. C. Stiles.)		
2261	Gray, J. B.	Lock, permutation door	II.
2121	Green, Benjamin H	Door, instrument for fastening on the inside	II.
2291	Greene, Lewis	Smut machine	I.
2039	Greenough, Benjamin F.	Lamps, improvement in	V.
2267	Griffith, George R.	Bales of cotton, floating them in form of raft.	VII.
1996	Grimes, William C.	Hulling and cleaning clover seed	I.
2359	Guérin, Napoleon E	Life preserver or buoyant dress	VII.
2332	Guilford, Simeon	Tanning hides, &c., process of	XVI.
1937	Hacker, George S	Car bodies, railroad	X.
2028	Hale, Joseph W.	Flannels, &c., wetting	III.
2110	Hall, Elias, jr.	Boots, treeing	XVI.
	Hall, William. (See Enoch Robinson).		
	Hall, William M	Beehive	Addit'l imp't
2161	Hamilton, Farwell H	Screws, wood, cutting	II.
2223	Hampson, John	Blinds, Venetian, retaining slats of, in desired position.	IX.
2244	Hampson, John	Boilers, steam, supplying with water, self-acting apparatus for.	VI.
2116	Hampson, Robert	Block printing on woven fabrics of cotton, &c	XVIII.
	Hanson, John and Charles. (See B. and H. B. Tatham).		
2113	Hardesty, Thomas G.	Press, tobacco	XII.
2309	Harrington, Daniel	Garments, pockets of	XXI.
	Harris, Benjamin. (See Wm. W. Hunter).		
1948	Harris, Robert S.	Spike heading	II.
	Harvey, Thomas W. (See Frederick Goodell).		
2111	Hawkes, Charles W.	Press, cotton, hay, &c	XII.
2393	Heath, George	Canal lock, gate sluice	IX.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
1934	Hemmenway, Benjamin	Lamp, Argand, constructing	V.
1930	Henry, Pierre D.	Raising water, hydraulic wheels for	XI.
2148	Herrick, Webster	Hulling rice and other grain	I.
2203	Heurteloup, C. L. S	Fire-arms, portable	XIX.
2270	Heygel, Joseph	Smut machine, cleaning and separating garlic, &c., from grain.	I.
	Hill, Joseph S. (See James Gamble).		
2119	Hill, Moses J.	Tooth extractor	XX.
2206	Hill, William B.	Grates of limekilns, &c	V.
2023	Hobday, John, and William J. Cocke.	Propeller, wheel for propelling steamships, and wind or water-wheel for mills.	VII.
2135	Hobe, Charles F.	Extension tables, slides of	VIII.
2173	Hodges, Nathaniel F.	Water-wheels, reacting	XI.
2376	Hoggan, James M.	Latch, door	II.
2366	Hogle, Sidney S.	Lathe, universal chuck	XIV.
2112	Hogle, Sidney S.	Pump	XI.
2115	Holmes, John B.	Hoisting, machinery for	XII.
1927	Holmes, Philip B. and William Pedrick.	Hides, raw and leather, cutting into strips for manufacture of ropes, &c.	XVI.
2306	Hopkins, Lansing E.	Boilers, steam, caldron and furnace combined.	VI.
1951	Hopkins, William R.	Barometer	VIII.
2361	Hotchkiss, John G., J. A. Davenport, and J. W. Quincy.	Knobs, glass, for locks, curtain pins, &c., attaching necks, shanks, and screws, &c., to.	II.
2197	Hotchkiss, John G., J. A. Davenport, and J. W. Quincy.	Knobs of all kinds of clay, &c., making	XV.
2221	Houpt, John	Hydrostatic or hydraulic press, for pressing cotton.	XI.
2273	Howe, Abraham, and S. S. Grannis.	Loom, weaver's harness, wire heddles for.	III.
2299	Howe, Abraham and S. S. Grannis.	Loom, weaver's harness, wire heddles for.	III.
	Howe, Elias, assignee of Jos. C. Smith.	Palmleaf for stuffing beds, sofas, &c	Reissue.
2013	Howe, John J	Pin-making machine	II.
2086	Hubball, Ebenezer	Cocks for hydrants	XI.
1972	Hubball, Ebenezer, assignee of Joseph Martin.	Cocks for hydrants	XI.
2027	Hubbard, Noadiah W	Water-wheels, current	XI.
	Hubbell, William W. (See Leonard Phleger.)		
2184	Hunter, David	Spinning, ring spinner	III.
2004	Hunter, William W., & Benjamin Harris.	Constructing steam vessels and propelling.	VII.
2063	Hurd, Joseph, jr.	Chimney, apparatus to prevent smoking, &c.	V.
	Hyatt, Theodore and Thaddeus. (See N. T. Winans.)		
	Inman, Otis M. (See William Bulkley.)		
	Jackson, Asa. (See David Philips.)		
1923	Jackson, Edwin W	Power, graduating the velocity of moving bodies.	XIII.
2032	Jayne, Zophar	Truss, reducible hernia, mode of treating, &c.	XX.
2357	Jenks, Otis	Stoves, parlor or open grates for burning anthracite and other coal.	V.
2254	Jennings, Isaiah	Lamps, burning volatile ingredients	V.
2339	Jennings, Thomas Y.	Balance, platform	XII.
1976	Jewett, Benjamin F.	Plough, attaching the mouldboard and sheath, &c., by rivets.	I.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
2295	Johnson, Charles	Motion of fly-wheel or slide, to multiply	XIII.
2401	Johnson, George	Syphons, &c	XI.
2391	Johnson, John	Polishing plates used in taking likenesses, apparatus for.	XVIII.
2138	Johnson, Nelson	Water-wheels	XI.
2303	Jones, Joseph	Seeding, planting machines, &c	I.
2009	Jones, Orlando	Starch, manufacture of	IV.
2280	Jones, Richard	Press, screw and application to the pressure of elaine from tallow.	XII.
2218	Jones, Thomas M	Stoves, air-tight	V.
	Joslyn, Mathews. (See B. B. Mason.)		
2117	Julian, William F	Propeller, paddle, and water-wheels, bracing arms of.	VII.
2030	Kaighn, Elias	Tuyere, blacksmith's, &c	II.
2100	Kennedy, Henry P	Chair, recumbent	XVII.
2368	Kilburn, George, and John J	Cutting blubber	XVII.
2240	King, Harmon	Constructing berth of vessels	VII.
2010	King, James	Mortising machine	XIV.
1990	King, James	Saw mill, head block of, &c	IV.
2095	King, John B	Straw cutters	I.
2310	Kingsley, Nathan P	Cooking ranges	V.
2155	Lampson, Silas	Mowing, scythe, securing upon the snath and fastening the nib to the same.	I.
2348	Laubach, Joseph	Hearth, blacksmith's or forge	II.
2272	Law, Hervey	Planing boards and timber	XIV.
2122	Le Patourel, James	Beehives	I.
2410	Lear, Peter	Propeller paddle, vibrating	VII.
2236	Lee, Samuel A	Pump, rotary	XI.
2171	Lewis, Clark	Water-wheels	XI.
1992	Lewis, Robert B	Attaching the bristles to brushes	XVII.
	Linacree, Thos. (See Samuel Welsh.)		
2342	Lincoln, Levi	Cocks and molasses gates	XI.
1955	Lindsey, Ichabod	Carrier's beam, constructing face of	XVI.
2124	Little, Samuel H	Horse power	XIII.
	Little, Samuel H	Horse power	Reissue.
2374	Lize, Louis	Steam engine, &c	VI.
	Lock, Edward. (See James J. Cordes.)		
2025	Lockwood, David C	Excavating earth	IX.
	Long, Stephen H	Bridge, wooden brace	Reissue.
	Loring, Thomas. (See Thomas Shepherd.)		
2120	Lowry, James B., and Philander Eggleston	Saw mill	XIV.
	Lukens, Ephraim. (See Waldren Beach.)		
2098	Luther, Harvey	Clothes-horse, connecting frames of	XVII.
2146	Luther, John	Screws, metallic	II.
2210	Mallory, Meredith	Propeller	VII.
2038	Manning, Cephas	Staves, cutting	XIV.
2053	Manning, Nathaniel L	Feathers, drying, whipping, and cleaning	XVII.
2229	Mardock, Thomas	Saddles, spring	XVI.
2033	Marsh, James S., and Asa Munger	Heating water, steaming vegetables, &c	V.
	Martin, Joseph. (See Ebenezar Hubball.)		
2217	Martin, Prosper	Floating batteries	VII.
1989	Mason, Belden B., and Mathews Joslyn.		
	Mason, John C. (See Draper Ruggles.)	Stump extracting	IX.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
	Matthews, Elbridge G. (See Draper Ruggles.)		
2202	Mayo, James C	Saw mill, portable	XIV.
2336	McDonald, Richard	Constructing steam vessels to prevent sinking	VII.
2349	McEwen, William	Forges and furnaces, water backs for	II.
2024	McFarland, Corey	Palm leaf, machine for splitting	XXII.
2065	McKean, James P	Window shutter and blind fastener	II.
2389	McMillen, Reuben	Plough, cast-iron	I.
2388	McMillen, Reuben	Steam generating combined cooking oven and boiler.	VI.
2068	McPhetridge, C. A	Gin, cotton, saw	III.
	Mears, John. (See David Prouty.)		
2185	Meschutt, Jas. M	Bedstead, sofa	XVII.
2147	Miller, Ezra L	Seeding, planting corn and other seed	I.
2106	Miller, L. B. and E	Garments, tailors' measures for	XXI.
2399	Mims, S. J. and M	Plough, altering the set of the same	I.
2102	Mitchell, Enos	Churn, double dasher	I.
2073	Moore, J. Francis	Horse power	XIII.
	Morison, B	Balance for weighing	Addit'nl imp't.
2130	Morris, Edmund	Silk-worms, mode of feeding, and apparatus for.	III.
2243	Morris, William	Wells, Artesian, boring, &c	IX.
1957	Moss, Isaac M., assignee of John Farlee.	Inkstand, capillary wick, &c	XVIII.
2228	Mott, Jordan L	Steam engine, locomotive, increasing adhesion of driving wheels.	VI.
2314	Monroe, Joseph	Carding-machine, cotton or wool, &c	III.
2052	Murdock, Zina K	Knives, &c., handles for	XXII.
	Munger, Asa. (See James S. Marsh.)		
2406	Naglee, Henry M., and Thomas Raney.	Railroad scrapers, &c	IX.
1954	Nelson, John	Spinning wool, domestic spinner for	III.
2344	Nevins, Wm. R	Crackers, cutting	XVII.
1997	Newbery, George J	Fabrics, water-proofing	III.
	Newhall, Daniel	Protecting trees from canker worm	Addit'nl imp't.
2330	Newhall, Daniel B	Pianoforte	XVIII.
2081	Newhall, Daniel B., and Levi Wilkins, assignees of John Dwight, *part inventor* with said D. B. Newhall.	Pianoforte, keys in	XVIII.
2259	Nichols, Howard	Steering brace for boats	VII.
2145	Nicolson, Samuel	Signals, railroad alarm	VIII.
2220	Nolt, Jonas	Smut machine, cleaning grain	I.
	Nourse, Joel. (See Draper Ruggles.)		
1933	Olds, Calvin	Seeding, seed drill or corn planter	I.
2207	Oliver, Samuel	Distilling, art of, improvement in	IV.
2284	Orcutt, William A	Lightning conductors, attaching the receiving and discharging points.	VIII.
1961	Osborn, James P	Harness, horse collars, stretchings, &c	XVI.
	Osgood, Thomas. (See Lewis Grandy.)		
	Page, Albert G. (See Abel Simonds.)		
2174	Page, George	Saw mill, portable circular	XIV.
2269	Page, John A	Furnace for heating air and warming apartments.	V.
2057	Palmer, William B	Smut machine	I.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
2183	Parkinson, Thomas	Harness, horse collars, cutting leather for.	XVI.
2122	Patourel, James Le. (See Le Patourel.)	Beehives	I.
1953	Patterson, James H.	Paving, blocks of wood, &c.	IX.
2247	Payne, Charles	Salting animal matters.	IV.
2058	Payne, Elisha D., and E. Woodruff.	Screens for sifting coal, grain, &c.	V.
	Pedrick, William. (See Philip B. Holmes.)		
2177	Pendergast, Isaac S.	Shoemakers' paring knives.	XVI.
1999	Pennock, Moses and Samuel	Seeding, seed planters	I.
2029	Perkins, William	Crackers, cutting	XVII.
2014	Perrin, William	Dovetails, cutting square joint	XIV.
2103	Philips, David	Gin, cotton, railroad	III.
2001	Philips, David	Saw mill	XIV.
2080	Philips, David, and Asa Jackson	Winnowing grain, fanning mills	I.
2260	Philips, Henry F.	Axle and hub for carriage wheels	X.
	Philips, James T. (See John Price.)		
2141	Phleger, Leonard, assignee of W. W. Hubbie.	Spark arrester	VI.
2142	Phleger, Leonard, assignee of W. W. Hubbie.	Spark arrester	VI.
2143	Phleger, Leonard, assignee of W. W. Hubbie.	Spark arrester	VI.
2144	Phleger, Leonard, assignee of W. W. Hubbie.	Spark arrester	VI.
2343	Pierce, Thomas	Churn	I.
2191	Pitney, Joseph T.	Speculum ani	XX.
2268	Pitts, Hiram A.	Beehives	I.
2282	Platt, Josiah	Grist mill	XIII.
2219	Poole, Henry S.	Buttons, attaching to cloth	XXI.
	Porter, Rufus. (See John F. Schermerhorn.)		
	Prescott, Jedediah. (See Lem'l Bolles.)		
1994	Price, Jehu, and Jas. T. Philips.	Bridges, truss frames of	IX.
2060	Prince, John D.	Dyeing black, iron liquor used as mordant for.	IV.
2369	Proctor, Leonard	Washing machine.	XVII.
2199	Prosser, Thomas.	Buttons, manufacture of	XXI.
2132	Prouty, David, and John Mears.	Plough, construction of	I.
2225	Pullman, Lewis	Buildings, &c., removing	XII.
	Putnam, James H. (See Norman S. Cate.)		
2083	Putnam, James R.	Removing bars, &c., from harbors, rivers, &c.	IX.
2394	Quilliard, Claude S.	Furnaces, combination of, for manufacturing wrought iron directly from the ore.	II.
	Quincy, John W. (See John G. Hotchkiss.)		
2252	Rand, John	Paint, &c., vessels for preserving	IV.
	Raney, Thomas. (See H. M. Naglee.		
1980	Ransom, Franklin, and Uzziah Wenman.	Water, applying, to fire engines, &c	XI.
2201	Ray, Fowler M.	Bumper and draught springs on railroad cars.	X.
	Ray, Fowler M.	Springs for railroad cars	Reissue.
2006	Read, Josiah M.	Crimping leather, clamps for	XVI.
2266	Reading, Pearson	Corn sheller	I.
1963	Reed, Jeremiah M.	Horse power, endless floor	XIII.
2055	Reed, Jesse	Pumps	XI.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
2099	Reichenback, Frederick C.	Piano-forte, horizontal	XVIII.
2067	Rice, Zalmun	Smut machine, cleaning and winnowing grain.	I.
2367	Richards, William T.	Springs, elliptical, forming the sockets of.	X.
1967	Richardson, Alpha	Splitting leather	XVI.
2170	Richardson, Elliott	Press, tobacco	XII.
2129	Richman, Christian and Charles.	Lamps, construction of.	V.
	Rider, Justus. (See William H. Rider.)		
2002	Rider, William H., assignee of Justus Rider.	Plough, combined with a cultivator and planter, for ploughing, &c., at one operation.	I.
2318	Riley, Salmon C.	Boiler or steamer, construction of.	V.
2200	Ring, Elihu	Springs and levers to sustain the body of wagons.	X.
2044	Robbins, Henry H.	Braid, pressing, after it has been trimmed.	III.
1984	Robbins, Henry H.	Braid, straw, trimming	III.
1942	Robbins, Martin	Balance, weighing apparatus.	XII.
2305	Roberts, Richard	Spinning, self-acting mules, billies, jennies, &c.	III.
1978	Robinson, Clark H.	Stoves, constructing	V.
2404	Robinson, Eli C	Ovens, elevated, combined with cooking stoves.	V.
1995	Robinson, Enoch, and William Hall.	Latch, door, and other locks	II.
2248	Robinson, Enoch, and William Hall.	Window fastenings	II.
2096	Robinson, Francis and Hanson.	Tanning, removing wool, &c , from skins of animals	XVI.
2392	Robinson, Robert.	Canals and mill-dams, waste gates, opening and closing.	IX.
2232	Rocher, Michel	Cabooses adapted to distil salt water	V.
2279	Rodgers, Henry	Cocks, or faucets, &c	XI.
1939	Rodgers, Charles B., and Edward Arnold, assignee of E. M. Chaffee.	Caoutchouc, manufacturing balls of.	IV.
2347	Rogers, Isaiah.	Bridge, spiral brace cylinder	IX.
2327	Rogers, Thomas B.	Fabrics, waterproofing.	III.
2114	Rohrer, Jeremiah	Saw-mill, sustaining logs in	XIV.
2250	Root, James.	Stoves, cooking.	V.
2262	Ross, Samuel.	Hair seating, figured damask.	III.
1993	Ruggles, Draper, J. Nourse, and J. C. Mason, assignees of E. G. Matthews	Ploughs, manufacture of	XIV.
2046	Sadler, M. C.	Stoves, cooking.	V.
2090	Samson, Thomas.	Packing tobacco, staves or billets of cast iron for.	XII.
1968	Sanderson, Charles.	Iron ores, art of smelting, improvement in, and in furnaces applicable thereto.	II.
2016	Sawyer, Henry R.	Fireplaces and chimney-stacks in buildings.	V.
1938	Sawyer, Samuel	Door-spring	II.
2040	Schermerhorn, John F., and Rufus Porter.	Seeding, tilling and planting at same operation, &c.	I.
2078	Seay, Thomas.	Gold, separating from its ores, &c., and apparatus for.	II.
2153	Seely, Oran W.	Boiler, steam, and evaporator, improvement on Marvin & Seely's, patented August 28, 1840.	VI.
	Shaler, Reuben	Scraping hides	Addit'nl imp't.
1958	Shaw, Joshua	Fire-arms, manner of discharging.	XIX.
2251	Sheldon, Samuel.	Gristmill, conical	XIII.
2213	Shepard, William A.	Stoves, cooking.	V.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
	Shepherd, Thomas. (See William H. Carr.)		
2005	Shepherd, Thomas, and Thos. Loring.	Models for casting butt-hinges	II.
2082	Sherwood, John P	Latch of door-locks	II.
2315	Sim, William	Vices, making jaws of	II.
2379	Simonds, Abel, and Albert G. Page.	Scythes, turning and bending heel of	II.
2275	Slocum, Samuel	Pins, sticking into paper, machine for	II.
2352	Smith, Christopher H	Spectacles, construction of	VIII.
2353	Smith, Francis P	Propeller	VII.
2128	Smith, Hemon	Steam-engine, rotary	VI.
2383	Smith, John L	Water-wheels	XI.
	Smith, Joseph C. (See Elias Howe.)		
1949	Smith, Normand	Flues, chimney, valves or dampers for	V.
1941	Smith, Thomas B	Ice, forming	XXII.
1959	Smith, Thomas W	Brick-press	XV.
2259	Snead, Albert	Press, tobacco	XII.
	Snider, Isaac	Plough, self-sharpening	Addit'nl imp't.
	Southworth, Daniel H	Smut, machine for cleaning rice, &c	Addit'nl imp't.
2230	Spaulding, Joel	Cloth, folding and measuring	III.
2354	Spaulding, Abiram	Cooking ranges	V.
2235	Spaulding, Samuel B	Ovens, elevated, combined with cooking and other stoves.	V.
2176	Spear, Thomas J	Ink, indelible writing	IV.
	Spencer, William	Dyeing yarn from beam	Addit'nl imp't.
2031	Stadon, Shively	Pump, cattle	XI.
2375	Stanbrough, Ira	Water-wheels, buckets, openings for admitting water on.	XI.
2075	Staub, Jacob	Gudgeon, or pivot, and step of mill spindles, &c.	XIII.
1950	Stevens, Robert L. and Francis B	Valves of steam engines, working, when the steam is cut off, &c.	VI.
2302	Stewart, J. A	Steam engines, rotary	VI.
2188	Stewart, Matthew	Stoves or bakers for cooking purposes	V.
2371	Stewart, jr., Mathew	Stoves or furnaces, &c., fire chambers of	V.
2372	Stewart, Robert	Staves, sawing bilged, for barrels, &c	XIV.
2386	Stiles, Riverius C., and J. S. Graves	Tuyere, blacksmith's	II.
2333	Stillman, O. M	Loom, power, stopping, when weft or filling fails.	III.
2070	St. John, John R	Piston rods of steam engines, &c	VI.
2056	Strong, Justin E	Lightning conductors, connecting rods of	VIII.
2190	Sturdevant, Lewis G	Gin, cotton	III.
	Swartzengrover, Henry. (See Samuel Garber.)		
2362	Sweet, Leonard T	Gunpowder, corning or graining	XIX.
2089	Sweet, jr., Samuel	Propeller paddle	VII.
2407	Taplin, John A	Horse-power, portable, master-wheel of	XIII.
2021	Tatham, Benjamin and Henry B., assignees of J. and C. Hanson.	Pipes and tubes from lead, &c	II.
2296	Tatham, George N. and Benjamin.	Pipes or tubes of lead, tin, &c., machinery for making.	II.
2249	Taylor, Jesse	Water wheels	XI.
1944	Tentler, Aaron A	Garments, taking measure and draughting.	XXI.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
	Tew, Latham T. (See Edward T. Williams.)		
2062	Thayer, Ansel	Boots and shoes, manufacturing, &c	XVI.
2149	Thomas, John	Dock, floating dry	IX.
2205	Thomas, R. S	Seeding, planting cotton seed	I.
2198	Thompson, Joel	Bedstead, cutting screws on the rails of	XVII.
2186	Thurman, Silas T	Medicine for treatment of syphilis, &c	IV.
2285	Tibbets, John G	Harness, blinds for horse bridles	XVI.
2331	Tillinghast, J. B	Silk-worms, cocoonery for	III.
2283	Tolles, Elisha	Steam engine, locomotive, distributing sand, &c., to produce adhesion of driving wheels.	VI.
2020	Torbet, Frances R	Steam engine, regulating pressure of steam	VI.
2091	Tough, John S	Lamp, Argand, constructing	V.
2187	Tough. John S	Measuring liquids, measures for	XI.
2408	Townsend, Ashley	Threshing, grain machines	I.
2181	Tracy, Andrew	Metal sheet, cutting	II.
2164	Trumbull, Earl	Bridge	IX.
2263	Turner, Daniel B	Kettles, potash, mode of setting	V.
2015	Tuttle, Jesse	Steam engine, rotary	VI.
2320	Tyler, Philos B., executor of Rufus Tyler.	Coin, apparatus for counting	VIII.
	Tyler, Rufus. (See Philos B. Tyler.)		
2160	Van Allen, C. D	Pump valve, &c	XI.
2026	Van Hoesen, Wm. C	Press, cotton	XII.
2022	Van Loan, Wm. W	Propeller, paddle wheels, constructing and arranging.	VII.
2061	Van Osdel, John M	Lancet, spring	XX.
2003	Van Osdel, John M	Windmill, horizontal	XI.
1932	Walcott, Truman	Shingles, cutting	XIV.
2136	Wall, Arthur	Compounds for coating metallic surfaces to prevent oxydation.	IV.
2137	Walter, Horatio N	Washing machine	XVII.
1988	Ward, Ezekiel G	Grist mill	XIII.
2178	Ward, Joseph H	Potash, leaching ashes in manufacture of	IV.
2350	Warner, Chapman	Pump	XI.
1924	Warren, Edmund	Horse power	XIII.
2133	Washburn, Albert	Gin cotton, grates of saw	III.
2084	Waterman, George	Washing machine	XVII.
1969	Waterman, Henry	Steam engine and locomotive for railroad	VI.
2234	Webb, Aug. V. H	Distilling, apparatus for separating alcohol from whiskey.	IV.
2079	Webb, Constant	Beehives	I.
2151	Weeks, John M	Beehives	I.
2245	Wells, Henry A	Felt cloths and hat bodies, shrinking	III.
2256	Wells, Henry A	Felt cloths, hardening	III.
2255	Wells, Henry A	Felt cloths, &c., fulling, milling, or planking.	III.
2400	Wells, Thomas J	Constructing steamboats and propelling spirally.	VII.
2158	Wells, Thomas J	Dovetails and tenons, cutting	XIV.
2152	Wells, Thomas J	Horse power	XIII.
1943	Welsh, Samuel, and Thos. Linacree.	Fire escape, &c	XXII.
2011	Wemmer, Nelson J	Saws, apparatus for filing	II.
	Wenman, Uzziah. (See F. Ransom.)		
2157	Wheeler, Alonzo and Wm. C	Horse power, endless chain	XIII.
2097	Wheeler, Wm M	Pump	XI.
2064	Whipple, Squire	Bridge, truss, iron	IX.
2346	White, Lloyd	Shingles, cutting	XIV.

Alphabetical list of expired patents—Continued.

No.	Patentees.	Inventions or discoveries.	Class.
2412	White, Thomas	Silk, finishing, machinery for	III.
2108	Whitehead, Jesse	Spinning, counter twist speeder for cotton roping.	III.
	Whitehead, Jesse	Speeder for cotton roping, counter twist	Addit'nl imp't.
2085	Whiteley, William H	Furnaces, hot air, and fire grates for heating apartments.	V.
1931	Whitford, John A	Car, railroad, &c	X.
1946	Whitford, John A	Corn sheller	I.
2242	Whitham, William	Steam engine	VI.
2163	Whitlock, George	Cultivator, revolving	I.
2037	Whittlesey, Isaac N	Steam engine, rotary	VI.
2241	Wibert, James S. and William	Hats of leather, manufacturing	XVI.
2338	Wightman, Joseph M	Pump, air	XI.
1929	Wilder, John	Valves of steam engines, operating	VI.
	Wilkins, Levi. (See Daniel B. Newhall.)		
2043	Wilkes, Samuel	Hinges, casting, on to their axis	II.
2224	Willemin, Eli	Balance, steelyards	XII.
2140	Williams, Edward T., and Latham T. Tew.	Lamps, burning lard, &c	V.
2363	Williams, Erastus, and Daniel L. Huntingdon.	Loom temples, opening and closing the jaw.	III.
1952	Willis, Charles	Corn sheller	I.
2123	Wilson, George W	Lock, door, and latches	II.
2192	Wilson, Increase	Mill cylinder for granulating corn, powder, bark, &c.	XIII.
2271	Wilson, Joseph B., and Alfred B. Crossman.	Brick and tile press	XV.
2402	Winans, Norman T., and Theodore and Thaddeus Hyatt.	Composition of matter for manufacture of friction matches.	IV.
2403	Winans, Norman T., and Theodore and Thaddeus Hyatt.	Composition of matter for manufacture of friction matches.	IV.
1985	Windship, Charles M	Lacteal or artificial breast	XX.
	Wistar, assignee of S. Costill. (See Collins.)		
2169	Wolpers, Charles O	Fermentation, vinous, process of conducting.	IV.
2214	Wood, Loftis	Stoves, cooking, or cabooses	V.
	Woodruff, Enos. (See Elisha D. Payne.)		
2257	Woodward, Moses S	Lamps, burning tallow	V.
2189	Worman, Andrew D	Flour, manufacturing, mixing middlings with the chops.	XIII.
2093	Wright, Mercy	Clay, moulding and pressing, to be applied to construction of fences.	XV.
2382	Wyeth, Nathaniel J	Car, railroad, discharging blocks of ice therefrom on to platforms.	X.
2381	Wyeth, Nathaniel J	Car, railroad machinery for elevating and depositing ice in.	X.
2380	Wyeth, Nathaniel J	Raising blocks of ice, machinery for	XII.
2196	Yale, Linias	Saw mill dogs	XIV.
2139	Young, James H., and Adrien Delcambre.	Type setting, machine for	XVIII.
2107	Zimmerman, William	Wind mill	XI.

ALPHABETICAL LIST OF PERSONS WHOSE PATENTS FOR DESIGNS HAVE EXPIRED DURING THE YEAR 1855.

No.	Patentees.	Designs.
178	Abendroth, William	Stoves, cooking.
192	Allen, F. W	Stoves.
206	Baker, Isaac F., assignor to Cornelius & Co	Furniture, ornaments.
175	Burgess, John, assignor to Gilbert Geer	Stoves.
189	Conklin, James H	Stoves.
196	Conklin, James H., assignor to Whitney and Montanya	Stoves.
163	Cresson, Wm. P., S. H. Sailor, J. Beesley, and D. Stuart Sailor; Beesley and Stuart assignors to Cresson	Stoves.
171	Cresson, Wm. P., D. Stuart, and J. Beesley; Stuart and Beesley assignors to Cresson	Stoves.
182	Davy, John T	Stoves, cooking.
197	Fairbanks, Thaddeus	Balances, pedestal for.
172	Garbeille, Philip	Bust of General Z. Taylor.
201	Gibbs, S. W., assignor to William Jackson	Stoves, cooking.
184	Gibney, Michael	Spoons and forks.
190	Green, Jeremiah D	Stoves.
173	Hickock, William	Stoves.
166	Lamb, J. G., and Charles Zoiner	Stoves, coal, and air-tight.
167	Lawson, Peter	Carpets.
168	Lawson, Peter	Carpets.
203	Lawson, Peter, assignor to Lowell Manufacturing Company	Carpets.
169	Morrison, Alexander	Stoves.
177	Penniman, E. P., assignor to W. H. Cheney	Stoves.
165	Potts, Jesse C	Stoves, cooking.
195	Pratt, Miles	Stoves.
191	Ransom, Samuel H	Stoves.
207	Rathbone, John F	Stoves.
202	Rathbun, George W	Stoves.
198	Richmond, Apollos, assignor to A. C. Barstow & Company	Stoves.
200	Ring, G. W., & J. Crandall, assignor to A. Cox & Company	Stoves.
180	Ripley, Ezra, assignor to A. Cox & Co	Stove plates.
181	Ripley, Ezra, assignor to A. Cox & Co	Stove plates.
193	Ripley, Ezra, assignor to Johnson & Cox	Stoves.
194	Ripley, Ezra, assignor to Johnson & Cox	Stove plates.
188	Sanderson, W. L., assignor to Anthony Dany & Co	Stoves.
185	Savery, William, J. H. Conklin, H. V. Losea, G. P. Bowens, and J. Pratt; Conklin & Losea, assignors to Savery, Bowens, and Pratt	Stoves.
205	Savery, William, and J. H. Conklin; Conklin, assignor to Savery	Stove plates.
204	Savery, William, and J. H. Conklin; Conklin, assignor to Savery	Stoves.
164	Smith, Elihu	Stoves.
170	Van Ness, P., and A. Wood	Forks, knives, and spoons.
208	Vose, Samuel D	Stoves, parlor.
176	Wager, James	Stoves.
179	Warnick, Charles W	Furnaces, portable.
183	Warnick, Charles W	Stoves.
199	Warnick, Charles W	Stoves.
174	Wood, George W	Stoves, plates for cooking.
186	Wood, Robert, and William Hamilton; Hamilton, assignor to Wood	Tables, pier or center.
187	Wood, Robert, and William Hamilton; Hamilton, assignor to Wood	Brackets, ornamental.

CLASSIFIED LIST OF PATENTS THAT HAVE EXPIRED DURING THE YEAR 1855.

CLASS I.—AGRICULTURE, *including instruments and operations.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Beehives	Constant Webb	Wallingford, Conn	May 4, 1841; antedated Mar. 12, 1841.
Beehives	James Le Patourel	Chandlersville, Ohio	June 11, 1841.
Beehives	John M. Weeks	Salisbury, Vt	July 1, 1841.
Beehives	Hiram A. Pitts	Winthrop, Maine	Sept. 25, 1841.
Churn	Thomas Pierce	Hartwick, N. Y	Nov. 10, 1841.
Churn, double dasher	Enos Mitchell	Pittston, Maine	May 22, 1841.
Corn-sheller	Charles Willis	Chelsea, Mass	Jan. 27, 1841.
Corn-sheller	John A. Whitford	Saratoga Springs, N. Y	Jan. 23, 1841.
Corn-sheller	Joseph H. Derby	Leominster, Mass	Nov. 10, 1841.
Corn-sheller	Nicholas Goldsborough	Easton, Md	Feb. 12, 1841.
Corn-sheller	Pierson Reading	Batavia, Ohio	Sept. 25, 1841.
Cultivator, revolving	George Whitlock	Crown Point, N. Y	July 10, 1841.
Hulling and cleaning clover-seed	William C. Grimes	York, Penn	Mar. 3, 1841.
Hullin rice and other grain	Webster Herrick	Northampton, Mass	June 26, 1841.
Mowing, cutting, and gathering flax and hemp, &c.	Richard M. Cooch	Lambertsville, N. J	July 16, 1841.
Mowing, harvesting grain	Alfred Churchill	Geneva, Ill	Mar. 16, 1841.
Mowing, harvesting machines for cutting, threshing, and winnowing grain.	Damon A. Church	Friendship, N. Y	May 4, 1841.
Mowing, scythes, fastening the thole upon the snath.	Selah W. Fox and Aretas Ferry	Bernardstown, Mass	Aug. 4, 1841.
Mowing, scythe, securing, upon the snath, and fastening the nib to the same.	Silas Lampson	Shelburn Falls, Mass	July 1, 1841.
Plough, altering the set of the same	M. & S. J. Mims	Starkville, Miss	Dec. 23, 1841.
Plough, attaching the mould-board and sheath, &c., by means of rivets.	Benjamin F. Jewett	Springfield, Ill	Feb. 12, 1841.
Plough, cast-iron	Reuben McMillen	Middlebury, Ohio	Dec 14, 1841.
Plough, combined with a cultivator and planter for ploughing, &c., at one operation.	Wm. H. Rider, assignee of Justus Rider	Belleville, Ill Woodburn, Ill	Mar. 12, 1841.
Plough, construction of	D. Prouty John Means	Boston, Mass Dorchester, Mass	June 16, 1841.
Plough, wrought iron	Joseph and Henry F. Cromwell	Cynthiana, Ky	Sept. 30, 1841.
Seeding, planting corn and other seeds	Ezra L. Miller	Brooklyn, N. Y	April 10, 1841.
Seeding, planting cotton-seed	R. S. Thomas	Bennettsville, S. C	July 30, 1841.
Seeding, planting machines, &c	Joseph Jones	Newton, N. J	Oct. 11, 1841.
Seeding, seed drill or corn planter	Calvin Olds	Marlborough, Vt	Jan. 20, 1841.
Seeding, seed-planters	Moses and Samuel Pennock	East Marlborough, Penn	Mar. 12, 1841.
Seeding, tilling and planting at same operation, called the cylindrical tiller and planter	John F. Schermerhorn Rufus Porter	Carroll Co., Ind New York, N. Y	April 10, 1841.
Smut-machine	Chas. D. Childs	York, N. Y	July 8, 1841.
Smut-machine	David Baldwin	Whitehall, N. Y	Dec. 14, 1841.
Smut-machine	Henry A. Buck	Fredonia, N. Y	July 10, 1841.
Smut-machine	Jacob Demuth and B. Bowman Levi Beck	Lancaster, Pa Lampeter, Pa	May 11, 1841.
Smut-machine	James Coppuck	Mt. Holly, N. J	April 24, 1841.
Smut-machine	Lewis Greene	Tiffin, Ohio	Oct. 9, 1841.
Smut-machine	Thomas R. Baily Ezra Rich	New Bridge, Vt Shoreham, Vt	July 16, 1841.
Smut-machine	William B. Palmer	Rochester, N. Y	April 19, 1841.
Smut-machine, cleaning grain	Jonas Nolt	West Hempfield, Pa	Aug. 11, 1841.
Smut-machine, cleaning grain, &c	John D. Beers	Philadelphia, Pa	Dec. 10, 1841.
Smut-machine, cleaning grain, &c	Samuel Bentz	Boonsboro', Md	July 23, 1841.
Smut-machine, cleaning and separating garlic, &c., from grain.	Joseph Heggel	Salisbury, Pa	Sept. 25, 1841.
Smut-machine, cleaning and winnowing grain.	Zalman Rice	Lyons, N. Y	April 24, 1841.
Straw-cutters	John B. King	Athens, Tenn	May 15, 1841.
Threshing, grain, machines	Ashley Townsend	Le Roy, N. Y	Dec. 30, 1841.
Winnowing grain, fanning mills	David Philips Asa Jackson	Georgetown, Pa Franklin Mills, Pa	May 4, 1841.

Class II.—Metallurgy, *and manufacture of metals, and instruments therefor.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Door-fasteners, mortise latch	Leonard Foster	Boston, Mass	Aug. 28, 1841
Door fastening on the inside, instrument for	Benjamin H. Green	Princeton, N. J	June 11, 1841.
Door-spring	Samuel Sawyer	Boston, Mass	Jan. 21, 1841.
Ferrules of canes, &c., constructing bottom end of.	Jonathan Ball	Buffalo, N. Y	Oct. 11, 1841.
Files, cutting	Levi Anderson	Kensington, Philadelphia, Penn	Nov. 16, 1841.
Forges and furnaces, water-backs for	William McEwen	Norristown, Penn	Nov. 10, 1841.
Forges, blacksmiths', bellows-box attached	Chas. Foster	Rochester N. Y	May 11, 1841.
Furnaces, blast	Stephen Chubbuck and J. Briggs	Wareham, Mass	Jan. 9, 1841.
Furnaces, combination of, for manufacturing wrought iron directly from the ore.	Claude S. Quilliard	Rondout, N. Y	Dec. 23, 1841.
Gold, separating, from its ores, &c., apparatus for.	Thos. Seay	Columbia county, Ga	May 4, antedated Mar. 12, 1841.
Hearth, blacksmiths' or forge	Joseph Lawbach	Middletown, Penn	Nov. 10, 1841.
Hinges, butt, and casting of iron, brass, &c.	William H. Carr, assignee of Thos. Shepherd.	Philadelphia, Penn	Oct. 9, 1841.
Hinges, casting, on to their axis	Samuel Wilkes	Darleston, Great Britain	April 10, 1841; antedated Jan. 21, 1840.
Iron ores, art of smelting, improvements in, and in certain furnaces applicable thereto.	Chas. Sanderson	Sheffield, England	Feb. 9, 1841.
Key-hole of door and other locks, closing and opening.	David Evans	Philadelphia, Penn	July 10, 1841.
Knobs, glass, for locks, curtain pins, &c., attaching necks, shanks, screws, &c., to.	John G Hotchkiss John A. Davenport and Jno. W. Quincy	New Haven, Conn. New York, N. Y	Nov. 16, 1841.
Latch, door	James M. Hoggan	New Haven, Conn	Nov. 25, 1841.
Latch, door, and other locks	E. Robinson & William Hall	Boston, Mass	Mar. 3, 1841.
Latch of door-locks	Jno. P. Sherwood	Sandy Hill, N. Y	May 6, 1841.
Lock, door, combination, improvement on patent, July 11, 1836.	Solomon Andrews	Perth Amboy, N. J	Sept. 30, 1841.
Lock, door, combined snail wheel	Solomon Andrews	Perth Amboy, N. J	Feb. 12, 1841.
Lock, door, and latches	Geo. W. Wilson	Nashua, N. H	June 11, 1841.
Lock, door, permutation	J. B. Gray	Fredericksburg, Va	Sept. 18, 1841.

Metal, sheet, cutting	Andrew Tracy	Poughkeepsie, N. Y	July 17, 1841.
Moulds for casting butt hinges	Thos. Shepherd and Thos. Loring	Philadelphia, Pa.	Mar. 16, 1841.
Pin-making machine	John J. Howe	Derby, New Haven county, Conn	Mar. 24, 1841.
Pins, sticking, into paper, machine for	Samuel Slocum	Poughkeepsie, N. Y	Sept. 30, 1841.
Pipes and tubes from lead, &c.	Benjamin Tatham and Henry B. Tatham, assignees of	Hitchen, England Philadelphia, Pa	Mar. 29, 1841; antedated Aug. 31, 1837.
	John and Chas. Hanson	Huddersfield, England	
Pipes or tubes of lead, tin, &c., machinery for making.	Geo. N. Tatham and Benjamin Tatham, jr.	Philadelphia, Pa	Oct. 11, 1841.
Saws, apparatus for filing	Nilson J. Wemmer	Philadelphia, Pa	Mar. 18, 1841.
Screws, metallic	John Luther	Warren, R. I	June 26, 1841.
Screws, wood, cutting	Farwell H. Hamilton	Schenectady, N. Y	July 8, 1841.
Screw-wrench	Loring Coes	Springfield, Mass	April 16, 1841.
Screw-wrench	James Brett	Newburg, N. Y	July 10, 1841.
Scythes, turning and bending heel of	Abel Simons and A. G. Page	Fitchburg, Mass.	Dec. 10, 1841.
Spikes, heading	Robert S. Harris	Wilmington, Del	Jan. 25, 1841.
Spikes and nails, forming	William Ballard	New York, N. Y	July 17, 1841.
Steel, mode of hardening	Perry Davis	Fall River, Mass	Aug. 4, 1841.
Tin and other metals, cutting	Wm. Bulkley and Otis M. Inman	Berlin, Conn	Nov. 3, 1841.
Tuyere, blacksmith's, &c.	Elias Kaighn	Kaighn's Point, N. J	April 2 1841.
Tuyere, blacksmith's	Riverius C. Stiles and Joseph L. Graves	East Bloomfield, N. Y	Dec. 14, 1841.
Vices, making jaws of	William Sim	Schenectady, N. Y	Oct. 11, 1841.
Window-blind fasteners	Sylvanus Fausher	Southbury, Conn	April 10, 1841; antedated Dec. 10, 1840.
Window fastenings	Enoch Robinson and William Hall	Boston, Mass	Sept. 11, 1841.
Window-shutter and blind-fastener	James P. McKean	Washington, D. C	April 24, 1841.
Window-shutter fastenings	Thos. C. Cary	Poughkeepsie, N. Y	Dec. 30, 1841.

CLASS III.—MANUFACTURES OF FIBROUS AND TEXTILE SUBSTANCES, *including machines for preparing fibres of wool, cotton, silk, fur, paper, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Braid, pressing after it has been trimmed	Henry H. Robbins	Middleborough, Mass	April 10, 1841.
Braid, straw trimming	Henry H. Robbins	Middleborough, Mass	Feb. 18, 1841.
Carding machine, cotton or wool	Ebenezer and Alanson Crane	Lowell, Mass	Jan. 30, 1841.
Carding machine, cotton or wool, &c	Joseph Monroe	Palmer, Mass	Oct. 11, 1841.
Carding machine, woollen, condenser for	Levi L. Gowdy	Montgomery, N. Y	Oct. 11, 1841.
Cloth, folding and measuring	Joel Spalding	Morristown, Vt	Aug. 28, 1841.
Fabrics, water-proofing	George J. Newbery	Citizen of the United States, residing in London, Eng.	Mar. 3, 1841; antedated May 12, 1840.
Fabrics, water-proofing	Thomas B. Rogers	New York, N. Y	Nov. 3, 1841.
Felt cloths and hat-bodies, shrinking	Henry A. Wells	New York, N. Y	Sept. 11, 1841.
Felt cloths, hardening	Henry A. Wells	New York, N. Y	Sept. 18, 1841.
Felt cloth, &c., fulling, milling, or planking	Henry A. Wells	New York, N. Y	Sept. 18, 1841.
Flannels, &c, wetting	Joseph W. Hale	Haverhill, Mass	April 2, 1841.
Fulling-mill	Sidney E. Coleman	West Haven, Vt	June 11, 1841.
Gin, cotton	Lewis G. Sturdevant	Delaware, Ohio	July 23, 1841.
Gin, cotton, grates of saw	Albert Washburn	Bridgewater, Mass	June 16, 1841.
Gin, cotton, railroad	David Philips	Georgetown, Pa	May 22, 1841.
Gin, cotton, saw	C. A McPhetridge	Natchez, Miss	April 24, 1841.
Hair-seating, figured damask	Samuel Ross	Camden, N. J	Sept. 18, 1841.
Loom, power, stopping when weft or filling fails	O. M. Stillman	Stonington, Conn	Nov. 10, 1841.
Loom-temples, opening and closing the jaw	E. Williams and D. L. Huntingdon	Norwich, Conn	Nov. 16, 1841.
Loom-temples, self-acting rotary	William Craig and John Cochrane	England	Nov. 25, 1841.
Loom, weavers' harness, wire-heddles for	A. Howe and S. S. Grannis	Morrisville, N. Y	Sept. 30, 1841.
Loom, weavers' harness, wire heddles for	A. Howe and S. S. Grannis	Morrisville, N. Y	Oct. 11, 1841.
Loom, weaving figured cloths, Jacquard machinery for.	Alexander Calderhead	Philadelphia, Pa	Feb. 3, 1841.
Paper, cutting and trimming books	Fred. J. Austin	New York, N. Y	June 16, 1841; antedated Dec. 16, 1840.
Silk-finishing, machinery for	Thomas White	Mount Pleasant, Ohio	Dec. 30, 1841.
Silk reel and light machinery, driving with the foot.	Aaron Clark	Greenwich, Conn	Jan. 20, 1841.
Silk-worms, cocoonery for	J. B. Tillinghast	Huron, Ohio	Nov. 10, 1841.
Silk-worms, mode of feeding, and apparatus for.	Edmund Morris	Burlington, N. J	June 16, 1841.
Spinning, self-acting, mules, billies, jennies, &c.	Richard Roberts	Manchester, England	Oct. 11, 1841; antedated July 1, 1830.
Spinning wool, domestic spinner for	John Nelson	Jefferson, Ohio	Jan. 27, 1841.
Spinning, ring-spinner	David Hunter	Laurel Factory, Md	July 23, 1841.
Spinning, cotton roping	Charles Danforth	Paterson, N. J	Feb. 18, 1841.
Spinning, speeder for cotton-roping counter-twist.	Jesse Whitehead	Manchester, Va	May 29, 1841.
Spinning and twisting machinery, improvements applicable to.	Charles Danforth	Paterson, N. J	May 4, 1841.
Wool, &c., combing and preparing	Francis A. Calvert	Lowell, Mass	Oct. 9, 1841.
Wool and cotton, cleaning from burrs, &c	William W. Calvert and Alonzo Crane	Chelmsford, Mass	July 16, 1841.
Wool and cotton ginning, burring, or cleaning	Francis A. Calvert	Lowell, Mass	Nov. 25, 1841.

CLASS IV.—CHEMICAL PROCESSES, MANUFACTURES, AND COMPOUNDS, *including medicine, dyeing, color-making, distilling, soap and candle making, mortars, cements, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Candles, moulding	James Gamble and Joseph S. Hill	Cincinnati, Ohio	Dec. 30, 1841.
Caoutchouc, manufacturing balls of	Chas. B. Rogers and Edward Arnold, assignees of Edwin M. Chaffee	Charlestown, Mass Cambridgeport, Mass	Jan. 21, 1841.
Cement, hardening manufactures of, and rendering them impervious to moisture.	Samuel Goodwin	New York, N. Y	April 16, 1841.
Composition of matter for manufacture of friction matches.	Norman T. Winans and Theodore and Thaddeus Hyatt.	New York, N. Y	Dec. 23, 1841.
Composition of matter for manufacture of friction matches.	Norman T. Winans and Theodore and Thaddeus Hyatt.	New York, N. Y	Dec. 23, 1841.
Compounds for coating metallic surfaces to prevent oxydation.	Arthur Wall	Shadwell, England	June 22, 1841.
Distilling, improvement in art of	Samuel Oliver	Northampton, Penn	Aug. 4, 1841.
Distilling apparatus for separating alcohol from whiskey.	Augustus V. H. Webb	New York, N. Y	Aug. 28, 1841.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Dyeing black, iron liquor used as mordant for.	Jno. D. Prince	Lowell, Mass	April 24, 1844.
Fermentation, vinous, process of conducting	Chas. O. Wolpers	Cincinnati, Ohio	July 16, 1841.
Ink, indelible writing	Thos. J. Spear	New Orleans, La	July 16, 1841.
Medicine for treatment of syphilis, &c	Silas T. Thurman	Lincoln, Ky	July 23, 1841.
Paint, &c., vessels for preserving	John Rand	Citizen of the United States residing in England.	Sept. 11, 1841.
Potash, leaching ashes in manufacture of	Joseph H. Ward	Randolph, Ohio	July 16, 1841.
Salting animal matters	Chas. Payne	South Lambeth, England	Sept. 11, 1841.
Starch, manufacture of	Orlando Jones	City Road, England	Mar. 12, 1841; antedated April 30, 1840.
Sulphate of alumine, process of manufacturing	Randolph and Gustava Bonniger, assignees of Max I. Funcke	Baltimore, Md / Eichelskamp, Prussia	Jan. 23, 1841; antedated Nov. 16, 1839.

CLASS V.—CALORIFICS, *comprising lamps, fire-places, stoves, grates, furnaces for heating buildings, cooking apparatus, preparation of fuel, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Boiler or steamer, construction of	Salmon C. Riley	New York, N. Y	Oct. 11, 1841.
Cabooses, adapted to distil salt water	Michael Rocher	Nantes, France	Aug. 28, 1841.
Chimney apparatus, to prevent smoking, &c.	Joseph Hurd, jr	Stoneham, Mass	April 24, 1841.
Cooking-ranges	Nathan P. Kingsley	Boston, Mass	Oct. 11, 1841.
Cooking-ranges	Abiram Spaulding	New York, N. Y	Nov. 12, 1841.
Fire-places in chimney stacks in buildings	Henry R. Sawyer	New York, N. Y	Mar 26, 1841.
Flues, chimney, valves or dampers for	Norman Smith	Hartford, Conn	Jan. 25, 1841.
Flues of elevated ovens, combined with cooking stoves.	Rensselaer D. Granger	Albany, N. Y	Oct. 11, 1841.

Furnaces for heating air and warming apartments.	John A. Page	Boston, Mass	Sept. 25, 1841.
Furnaces, hot-air, and fire-grates for heating apartments.	Wm. H. Whitely	Charlestown, Mass	May 11, 1841.
Grates of lime-kilns, &c	Wm. B. Hill	Bellevue, Mich	July 30, 1841.
Grates of stoves, constructing and arranging	Gardner Chilson	Boston, Mass	Sept. 11, 1841.
Gridiron, constructing	Isaac Damon	Northampton, Mass	Jan. 30, 1841.
Heating water, steaming vegetables, &c	James S. Marsh and Asa Munger	Auburn, N. Y	April 2, 1841.
Kettles, potash, mode of setting	Danl. B Turner	Florence, Ohio	Sept. 18, 1841.
Lamp argand, constructing	Benj. Hemmenway	Roxbury, Mass	Jan. 20, 1841.
Lamp argand, constructing	John S. Tough	Baltimore, Md	May 11, 1841.
Lamps burning camphene, &c	Stephen J. Gold	Cornwall, Conn	July 16, 1841.
Lamps burning lard, &c	Edw'd T. Williams and L. T. Tew	Newport, R. I	June 26, 1841.
Lamps burning lard, tallow, &c	Geo. Carr	Buffalo, N. Y	Sept. 4, 1841.
Lamps burning lard, tallow, &c	Norman S. Cate and / James H. Putnam	Charlestown, Mass / Malden, Mass	Nov. 16, 1841.
Lamps burning tallow	Moses S. Woodward	Marshalton, Pa	Sept. 18, 1841.
Lamps burning volatile ingredients	Isaiah Jennings	New York, N. Y	Sept. 11, 1841.
Lamps, construction of	Christian and Chas. Richman	Philadelphia, Pa	June 17, 1841.
Lamps, improvement in	Benj. F. Greenough	Boston, Mass	April 10, 1841.
Lamps, gas, improvement in	Robt. Cornelius	Philadelphia, Pa	Mar. 18, 1841.
Ovens, elevated, combined with cooking and other stoves.	Saml. B. Spaulding	Brandon, Vt	Aug 28, 1841.
Ovens, elevated, combined with cooking-stoves.	Eli C. Robinson	Troy, N. Y	Dec. 30, 1841.
Screens for sifting coal, grain, &c	Elisha D. Payne and Enos Woodruff	Newark, N. J	April 19, 1841.
Stoves, air-tight	Thos. M. Jones	Boston, Mass. (residing in England)	Aug. 11, 1841.
Stoves, air-tight, or Arnott	Joseph E. Fisk	Salem, Mass	Nov. 3, 1841.
Stoves, constructing	Clark H. Robinson	Uniontown, Pa	Feb. 13, 1841.
Stoves, cooking	Hiram Blanchard	Aquackanonk, N. J	April 27, 1841.
Stoves, cooking	James Root	Cincinnati, Ohio	Sept. 11, 1841.
Stoves, cooking	John B. Bissell	Oaksville, N. Y	April 16, 1841.
Stoves, cooking	M. C. Sadler	Brockport, N. Y	April 10, 1841.
Stoves, cooking	Nelson W. Fisk, assignee of Almond D. Fisk.	New York, N. Y	Nov. 10, 1841.
Stoves, cooking	Saml. L. Chase	Woodstock, Vt	Aug. 11, 1841.
Stoves, cooking	William. A. Shepherd	Waterville, Me	Aug. 11, 1841.
Stoves, cooking and heating	Alexander F. Bean	Woodstock, Vt	July 8, 1841.
Stoves, cooking, or cabooses	Loftis Wood	New York, N. Y	Aug. 11, 1841.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.	
Stoves, cooking, railway	R. P. Butrick	Lockport, N. Y.	Sept. 18, 1841.	
Stoves or bakers, for cooking purposes	Mathew Stewart	Philadelphia, Pa.	July 23, 1841.	
Stoves, or furnaces, &c., fire chambers of	Mathew Stewart, jr.	Philadelphia, Pa.	Nov. 16, 1841.	
Stoves, parlor	John and Evens Backus	New York, N. Y.	Feb. 18, 1841.	
Stoves, parlor	Joseph Feinour, jr.	Philadelphia, Pa.	Oct. 11, 1841.	
Stoves, parlor and dumb, combined	Alonzo L. Blanchard	Albany, N. Y.	Nov. 12, 1841.	
Stoves, parlor, or open grates, for burning anthracite and other coal.	Otis Jenks	Albany, N. Y.	Nov. 16, 1841; Nov. 2, 1841.	antedated
Stove-pipes, ornamental slides or plates for covering the flues of.	Perry Davis	Fall River, Mass.	Aug. 4, 1841.	

Class VI.—Steam and gas engines, *including boilers and furnaces therefor, and parts thereof.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.	
Boiler, steam, and evaporator. (Improvement on Marvin & Seely's patent of August 28, 1840.)	Oran W. Seely	New York, N. Y.	July 1, 1841.	
Boilers, steam, ascertaining pressure of steam	Geo. Bradley	Paterson, N. J.	April 16, 1841.	
Boilers, steam, caldron and furnace combined.	Lansing E. Hopkins	New York, N. Y.	Oct. 11, 1841.	
Boilers, steam, supplying with water, apparatus for.	Ethan Campbell	New York, N. Y.	Aug. 28, 1841.	
Boilers, steam, supplying with water, self-acting apparatus	John Hampson	New Orleans, La.	Sept. 4, 1841.	
Condensers of steam-engines, and apparatus for supplying the boilers with water.	Josephus Echols	Columbus, Ga.	Aug. 11, 1841.	
Piston-rods of steam-engines, &c.	Jno. R. St. John	Cleveland, Ohio	April 27, 1841.	
Spark-arrester	Rich'd French	Philadelphia, Pa.	June 16, 1841.	
Spark-arrester	Leonard Phleger, assignee of Wm. W. Hubbell	Philadelphia, Pa Moyamensing, Pa	June 26, 1841.	
Spark-arrester	Leonard Phleger, assignee of. Wm. W. Hubbell	Philadelphia, Pa. Moyamensing, Pa	June 26, 1841.	
Spark-arrester	Leonard Phleger, assignee of. Wm. W. Hubbell	Philadelphia, Pa. Moyamensing, Pa	June 26, 1841.	
Spark-arrester	Leonard Phleger, assignee of. William W. Hubbell	Philadelphia, Pa. Moyamensing, Pa.	June 26, 1841.	
Steam-engine	William Whitham	Hudderafield, England	Sept. 4, 1841.	
Steam-engine, &c.	Louis Lizé	Kingdom of France, residing in Pittsburg, Pa.	Nov. 25, 1841.	
Steam-engine, locomotive, distributing sand, &c., to produce adhesion of driving-wheels.	Elisha Tolles	New York, N. Y.	Oct. 9, 1841.	
Steam-engine, locomotive, for railroads	Henry Waterman	Hudson, N. Y.	Feb. 10, 1841.	
Steam-engine, locomotive, increasing adhesion of driving-wheel.	Jordan L. Mott	New York, N. Y.	Aug. 28, 1841.	
Steam-engine, locomotive, propelling by stationary power.	John A. Etzler	Philadelphia, Pa.	Dec. 23, 1841.	
Steam-engine, low-pressure, arranging, to adapt its parts for vessels in ocean service.	Charles W. Copeland	New York, N. Y.	June 11, 1841.	
Steam-engine, regulating pressure of steam	Francis R. Torbit	Paterson, N. J.	Mar. 29, 1841.	
Steam-engine, repeating expansive engine	James Frost	Brooklyn, N. Y.	Nov. 3, 1841.	
Steam-engine, rotary	Hermon Smith	Sunbury, Ohio	June 11, 1841.	
Steam-engine, rotary	Isaac N. Whittlesey	Vincennes, Ind.	April 2, 1841.	
Steam-engine, rotary	J. A. Stewart	Cross Plains, Tenn.	Oct. 11, 1841.	
Steam engine, rotary	James J. Cordes and Edward Loch	Citizen of the United States Newport, England	Mar. 29, 1841; July 18, 1840.	antedated
Steam-engine, rotary	Jesse Tuttle	Boston, Mass.	Mar. 26, 1841.	
Steam-generating combined cooking oven and boiler.	Reuben McMillen	Middlebury, Ohio	Dec. 14, 1841.	
Valve of steam-engines, cut-off.	Horatio Allen	New York, N. Y.	Aug. 21, 1841.	
Valve of steam-engines, throttle	William Garlin	Providence, R. I.	Oct. 11, 1841.	
Valves of steam-engines, operating	John Wilder	New York, N. Y.	Jan. 9, 1841.	
Valves of steam-engines, working when the steam is cut off, &c.	Robert L. and Francis B. Stevens	New York, N. Y.	Jan. 25, 1841.	

CLASS VII.—NAVIGATION AND MARITIME IMPLEMENTS, *comprising all vessels for conveyance on water, their construction, rigging and propulsion, diving-dresses, life-preservers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bales of cotton, floating them in form of rafts.	George R. Griffith	Mobile, Ala	Sept. 25, 1841.
Barge and army boat, portable safety	Solomon C. Batchelor	Cincinnati, Ohio	Jan. 20, 1841.
Boats, life and other	Joseph Francis	New York, N. Y.	Mar. 26, 1841.
Boats, sub-marine gun	Daniel Fitzgerald	New York, N. Y.	Oct. 11, 1841.
Constructing berth of vessels	Harmon King	New York, N. Y.	Sept. 4, 1841.
Constructing boats, vessels, &c	Joseph Francis	New York, N. Y.	Oct. 11, 1841
Constructing steamboats, and propelling spirally.	Thomas J. Wells	New York, N. Y.	Dec. 23, 1841.
Constructing steam-vessels, and propelling.	William W. Hunter	United States navy	Mar. 12, 1841; antedated Nov. 2, 1840.
	Benjamin Harris	Norfolk, Va	
Constructing steam-vessels to prevent sinking.	Richard McDonald	Harrisburg, Pa	Nov. 10, 1841.
Floating batteries	Prosper Martin	Philadelphia, Pa	Aug. 11, 1841.
Harpoon	William Carsley	New Bedford, Mass	July 29, 1841.
Life-preserver, or buoyant dress	Napoleon E. Guérin	New York, N. Y.	Nov. 16, 1841.
Propeller	Daniel Fitzgerald	New York, N. Y.	Oct. 9, 1841.
Propeller	Elisha F. Aldrich	New York, N. Y.	July 30, 1841; antedated Jan. 30, 1841.
Propeller	Francis P. Smith	London, England	Nov. 12, 1841; antedated May 31, 1836.
Propeller	Meredith Mallory	Urbana, N. Y.	Aug. 4, 1841.
Propeller, paddle	Samuel Swett, jr.	Chelsea, Mass	May 11, 1841.
Propeller, paddle, vibrating	Peter Lear	Boston, Mass	Dec. 30, 1841.
Propeller, paddle, and water-wheel, bracing arms of.	William F. Julian	Hartsville, Ind	June 7, 1841.
Propeller, paddle-wheels, constructing and arranging.	William W. Van Loan	Catskill, N. Y.	Mar. 29, 1841.
Propeller, paddles of paddle-wheels, arranging.	P. G. Gardner	New York, N. Y.	May 4, 1841.
Propeller, screw	Ebenezer Beard	New Sharon, Me	April 10, 1841.
Propeller, wheel for propelling steam-ships, and wind or water-wheel for mills.	Jno. Hobday and Wm. J. Cocke	Portsmouth, Va	Mar. 29, 1841.
Steering brace for boats	Howard Nichols	New Bedford, Mass	Sept. 18, 1841.
Steering steamboats, apparatus for	Russell Evarts	Madison, Conn	Jan. 5, 1841.

CLASS VIII.—MATHEMATICAL, PHILOSOPHICAL, AND OPTICAL INSTRUMENTS, *including clocks, chronometers, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Alarm, fire	Josiah Brown, assignee of	Brentwood, N. H.	Jan. 30, 1841; antedated July 30, 1840.
	Theophilus Goodwin	Exeter, N. H	
Barometer	Wm. R. Hopkins	Geneva, N. Y.	Jan. 27, 1841.
Clocks	Aaron D. Crane	Newark, N. J.	Feb. 10, 1841; antedated Dec. 22, 1840.
Coin, apparatus for counting	Philos B. Tyler, executor of Rufus Tyler, deceased.	New Orleans, La	Oct. 11, 1841.
Extension tables, slides of	Charles F. Hobe	New York, N. Y.	June 22, 1841.
Lightning conductors, connecting rods of	Justin E. Strong	Boston, Mass	April 19, 1841.
Lightning conductors, attaching the receiving and discharging points of.	William A. Orcutt	Boston, Mass	Oct. 9, 1841.
Signals, railway alarm	Samuel Nicolson	Suffolk, Mass	June 26, 1841.
Spectacles, construction of	Christopher H. Smith	Niagara, N. Y.	Nov. 12, 1841.
Spectacles, forming joint on end-piece of frame.	Thomas Eltonhead	Baltimore, Md	April 2, 1841.

Class IX.—Civil engineering and architecture, *comprising works on rail and common roads, bridges, canals, wharves, docks, rivers, weirs, dams, and other internal improvements, buildings, roofs, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Blinds, Venetian, retaining slats of, in desired position.	John Hampson	New Orleans, La	Aug. 21, 1841.
Bridge	Earl Trumbull	Little Falls, N. Y	July 10, 1841.
Bridge, building	Albert Cottrell	Newport, R. I	Nov. 10, 1841.
Bridge, spiral-braced cylinder	Isaiah Rogers	New York, N. Y	Nov. 10, 1841.
Bridge, truss, frames of	Jehu Prince and James T. Philips	Golden, Md	Feb. 23, 1841.
Bridge, truss, iron	Squire Whipple	Utica, N. Y	April 24, 1841.
Canal, lock-gate	Robert English	Legro, Ind	July 1, 1841.
Canal, lock-gate sluice	George Heath	Little Falls, N. Y	Dec. 4, 1841.
Canals and mill-dams, waste-gates, opening and closing.	Robert Robinson	Greece, N. Y	Dec. 14, 1841.
Dock, floating dry	John Thomas	New York, N. Y	June 26, 1841.
Dock, floating dry	Daniel Dodge and Phineas Burgess	New York, N. Y	Oct. 9, 1841.
Excavating ditches	George W. Cherry	Washington, D. C	Mar. 26, 1841.
Excavating earth	David C. Lockwood	New Windsor, N Y	Mar. 31, 1841.
Paving, blocks of wood, &c	James H. Paterson	New York, N. Y	Jan. 27, 1841.
Paving, blocks of wood, &c	Stephen Carey	New Orleans, La	Feb 3, 1841; antedated Jan. 29, 1839.
Paving, blocks of wood, prismatic	John Abbott	Wilton, N. H	Sept. 25, 1841.
Pile-driving machine	Robert N. Benson	New Orleans, La	Sept. 18, 1841.
Railroad scrapers, &c	Henry M. Naglee and Thomas Raney	Philadelphia, Pa	Dec. 30, 1841.
Raising sunken vessels, machinery for	John Custis	Yarmouth, Mass	Dec. 10, 1841.
Removing bars, &c., from harbors, rivers, &c.	James R. Putnam	New Orleans, La	May 6, 1841.
Stump extracting	Belden B. Mason Mathews Joslyn	Randolph, N. Y Napoli, N. Y.	Feb. 20, 1841.
Stump extracting	Luke F. Cavanaugh	New Field, N. Y.	May 15, 1841.
Wells, artesian, boring, &c	William Morris	Kanawha county, Va.	Sept. 4, 1841.

Class X.—Land conveyance, *comprising carriages, cars, and other vehicles used on roads, and parts thereof.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Axle and hub for carriage-wheels	Henry F. Philips	Skaneateles, N. Y.	Sept. 18, 1841.
Axle of railroad car, strengthening, &c	Peter and William C. Allison	Philadelphia, Pa	Nov. 3, 1841.
Bumper and draught springs on railroad cars	Fowler M. Ray	Catskill, N, Y	July 29, 1841.
Car-bodies, railroad	George S. Hacker	Charleston, S. C.	Jan. 21, 1841.
Car, railroad, &c	Jno. A. Whitford	Saratoga Springs, N. Y.	Jan. 20, 1841.
Car, railroad, discharging blocks of ice therefrom on to platforms.	Nathaniel J. Wyeth	Cambridge, Mass	Dec. 10, 1841.
Car, railroad, machinery for elevating and depositing ice in.	Nathaniel J. Wyeth	Cambridge, Mass	Dec. 10, 1841.
Car, railroad, turning curves	Perry G. Gardner, assignee of Isaac Bullock.	New York, N. Y	Oct. 11, 1841.
Carriages, railroad	Albert Bridges and Chas. Davenport	Cambridgeport, Mass	May 4, 1841.
Springs, carriage	R. B. Brown	Essex, Vt.	Dec. 14, 1841.
Springs and levers to sustain the body of wagons.	Elihu Ring	Trumansburg, N. Y	July 29, 1841.
Springs, elliptical	David A. Edwards	Boston, Mass.	Nov. 16, 1841.
Springs, elliptical, forming the sockets of	William T. Richards	Poultney, Vt	Nov. 16, 1841.
Springs, pneumatic, piston of, &c	Alexander Connison	Bellville, N. J.	Dec. 23, 1841; antedated Dec. 20, 1841.
Springs, railroad cars, &c	William Duff	Baltimore, Md	Jan. 9, 1841.
Springs, railroad car, &c., in which compressed atmospheric air, &c., is employed.	Levi Bissell	Newark, N. J	Oct. 11, 1841.
Wheels for rail and other roads	Henry Dircks	Liverpool, Eng	June 26, 1841.

Class XI.—Hydraulics and pneumatics, *including water-wheels, windmills, and other implements operated on by air or water, or employed in the raising and delivery of fluids.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Cocks and molasses gates, &c.	Levi Lincoln	Hartford, Conn	Nov. 10, 1841.
Cocks for hydrants	Ebenezer Hubbard	Baltimore, Md	May 11, 1841.
Cocks for hydrants	Ebenezer Hubball, assignee of Joseph Martin.	Baltimore, Md	Feb. 10, 1841.
Cocks for hydraulic and pneumatic purposes.	John L. Chapman	Baltimore, Md	Oct. 11, 1841.
Cocks or faucets, &c.	Henry Rogers	Auburn, N. Y.	Oct. 9, 1841.
Cocks, stop	Horatio Allen	New York, N. Y.	Nov. 12, 1841.
Engine, fire	Asa Barrett	Baltimore, Md	Feb. 18, 1841.
Engine, fire	Joseph B. Babcock	Marietta, Ohio	July 1, 1841.
Hydrostatic or hydraulic press for pressing cotton.	John Houpt	Forkland, Ala	Aug. 21, 1841.
Measuring liquids, measures for	John S. Tough	Baltimore, Md	July 23, 1841.
Pump	Chapman Warner	Lexington, Ky	Nov. 10, 1841.
Pump	Jesse Reed	Marshfield, Mass	April 16, 1841.
Pump	Joel Farman	Stillwater, N. Y.	Nov. 16, 1841.
Pump	Sidney S. Hogle	Lansingburg, N. Y.	May 29, 1841.
Pump	William M. Wheeler	Liberty, Mo.	May 15, 1841.
Pump, air	Joseph M. Wightman	Boston, Mass	Nov. 10, 1841.
Pump, cattle	Shively Stadon	Greenwood, Pa	April 2, 1841.
Pump, double-acting, for raising and forcing water.	Joel Farman	Stillwater, N. Y.	Nov. 10, 1841.
Pump, rotary	Samuel A. Lee	Boston, Mass	Sept. 4, 1841.
Pump, suction and force, double-acting	Joel Farman	Stillwater, N. Y.	Dec. 14, 1841.
Pump, valve, &c.	C. D. Van Allen	Petersburg, Va	July 8, 1841.
Pump, valves and pistons of	John Clark	Portsmouth, Va	Oct. 11, 1841.
Raising water, endless chain and bucket	John Dutton	Aston Township, Delaware co., Pa.	Oct. 9, 1841.
Raising water, hydraulic wheels for	Pierre D. Henry	New Orleans, La	Jan. 9, 1841.
Syphons, &c.	George Johnson	New York, N. Y.	Dec. 23, 1841.
Water, applying to fire-engines, &c.	Franklin Ransom, and U. Newman	New York, N. Y.	Feb. 13, 1841.
Water-wheels	Clark Lewis	Syracuse, N. Y	July 16, 1841.
Water-wheels	Jesse Taylor	Aurelius, N. Y.	Sept. 11, 1841.
Water-wheels	John G. Garretson	Muhlenberg, Ohio	Oct. 11, 1841.
Water-wheels	John L. Smith	Salina, N. Y.	Dec. 10, 1841.
Water-wheels	Nelson Johnson	Triangle, N. Y.	June 22, 1841.
Water-wheels, bucket openings for admitting water on.	Ira Stanbrough	Arcadia, N. Y.	Nov. 25, 1841.
Water-wheels, current	Nosdiah W. Hubbard	Randolph, Ohio	April 2, 1841.
Water-wheels, reacting	Nathaniel F. Hodges	Corning, N. Y	July 16, 1841.
Windmill	Perry Davis	Fall River, Mass	Aug. 11, 1841.
Windmill	Wm. Zimmerman	Stephenson, Ill	May 29, 1841.
Windmill, horizontal	John M. Van Osdel	Chicago, Ill.	Mar. 12, 1841.

Class XII.—Lever, Screw, and other mechanical power, *as applied to pressing, weighing, raising, and moving weights.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Balance, platform	Thomas Y. Jennings	Geneva, Ohio	Nov. 10, 1841.
Balance, portable	Albert Dole	Bangor, Me.	Dec. 23, 1841.
Balance, steelyards	Eli Willemin	Leesburg, Ohio	Aug. 21, 1841.
Balance, weighing apparatus	Christopher E. Dampier	Ware, England	Feb. 12, 1841; antedated Jan. 14, 1840.
Balance, weighing apparatus	Martin Robbins	Hollidaysburg, Pa	Jan. 23, 1841.
Buildings, &c., removing	Lewis Pallman	Portland, N. Y	Aug. 21, 1841.
Hoisting, machinery for	John B. Holmes	Boston, Mass	June 7, 1841.
Packing tobacco, staves or billets of cast-iron for.	Thos. Samson	Richmond, Va	May 11, 1841.
Press, cheese	Damon A. Church	Friendship, N. Y.	May 4, 1841.
Press, cheese	Job Arnold	Harmony, N. Y.	April 2, 1841.
Press, cotton	Wm. C. Van Hoesen	Catskill, N. Y.	April 2, 1841.
Press, cotton, hay, &c.	Chas. W. Hawkes	Brunswick, Me.	May 29, 1841.
Press, cotton, hay, &c.	Lemuel Bolls, Jedediah Prescott, and William A. Bickford.	Memphis, Tenn	Feb. 13, 1841.
Press, screw, and application to the pressure of elaine from tallow.	Richard Jones	Circleville, Ohio	Oct. 9, 1841.
Press, seal	A. Ralston Chase	Cincinnati, Ohio	April 19, 1841.
Press, tobacco	Albert Snead	Richmond, Va	Sept. 11, 1841.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Press, tobacco	Elliot Richardson	West River, Md	July 16, 1841.
Press, tobacco	Joseph Bucey	West River, Md	Dec. 23, 1841.
Press, tobacco	Thomas G. Hardesty	Tracy's Landing, Md	May 29, 1841.
Raising blocks of ice, machinery for	Nathaniel J. Wyeth	Cambridge, Mass	Dec. 10, 1841.

CLASS XIII.—GRINDING MILLS AND MILL-GEARING, *including grain-mills, mechanical movements, and horse-powers.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Flour, manufacturing, mixing middlings with the chops.	Andrew D. Worman	Fredericktown, Md	July 23, 1841.
Grist-mill	Ezekiel G. Ward	New York, N. Y.	Feb. 20, 1841.
Grist-mill	Josiah Platt	Weston, Conn.	Oct. 9. 1841.
Grist-mill, bush for	George M. Copeland	Genoa, Ohio	Oct. 11, 1841.
Grist-mill, conical	Samuel Sheldon	Cincinnati, Ohio	Sept. 11, 1841.
Gudgeon, applying friction rollers to	Martin C. Forrist	Foxborough, Mass.	Nov. 16, 1841.
Gudgeon, or pivot and step of, mill spindles, &c.	Jacob Staub	Georgetown, D. C	May 4, 1841.
Horse-power	Edmund Warren	New York, N. Y.	Jan. 5, 1841.
Horse-power	J. Francis Moore	Falmouth, Va.	May 4, 1841.
Horse-power	Moses Davenport	Pittsburgh, Pa.	Sept. 4, 1841.
Horse-power	Samuel H. Little	Gettysburg, Pa.	June 11, 1841.
Horse-power	Thomas J. Wells	New York, N. Y.	July 1, 1841.
Horse-power, endless chain	Alonzo and Wm. C. Wheeler	Chatham, N. Y.	July 8, 1841.
Horse-power, endless floor	Jeremiah M. Reed	Middlefield, N. Y.	Jan 30, 1841; antedated Dec. 9, 1840.
Horse-power, portable master wheel of	John A. Taplin	Hammond, N. Y.	Dec. 30, 1841.
Mill-cylinder, for granulating corn, powder, bark, &c.	Increase Wilson	New London, Conn	July 23, 1841.
Mill, universal, for grinding, hulling, &c	James Bogardus	New York, N. Y.	July 29, 1841.
Mill-stones, dressing, with ventilations for cooling the flour.	Pendleton Cheek	Flat Rock, Ga.	Original date of this patent Aug. 21, 1841; dated anew July 26, 1845; antedated June 5, 1845.
Motion of fly-wheel or slide, to multiply	Chas. Johnson	Amity, Ill.	Oct. 11, 1841.
Power, graduating the velocity of moving bodies.	Edwin W. Jackson	Albany, N. Y.	Jan. 5, 1841.
Power, maintaining to drive machinery	Stephen P. W. Douglass	Williamson, N. Y.	May 22, 1841.

CLASS XIV.—LUMBER, *including machines and tools for preparing and manufacturing, such as sawing, planing, mortising, shingle and stave, carpenters' and coopers' implements.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Dovetails and tenons, cutting	Thomas J. Wells	New York, N. Y.	July 8, 1841.
Dovetails, cutting square-joint	William Perrin	Lowell, Mass.	Mar. 24, 1841.
Lathe, turning handles, poles, &c.	Collins & Wistar, assignees of Stacy Costill.	Philadelphia, Pa.	June 7, 1841.
Lathe, universal chuck	Sidney S. Hogle	Rockville, N. Y.	Nov. 16, 1841.
Mortising-machine	James King	Morristown, N. J.	Mar. 18, 1841.
Planing boards and timber	Hervey Law	Wilmington, N C	Sept. 30, 1841.
Ploughs, manufacture of	Draper Ruggles, Joel Nourse, and John C. Mason, assignees of Elbridge G. Matthews	Worcester, Mass.	Feb. 23, 1841.
Sawing-machine, cross-cut	Henry Burger	Danville, Ind	Mar. 18. 1841.
Saw-mill	David Philips	Georgetown, Pa.	Mar. 12, 1841.
Saw-mill	James B. Lowry / Philander Eggleston	North East, Pa. / Mayville, N. Y.	June 11, 1841.
Saw-mill	William Bryant	Nashville, Tenn	June 11, 1841.
Saw-mill dogs	Damon A. Church	Friendship, N. Y.	April 16, 1841.
Saw-mill dogs	Linus Yale	Newport, N. Y.	July 29, 1841.
Saw-mill, head block of, &c	James King	Sapling Grove, Va.	Feb. 26, 1841.
Saw-mill, portable	James C. Mayo	Columbia, Va.	July 29, 1841.

Classified list of patents issued—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Saw-mill, portable circular	George Page	Baltimore, Md	July 16, 1841.
Saw-mill, re-sawing boards, &c	Pearson Crosby	Fredonia, N. Y	Nov. 3, 1841.
Saw-mill, self-setting	Frederick Goodell and Thomas W. Harvey	New York, N. Y	Nov. 3, 1841.
Saw-mill, sustaining logs in	Jeremiah Rohrer	Rohrersville, Md	May 29, 1841.
Shingles, cutting	Lloyd White	Jeffersonville, Ind	Nov. 10, 1841.
Shingles, cutting	Truman Walcott	Stow, Mass	Jan. 20, 1841; antedated Sept. 5, 1840.
Shingles, riving and dressing	William S George	Baltimore, Md	May 29, 1841.
Slitting timber, and making splints, laths, &c.	Benjamin Beach	Clarksville, Ohio	Nov. 10, 1841.
Splints, cutting, for manufacturing brooms, &c.	Lyman Gleason	Le Roy, N. Y	Oct. 9, 1841.
Staves, cutting	Cephas Manning	Acton, Mass	April 10, 1841.
Staves, sawing bilged, for barrels, &c	Robert Stewart	Michigan City, Ind	Nov. 25, 1841.

CLASS XV.—STONE AND CLAY MANUFACTURES, *including machines for pottery, glass-making, brick-making, dressing and preparing stone, cements, and other building materials.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Brick-machine	Walden Beach and Ephraim Lukens	Baltimore, Md	May 22, 1841.
Brick-machine	Charles G. Brown	Caldwells, N. Y	Oct. 11, 1841.
Brick-press	Thomas Conklin	Woodville, Miss	Jan. 23, 1841.
Brick-press	Thomas W. Smith	Alexandria, D. C	Jan. 30, 1841.
Brick-press, and tile	Joseph B. Wilson	Walden, Mass	Sept. 30, 1841.
	Alfred B Crossman	Huntingdon, N. Y	
Clay, moulding and pressing, to be applied to the construction of fences, &c.	Mercy Wright	Tallytown, Pa	May 15, 1841.
Glass, moulds for pressing	Hiram Dillaway	Boston, Mass	Aug. 21, 1841.
Knobs of all kinds, of clay, &c., making	John G. Hotchkiss	New Haven, Conn	July 29, 1841.
	John A. Davenport and John W. Quincy	New York, N. Y	
Stone, cutting and dressing	Thomas J. Cornell	Worcester, Mass	Nov. 3, 1841.

CLASS XVI.—LEATHER, *including tanning and dressing, manufacture of boots, shoes, saddlery, harness, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Boots and shoes, manufacturing, &c	Ansel Thayer	Braintree, Mass	April 24, 1841.
Boots, treeing	Elias Hall, jr	Spencer, Mass	May 29, 1841.
Crimping leather, clamps for	Josiah M. Read	Boston, Mass	Mar. 16, 1841.
Curriers' beam, constructing face of	Ichabod Lindsey	Charlestown, Mass	Jan. 27, 1841.
Harness, blinds of horse-bridles	John G. Tibbets	New York, N. Y	Oct. 9, 1841.
Harness, horse collars, cutting leather for	Thomas Parkinson	Sparta, N. Y	July 17, 1841.
Harness, horse-collars, stretching, &c	James R. Osborn	Reddington, N. J	Jan. 30, 1841.
Hats of leather, manufacturing	James S. and Wm. Wibert	Eden, N. Y	Sept. 4, 1841.
Hides, raw, and leather, cutting into strips for manufacture of ropes, &c	Philip B. Holmes and Wm. Pedrick	Charlestown, Mass	Jan. 9, 1841.
Saddles, spring	Thomas Mardock	Liberty, Ind	Aug. 28, 1841.
Shoemakers' paring-knives	Isaac S. Pendergast	Barnstead, N. H	July 16, 1841.
Splitting leather	Alpha Richardson	Boston, Mass	Feb. 9, 1841.
Tanning hides, &c., process of	Simeon Guilford	Lebanon, Pa	Nov. 10, 1841.
Tanning, removing wool, &c., from skins of animals.	Francis and Hanson Robinson	Wilmington, Del	May 15, 1841.
Trunks, travelling	John Fitzgibbon	Philadelphia, Penn	Oct. 11, 1841.

CLASS XVII.—HOUSEHOLD FURNITURE, *machines and implements for domestic purposes, including washing machines, bread and cracker machines, feather-dressing, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Bedstead, cutting screws on the rails of	Joel Thompson	Cynthiana, Ky	July 29, 1841.
Bedstead, cutting tenons and boring holes in the rails of.	Thomas Cole	Greensburg, Ind	Nov. 12, 1841.
Bedstead, fastening	Herman C. Ernst	Vandalia, Ill	Feb. 23, 1841.
Bedstead, securing and fastening rails of	John P. Allen	Manchester, Mass	Nov. 3, 1841.
Bedsteads, sofa	James M. Meshutt	New York, N. Y	July 23, 1841.
Brushes, attaching the bristles to	Robert B Lewis	Hallowell, Me	Feb. 23, 1841.
Chair, recumbent	Henry P. Kennedy	Philadelphia, Pa	May 22, 1841; antedated April 12, 1841.
Clothes'-horse, connecting the frames of	Harvey Luther	Providence, R. I	May 19, 1841.
Crackers, cutting	Charles P. Forbes	Baltimore, Md	July 17, 1841.
Crackers, cutting	William Perkins	Boston, Mass	April 2, 1841.
Crackers, cutting	William R. Nevins	New York, N. Y	Nov. 10, 1841.
Crackers, making	Riley Darling	East Greenwich, R I	Sept. 30, 1841.
Cutting blubber	George and John J. Kilburn	Fall River, Mass	Nov. 16, 1841; antedated Sept. 20, 1841.
Feathers, drying, whipping, and cleaning	Nathaniel L. Manning	Boston, Mass	April 16, 1841.
Refrigerator	Job S. Gold	Philadelphia, Pa	Mar. 12, 1841.
Washing-machine	George Waterman	Johnston, R I	May 11, 1841.
Washing-machine	Horatio N. Walter	Norwich, Conn	June 22, 1841.
Washing-machine	Leonard Proctor	New York, N. Y	Nov. 16, 1841.

CLASS XVIII.—ARTS, POLITE, FINE, AND ORNAMENTAL, *including music, painting, sculpture, engraving, books, paper, printing, binding, jewelry, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Block printing on woven fabrics of cotton, &c.	Robert Hampson	Manchester, Great Britain	June 7, 1841; antedated June 9, 1840.
Copy-books and method of binding the same.	William Davison	Baltimore, Md	Oct. 9, 1841.
Files, or ready-binders for filing pamphlets, &c.	Isaac Detterer	Philadelphia, Pa	May 22, 1841.
Inking type, machine for	Frederick J. Austin	New York, N. Y	Feb. 20, 1841.
Inkstand	George Burnham	Philadelphia, Pa	Dec. 30, 1841.
Inkstand, capillary wick, &c	Isaac M. Moss, assignee of	Philadelphia, Pa.	Jan. 30, 1841.
	John Farley	Washington, D. C	
Pen, fountain, &c	William Davison	Baltimore, Md	Oct. 9, 1841.
Piano-forte	Daniel B. Newhall	Boston, Mass	Nov. 3, 1841.
Piano-forte	Lemuel Gilbert	Boston, Mass	July 10, 1841.
Piano-forte, action part of	Timothy Gilbert	Boston, Mass	Feb. 10, 1841.
Piano-forte, hammerheads used in	Timothy Gilbert, assignee of Edwin Fobes.	Boston, Mass	Feb. 10, 1841.
Piano-forte, horizontal	Frederick C. Reichenbach	Philadelphia, Pa	May 19, 1841.
Piano-forte, keys in	Daniel B. Newhall and Levi Wilkins, assignees of John Dwight, *part inventor* with said D. B. Newhall.	Boston, Mass	May 6, 1841.
Polishing-plates used in taking likenesses, apparatus for.	John Johnson	New York, N. Y	Dec. 14, 1841.
Type-setting, machines for	James H. Young and	England	June 22, 1841.
	Adrien Delcambre	France	

CLASS XIX.—FIRE-ARMS AND IMPLEMENTS OF WAR, *and parts thereof, including the manufacture of shot and gunpowder*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Cannon balls, &c., manufacturing, from malleable iron, lead, &c.	Lewis Grandy and Thomas Osgood	Troy, N. Y.	Feb. 3, 1841.
Fire-arms, manner of discharging	Joshua Shaw	Philadelphia, Pa.	Jan. 30, 1841.
Fire-arms, portable	Charles Lewis Stanislas, Baron Heurteloup	Subject of France	July 29, 1841; antedated Feb. 23, 1839.
Gunpowder, corning or graining	Leonard T. Swett	Canton, Conn	Nov. 16, 1841.
War-rockets, boring	Alvin C. Goell	Washington, D. C	Mar. 18, 1841.
War-rockets, press for filling	Alvin C. Goell	Washington, D. C	Feb. 18, 1841.

CLASS XX.—SURGICAL AND MEDICAL INSTRUMENTS, *including trusses, dental instruments, bathing apparatus, &c.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Lacteal, or artificial breast	Chas. M. Winship	Roxbury, Mass	Feb. 18, 1841.
Lancet, spring	John M. Van Osdel	Chicago, Ill	April 24, 1841.
Legs, debility in the, apparatus for relief of.	Stephen P. W. Douglass	Palmyra, N. Y.	May 15, 1841.
Speculum ani	Joseph T. Pitney	Auburn, N. Y.	July 23, 1841.
Tooth extractor	Moses J. Hill	Bloomfield, Ind.	June 7, 1841.
Truss for prolapsus uteri	John A. Campbell	Lima, N. Y.	April 10, 1841.
Truss, reducible hernia, mode of treating	Zophar Jane	Carrollton, Ill.	April 2, 1841.

CLASS XXI.—WEARING APPAREL, *articles for the toilet, &c., including instruments for manufacturing.*

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Buttons, attaching, to cloth	Henry S. Poole	Boston, Mass	Aug. 11, 1841.
Buttons, manufacture of	Thomas Prosser	Paterson, N. J	July 29, 1841; antedated Jan. 29, 1841.
Corsets	Alanson Abbe	Worcester, Mass	April 2, 1841.
Corsets	Elizabeth Adams	Boston, Mass	Jan. 21, 1841.
Garments, pockets of	Daniel Harrington	Philadelphia, Pa	Oct. 11, 1841.
Garments, tailors' instruments and mode of measuring.	Lewis Flenner	Philadelphia, Pa	Nov. 10, 1841.
Garments, tailors' measures for	Lyman B. and Ellery Miller	Wallkill, N. Y	May 29, 1841.
Garments, taking measure and draughting	Aaron A. Tentler	Philadelphia, Pa	Jan. 23, 1841.
Suspender straps, attaching, to pantaloons	David B. Cook	New York, N. Y	Sept. 4, 1841.

CLASS XXII.—MISCELLANEOUS

Inventions or discoveries.	Patentees.	Residence.	Date of patent.
Fire-escapes, &c	Samuel Welsh and Thos. Linacree	Albany. N. Y	Jan. 23, 1841.
Ice, forming	Thos. Briggs Smith	St. Louis, Mo	Jan. 23, 1841.
Knives, &c., handles for	Zina K. Murdock	Meriden, Conn	April 16, 1841.
Palm leaf, machine for splitting	Corey McFarland	Barre, Mass	Mar. 31, 1841.

CLASSIFIED LIST OF PATENTS FOR DESIGNS THAT HAVE EXPIRED DURING THE YEAR 1855.

Designs.	Patentees.	Residence.	Date of patent.
Balances, pedestals for	Thaddeus Fairbanks	St. Johnsbury, Vt	Aug. 29, 1848.
Brackets, ornamental	R. Wood and W. Hamilton; Hamilton, assignor to Wood.	Philadelphia, Pa	June 20, 1848.
Bust of General Z. Taylor	Philip Garbielle	New Orleans, La	Mar. 28, 1848.
Carpets	Peter Lawson	Lowell, Mass	Feb. 22, 1848.
Carpets	Peter Lawson	Lowell, Mass	Feb. 22, 1848.
Carpets	Peter Lawson, assignor to the Lowell Manufacturing Company.	Lowell, Mass	Oct. 24, 1848.
Forks, knives, and spoons	P. Nan Ness and A. Wood	New York, N. Y	Mar. 21, 1848.
Furnaces, portable	Charles W. Warnick	Philadelphia, Pa	May 9, 1848.
Furniture ornaments	J. F. Baker, assignor to Cornelius & Co	Philadelphia, Pa	Dec. 5, 1848.
Spoons and forks	Michael Gibney	New York, N. Y	June 13, 1848.
Stoves	Wm. P. Cresson, S. H. Sailor, J. Beesley, and D. Stuart; Sailor, Beesley, and Stuart, assignors to Cresson.	Philadelphia, Pa	Jan. 18, 1848.
Stoves	Wm. P Cresson, D. Stuart, and J. Beesley; Stuart & Beesley, assignors to Cresson.	Philadelphia, Pa	Mar. 28, 1848.
Stoves	Elisha Smith	Albany, N. Y	Jan. 18, 1848.
Stoves	Alexander Morrison	Troy, N Y	Mar. 8, 1848.
Stoves	William Hickok	New York, N. Y	April 4, 1848.
Stoves	J. Burgess, assignor to G. Geer	Troy, N. Y	April 11, 1848.
Stoves	James Wager	Troy, N. Y	April 11, 1848.
Stoves	E. P. Penniman, assignor to W. H. Cheney	Rochester, N. Y	April 18, 1848.
Stoves	Charles W. Warnick	Philadelphia, Pa	May 30, 1848.
Stoves	William Savery	New York, N. Y	June 13, 1848.
Stoves	J. H. Conklin, H. V. Losea, G. P. Bowers, and J. Pratt; Conklin & Losea, assignors to Savery, Bowers, & Pratt	Boston, Mass	
Stoves	W. L. Sanderson, assignor to Anthony Dany & Co.	Troy, N. Y	June 27, 1848.
Stoves	James H. Conklin	Peekskill, N. Y	June 27, 1848.
Stoves	Jeremiah D. Green	Troy, N. Y	July 18, 1848.
Stoves	Samuel H. Morse	Albany, N. Y	Aug. 1, 1848.
Stoves	F. W. Allen	Waterford, N. Y	Aug. 10, 1848.
Stoves	E. Ripley, assignor to Johnson & Cox	Troy, N. Y	Aug. 10, 1848.
Stoves	Miles Pratt	Carver, Mass	Aug. 15, 1848.
Stoves	James H. Conklin, assignor to Whitney & Montanya.	New York, N. Y	Aug. 22, 1848.
Stoves	Apollos Richmond, assignor to A. C. Barstow & Co.	Providence, R. I	Aug. 30, 1848.
Stoves	Charles W. Warwick	Philadelphia, Pa	Aug. 30, 1848.
Stoves	G. W. Ring and J. Crandall, assignors to A. Cox & Co.	Troy, N. Y	Sept. 19, 1848.
Stoves	George W. Rathburn	Le Roy, N. Y	Oct. 24, 1848.
Stoves	William Savery and J. H. Conklin; Conklin assignor to Savery.	New York, N. Y	Nov. 21, 1848.
Stoves	John F. Rathbone	Albany, N. Y	Dec. 5, 1848.
Stoves, coal and air-tight	J. G. Lamb and Charles Zoiner	Cincinnati, Ohio	Feb. 15, 1848.
Stoves, cooking	J. C. Potts	Albany, N. Y	Jan. 25, 1848.
Stoves, cooking	William Abendroth	Portchester, N. Y	May 9, 1848.
Stoves, cooking	John T. Davy	Troy, N. Y	May 30, 1848.
Stoves, cooking	S. W. Gibbs, assignor to	Albany, N. Y	Sept. 19, 1848.
Stoves, parlor	William Jackson	Syracuse, N. Y	
Stoves, plates for cooking	Samuel D. Vose	Albany, N. Y	Dec. 19, 1848; ante-dated June 19, 1848.
Stove-plates	George W. Wood	Utica, N. Y	April 4, 1848.
Stove-plates	E. Ripley, assignor to A. Cox & Co	Troy, N Y	May 16, 1848.
Stove-plate	E. Ripley, assignor to A. Cox & Co	Troy, N. Y	May 16, 1848.
Stove-plate	E. Ripley, assignor to Johnson & Cox	Troy, N. Y	Aug. 10, 1848.
Tables, pier and centre	William Savery and J. H. Conklin; Conklin assignor to Savery.	New York, N. Y	Nov. 19, 1848.
	Robert Wood and W. Hamilton; Hamilton assignor to Wood.	Philadelphia, Pa	June 20, 1848.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13560	Abbott, Amos	Horometers	Sept. 12, 1855	VIII.
13775	Abbott, Hiram	Tire, &c., upsetting	Nov. 13, 1855	X.
	Abbott & Lawrence. (See Smith, Brown, and Read, assignors.)			
	Abbott & Lawrence. (See Smith, Brown, and Holyer, assignors.)			
12432	Ackerly, Henry S.	Piano-forte frames	Feb. 28, 1855	XVIII.
	Ackerman, C. J. (See Halsted, Jonas S., and C. J. Ackerman.)			
13695	Ackerman, Theodore, assignor to H. H. Homan, W. Muhle, and T. Ackerman.)	Casting tea-pot spouts and handles	Oct. 16, 1855	II.
	Adams, D. P. (See Moore, Jonas, and D. P. Adams.)			
	Adams, J. W. (See Moore, J. O., and J. W. Adams.)			
12303	Adams, J. J. W.	Boring wells, implements for	Jan. 30, 1855	IX.
12773	Adams, John R.	Fire-engine	May 1, 1855	V.
12849	Adams, John W.	Springs, circular, metallic plate	May 15, 1855	X.
13074	Adams, Joseph	Stone-sawing machine	June 19, 1855	XV.
13516	Adams, Joseph Alexander	Electrotyping, machine for	Sept. 4, 1855	XVIII.
12614	Adams, Henry W.	Oils, factitious	April 4, 1855	IV.
12304	Adamson, William	Glue, clarifying	Jan. 30, 1855	IV.
13153	Adamson, William	Paper, sand, cutting-machines	July 3, 1855	III.
12237	Addison, John S.	Gold-washer and amalgamator	Jan. 17, 1855	II.
	Ahlstrom & Loudon. (See Loudon, John, and Otto Ahlstrom.)			
12933	Aiken, J. B., assignor to J. B. & H. Aiken	Knitting-machines	May 22, 1855	III.
13561	Aiken, W. & J. B., assignors to Herrick Aiken and Jonas B. Aiken.	Knitting machines	Sept. 12, 1855	III.
	Albrecht, Jos. (See Bernard & Albrecht.)			
12989	Albro, James	Printing oilcloths, registering blocks for	June 5, 1855	XVIII.
12662	Aldrich, Warren	Lathe	April 10, 1855	XIV.

	Alexander, George, administrator. (See Spafford, Sophia B. and C.)			
	Allard, Daniel L. (See Bailey, Archibald, and D. L. Allard.)			
13154	Allen, Ethan	Fire-arms	July 3, 1855	XIX.
12472	Allen, George D.	Hemp, Sisal, machines for cleaning and stripping seed from broom-corn.	March 7, 1855	III.
13075	Allen, Horatio	Valve, cone, two motion	June 19, 1855	XI.
12235	Allen, John H.	Looms, temples for	Jan. 17, 1855	III.
12372	Allen, James	Clover-hullers	Feb. 13, 1855	I.
13473	Allen, John	Life-boats	March 7, 1855	VII.
	Allen, Reuben. (See Dulany, George L.)			
12373	Allen, W. H	Meat and other substances, machine for chopping	Feb. 13, 1855	XVII.
13338	Allender, John	Bottle fastenings	July 24, 1855	XXII.
13340	Allender, John	Balance for detecting spurious coin	Nov. 27, 1855	XII.
12591	Ambler, George B.	Saddle-trees, wooden	May 22, 1855	XIV.
	American White Zinc Company. (See Gardner, Smith, assignor.)			
	American Hosiery Company. (See Doolittle, John H., assignor.)			
12806	Ames, Nathan, assignor to Samuel Green	Leather and morocco, machine for polishing	May 1, 1855	XVI.
724	Ames, Winslow	Fire-places, portable	Aug. 28, 1855	Design.
721	Ames, Winslow	Stoves and fire-places	Aug. 28, 1855	Design.
13399	Amies, Israel	Veneers, embossed, application of	Dec. 11, 1855	XIV.
12152	Anderson, Alexander	Planters, seed	Jan. 5, 1855	I.
	Anderson & Foglesong. (See Foglesong, Wm. G., assignor.)			
12474	Anderson, J. J.	Stoves, cook	Mar. 7, 1855	V.
13713	Anderson, Robert and John E.	Hulling, rice, machines	Oct. 13, 1855	I.
12663	Andrews, John	Wells, artesian, drills for	April 10, 1855	IX.
728	Andrews, Jas., assignor to Andrews & Dixon	Grates, parlor	Sept. 12, 1855	Design.
12772	Apperly, William	Car, railroad, ticket, register for	May 1, 1855	X.
13295	Applebee, Cephas.	Metal, sheet, machines for cutting	July 24, 1855	II.
127 9	Appleton, Charles T.	Bleaching apparatus	April 18, 1855	IV.
311	Appleton, Charles T.	Bleaching apparatus	May 22, 1855	Reissue.
13613	Arneson, P. J. Pederson, and H. Rees	Hat-bodies, materials for	Oct. 2, 1855	III.
13614	Arneson, P. J. Pederson, and H. Rees	Hat bodies, machinery for manufacturing	Oct. 2, 1855	III.
13414	Arnold, Francis	Egg-holder	Aug. 14, 1855	XXII.
12615	Arnold, James P.	Presses	April 4, 1855	XII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12940	Arnold, Thomas, assignor to Urn & J. S. Arnold & Co.	Bedsteads, invalid	May 30, 1855	XVII.
12710	Arnold, William E	Sash-fasteners	April 18, 1855	II.
12709	Arnold, William E	Sash-fasteners	Mar. 14, 1855	II.
13296	Arthur, John and Evan	Boot and shoe uppers, soles, &c., machines for cutting, from sheets of India rubber.	July 24, 1855	XVI.
13415	Arthur, John and Evan	Engines, &c., steam, governors for	Aug. 14, 1855	VI.
12153	Arthur, Robert	Cans, preserve, self sealing	Jan. 5, 1855	IV.
12501	Ashburner, Theophilus A	Bottle-stopper fastenings	Mar. 14, 1855	XXII.
13973	Ashley, Lewis C	Can le-mould apparatus	Dec. 25, 1855	IV.
12193	Ashley, Lewis C	Candle-mould machines	Jan. 12, 1855	IV.
12774	Ashton, Wm	Bullet mould	May 1, 1855	XIX.
	Asphalte Mining and Kerocene Gas Company. (See Gesner, Abraham, assignor.)			
13293	Aspirrall, John	Sugar, apparatus for draining	July 10, 1855	IV.
12756	Atkins, Jerome	Harvesters, grain, platforms of	April 24, 1855	I.
13631	Atkins, Larkin T	Staves, gauging, measuring, &c., machine for	Oct. 9, 1855	XIV.
13444	Atwater, John H	Washing-machines	July 31, 1855	XVII.
13204	Atwood, Charles	Ventilating railroad cars	July 10, 1855	V.
12941	Avery, John	Looms, shuttle, motion of	May 30, 1855	III.
12117	Aylesworth, Nesman	Metals, machine for boring, planing, and slotting	Jan. 5, 1855	II.
12374	Aylesworth, Thomas D	Hop-frames	Feb. 13, 1855	I.
13076	Babbett, Avery	Forms, irregular, machine for cutting	June 19, 1855	XIV.
12306	Babbitt, B. F	Ventilator, car	Jan. 30, 1855	V.
13810	Bacon, Philip	Fuse tape	May 8, 1855	XIX.
13379	Badger, D. D.	Houses, iron	Aug. 7, 1855	IX.
12902	Bahl, Ernest	Ventilator, ship	June 5, 1855	V.
13297	Bailey, Archibald, and Daniel L. Allard	Whiffle-tree	July 24, 1855	X.
	Bailey, A. J. (See Bingham, Albert, assignor.)			
	Bailey & Bingham. (See Bingham, A., assignor.)			
	Bailey & Speed. (See Speed, J. J., jr., and J. A. Bailey.)			

13417	Bailey, Fortune L	Cars, apparatus for replacing	Aug. 14, 1855	X.
12578	Bailey, Gilbert L., assignor to G. L. Bailey and M. Nutting.	Castings for furniture	Mar. 20, 1855	XVII.
13381	Bailey, Leonard	Plane-scraper	Aug. 7, 1855	XIV.
13811	Bailey, Timothy	Knitting-machines	Nov. 20, 1855	III.
12109	Bailey, Yarnall	Burners, fluid	Feb. 20, 1855	V.
12516	Baker, Richard	Lead, white, manufacture of by precipitation	April 4, 1855	IV.
326	Baker, Wm., assignor to C. Parker	Hinges	Aug. 28, 1855	Reissue.
13743	Bakewell, Thomas W	Blast-furnaces, method of treating air for	Nov. 6, 1855	XI
12118	Baldwin, David	Printing-presses and ruling-machines, apparatus for feeding paper to.	Jan. 5, 1855	XVIII.
12736	Baldwin, T. J	Paper-ruling machine	April 18, 1855	XVIII.
12433	Bale, John	Annunciators, hotel	Feb. 28, 1855	XXII.
12464	Ball, Thomas C	Jack-screw	Feb. 28, 1855	XII.
13298	Ball, Wm	Boilers, steam, feeding water to, by auxiliary engines.	July 24, 1855	VI.
12475	Ballard, Harmon W	Springs on wagons, arrangement of the	March 7, 1855	X.
12119	Ballard, William	Vessels, constructing	Jan. 5, 1855	VII.
12476	Ballauf, William, and Frederick Wurth	Locks, door, guards for	Mar. 7, 1855	II.
12580	Bauersfeld, Charles F	Lumber-jointing machines, clamp or mouth-piece for	Mar. 28, 1855	XIV.
	Banker & Carpenter, assignees. (See Brown, C. W., assignor.)			
	Banks, George. (See Keleen, James, assignor.)			
12850	Barber, D. S. A., and D. Thompson	Sleighs	May 15, 1855	X.
12884	Barber, J. S., assignor to Robert J. Marcher	Forms, irregular, machine for cutting	May 15, 1855	XIV.
12931	Barden, John S., assignor to O. Snow and G. B. Farnum.	Metre, water	May 22, 1855	XI.
12232	Barden, John S	Metre, water	Jan. 17, 1855	XI.
12579	Barker, Abel	Pump, rotary	Mar. 28, 1855	XI.
12617	Barker, Abel	Pumps, air, method of lubricating pistons of	April 4, 1855	XI.
12664	Barlow, Nelson	Saw-teeth	April 10, 1855	XIV.
13345	Barlow, Nelson	Planing machines, method of feeding planks to	July 31, 1855	XIV.
12230	Barlow, Thomas H	Fire-arms	Jan. 17, 1855	XIX.
13812	Barnes, Alexander	Mop heads	Nov. 20, 1855	XVII.
12408	Barnes, Chas. R	Mill-stone dress for hulling rice	Feb. 20, 1855	XIII.
	Barnes, Horace, assignee. (See Halvorson, H., assignor.)			
13418	Barnes, O. C. and C. J	Whiffletrees	Aug. 14, 1855	X.
13419	Barnhart, A. J	Planters, corn	Aug. 14, 1855	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12165	Barnhart, Andrew J	Planters, seed	Feb. 28, 1855	I.
13346	Barnhart, Simon	Fan-blower	July 31, 1855	V.
13744	Barney, Geo. C	Whiffletrees	Nov. 6, 1855	X.
13205	Barrett, Jona F	Harvesters, method of raising and lowering the cutters of.	July 10, 1855	I.
13347	Barrett, Oliver D	Mop-wringer	July 31, 1855	XVII.
13266	Barrows, Thomas	Processes for treating wool	July 10, 1855	IV.
13486	Barrows, Thomas	Oil, wool, preparations of	Aug. 28, 1855	IV.
12851	Barry, Job R	Ventilating and cooling apparatus	May 15, 1855	V.
	Barstow & Co., assignees. (See Richmond, Apollos, assignor.)			
	Barstow, E R (See Wardwell, B, *et al.*)			
12305	Bartlett, Abel H	Furnace, hot-air	Jan. 30, 1855	V.
	Bartlett, L J. (See Dinmoor & Bartlett.)			
	Bartlett, Stephen. (See Brown, John, and Stephen Bartlett.)			
13420	Bashnaget, Francis	Compositions for treating rubber and gutta percha	Aug. 14, 1855	IV.
12154	Batchelor, S. B	Carriages, journal boxes for	Jan. 5, 1855	X.
13518	Batty, Thomas	Ships' topmasts, supporting	Sept. 4, 1855	VII.
13861	Batty, Thomas	Ships' yards, suspending	Dec. 4, 1855	VII.
	Bausman, Isaac W. (See Williams, Isaac.)			
13900	Baxendale, James	Cloth, folding and measuring, machinery for	Dec. 11, 1855	III.
12749	Bayley, O. W., assignor to the Manchester Locomotive Works.	Furnace for locomotives	April 18, 1855	V.
	Beach, A. E (See Robertson, T. J. W, assignor.)			
12341	Bean, John, and Benjamin Wright	Smut-machines	Feb. 6, 1855	I.
	Bean, John (See Wright & Bean.)			
13504	Beans, Robert	Harvesters, changing from reapers to mowers, and *vice versa*, mechanism for.	Aug. 28, 1855	I.
	Bear!, Ebenezer	Screw propeller, form of, for propelling vessels	Mar. 26, 1855	Extension.
697	Beesley, Jacob, and Edward Delany, assignors to Cresson, Stewart, & Peterson.	Stoves, cooking	Mar. 20, 1855	Design.

12228	Beasley, William, assignor to J. and J. W. Brett, of Westminster, C. W. Tupper, of London, and Wm. Beasley, of Smithwick.	Metal tubes, manufacturing	Jan. 12, 1855	II.
	Beaumont, Wm. D, assignee. (See Hooker, Thomas, assignor.)			
13056	Beaumont, Wm. D	Fuel, artificial	June 13, 1855	V.
	Beck, Jacob M. (See Lowe, Saml. W., assignor.)			
12249	Beckwith, Elisha P	Balances, spring	Jan. 17, 1855	XII.
13590	Bedford, Daniel	Reservoirs, &c., apparatus for discharging	Sept. 25, 1855	XI.
13597	Beheens, H J	Wrench	Sept. 25, 1855	II.
13077	Beebe, Uriah	Planters, corn	June 19, 1855	I.
12983	Beer, Sigismund, assignor to Lewis Feuchtwanger and Sigismund Beer.	India rubber, devulcanizing	May 30, 1855	IV.
13592	Berestecher, F	Fire-arms	Sept. 25, 1855	XIX.
13696	Bell, John	Dove-tailing machine	Oct. 23, 1855	XIV.
13633	Bell, T., and H. Scholefield	Borax, manufacture of, from native borate of lime	Oct. 9, 1855	IV.
	Bennett, A., & W. Covell. (See Turner, Joshua, assignor.)			
12407	Bennett, James H	Straw-cutters	Feb. 20, 1855	I.
13560	Bennett, Wm., assignor to the Union India-rubber Lamp Company.	Lamps, fluid	Nov. 27, 1855	V.
12237	Benton, R. P	Mortising machines, feeding	Jan. 23, 1855	XIV.
12177	Benyaurd, E. C	Breast-pins, &c., safe catch for	Mar. 7, 1855	XVIII.
12375	Bredan, Hiram	Life-boats	Feb. 13, 1855	VII.
13632	Bernard, P. L., and Joseph Albrecht	Lime, acid sulphite of, manufacture of	Oct. 9, 1855	IV.
12537	Berthon, Edward L	Life-boats folding	Mar. 20, 1855	VII.
13740	Bertrand, Charles E	Sugar filterers	Oct. 30, 1855	IV.
13537	Bidwell, Salmon	Lamp-case, locomotive	Sept. 4, 1855	V.
13591	Bietel, C. G, and Henry J. Brunner	Stone, sawing, machines for	Sept. 25, 1855	XV
12581	Bigelow, Augustus E	Roving, woollen, preparing	Mar. 28, 1855	III.
12582	Bigelow, Augustus E	Spinning wool	Mar. 28, 1855	III.
13862	Bigelow, Erastus B	Fabrics, pile-cutting	Dec. 4, 1855	III.
13936	Bigelow, E B	Looms for weaving pile fabrics	Dec. 18, 1855	III.
13813	Bigelow, G. W	Gear wheels, cutting teeth of	Nov. 20, 1855	XII.
13373	Bigelow, Lucian N	Seeding machines	July 31, 1855	I.
698	Biggins, Henry, assignor to Michael Gibney	Forks and spoons, handles of	April 4, 1855	Design.
13155	Billings, A. C., and B. H. Ruggles	Shingles, etc, machine for riving	July 3, 1855	XIV.
13635	Bills, John A	Washing-machines	Oct. 9, 1855	XVII.
13515	Bingham, A., assignor to Bingham & Bailey	Inkstands	Aug. 28, 1855	XVIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13478	Bingham, Albert, assignor tohimself and A. J. Bailey.	Burglars' alarm	Aug. 21, 1855	XXII.
12711	Birkinbine, Henry P. M	Gas-retorts, construction of	April 18, 1855	IV.
	Beidsey & Bun. (See Barnum.)			
13563	Bisbee, Albert	Steam-gauge cocks	Sept. 18, 1855	VI.
13485	Bisbee, William O	Wood, fire, machine for splitting	Aug. 28, 1855	XIV.
13634	Bishop, Charles	Corn shellers	Oct. 9, 1855	I.
	Bishop, James. (See Healey, John, assignor.)			
13773	Bishup, Geo. W	Marble-sawing machine	Nov. 13, 1855	XV.
	Bissell, Israel M. (See Paynter, David E.)			
12406	Bissell, Levi	Springs, metallic	Feb. 20, 1855	X.
13451	Bixler, W. H	Blinds, window	July 17, 1855	IX.
13208	Blackburn, William	Turning ship spars, &c., automatic machine for	July 10, 1855	XIV.
12307	Blackwood, John	Planters, seed	Jan. 30, 1855	I.
13746	Blaikir, A., and W. Clark	Lathe machine	Nov. 6, 1855	XIV.
	Blair, S. R., assignee. (See Hunter, J. R., assignor.)			
13259	Blake, Francis	Lamp, rosin-oil	July 17, 1855	V.
12434	Blake, James B	Stoves, gas cooking	Feb. 28, 1855	V.
12775	Blake, H. & M	Clothes-pin, machine	May 1, 1855	XVII.
12292	Blakeley, Henry	Window-blinds, iron	Jan. 23, 1855	IX.
13450	Blakeslee, C. W.	Candlesticks	Aug. 21, 1855	V.
	Blakeslee, J. B., & C. F. (See Middlebrook, S. S.)			
13636	Blanc, Iran	Fibre, vegetable, preparing	Oct. 9, 1855	III.
712	Blanchard, A. J., assignor to Blanchard, Whittemore, & Co.	Stoves, cooking	May 30, 1855	Design.
711	Blanchard, A. J., assignor to Blanchard, Tarbett, & Co.	Stoves, parlor	May 30, 1855	Design.
13209	Blanchard, Francis B	Engines, air and steam	July 10, 1855	VI.
12405	Blanchard, George	Life-saving rafts	Feb. 20, 1855	VII.
	Blanchard, Noah F. (See Howell, Theodore, and Noah F. Blanchard.)			
13745	Bleckmann, I. H. A	Plane, iron bench	Nov. 6, 1855	XIV.
13814	Bleckmann, I. H. A	Locks	Nov. 20, 1855	II.
12538	Bliss, Elihu	Watch chains, swivel for	Mar. 20, 1855	XVIII.
12991	Blocher, David and George M.	Brick-burning	June 5, 1855	XV.
12539	Blodgett, J. E.	Brake, wagon	Mar. 20, 1855	X.
	Blodgett, Jehiel E	Brakes, wagon		Disclaimer.
12343	Bloodgood, John H	Felt goods, seamless, manufacturing	Feb. 6, 1855	III.
12812	Blount, Alexander C.	Distillation, preparing turpentine for	May 8, 1855	IV.
13841	Blue, Dennis S.	Striker, blacksmiths'	Nov. 27, 1855	II.
12663	Boardman, Byron, and George C. Sweet	Cord, lines, twist, or machinery for winding up	April 10, 1855	III.
12665	Boardman, Horace	Boilers, steam	April 10, 1855	VI.
13538	Bocage, J. W.	Cotton stalks, standing machines for cutting	Sept. 12, 1855	I.
	Boeklen, R. (See Fenwick, R. W., & R. Boeklen.)			
13114	Bolles, Jesse Norris, (assignor to H. J. Ockershausen.)	Wells, artesian, joints of pipes for	June 21, 1855	IX.
12666	Bolles, Solomon E.	Stones, machine for raising and transporting	April 10, 1855	XV.
12619	Bollman, Louis	Engines, steam, condensers for	April 4, 1855	VI.
13774	Bomberger, Michael	Sashes, window, hanging	Nov. 13, 1855	IX.
12939	Bond, Joseph, jr	Sewing-machines	May 22, 1855	III.
12266	Bonwill, William M., M. D	Trusses, hernial	Jan. 23, 1855	XX.
12803	Boone, Thomas G.	Boilers, steam	May 22, 1855	VI.
13937	Boothe, J. L	Grain-cleaning machines	Dec. 18, 1855	XIII.
	Booth, Kirk. (See Ward, Andrew H., assignor.)			
12268	Booth, Solomon G	Metal, sheet, rollers for corrugating	Jan. 23, 1855	II.
	Booth, Wm. M. (See Monnin, Charles.)			
12618	Borden, Chester B., and Benj. S. and Aaron R. McLean.	Planters, seed	April 4, 1855	I.
	Botterill & Smith, assignees. (See Smith, James, assignor.)			
12502	Bottum, James M	Watchmakers' lathe, polishing apparatus for	Mar. 14, 1855	XVIII.
	Bowe, Wm. C. (See Whipple, Wm. C.)			
13505	Bowerman, S	Cotton stalks, standing, machines for cutting	Aug. 28, 1855	I.
13968	Bowles, Thos., assignor to R. M. Patrick	Locks	Dec. 18, 1855	II.
12852	Bowman, Francis	Stills, rosin	May 15, 1855	IV.
13519	Boyd, Alexander	Telegraphic tide-gauges	Sept. 4, 1855	VIII.
13119	Boyd, Wm. and Wm. F	Bridle-winkers	June 26, 1855	XVI.
13121	Boyers, Jacob	Churns	Aug. 14, 1855	I.
13078	Boynton, Henry	Propeller, railway, reciprocating	June 19, 1855	VII.
13380	Boynton, L. W.	Flocks, machines for preparing	Aug. 7, 1855	III.
13480	Bradfield, Charles	Harvesters	Aug. 21, 1855	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Bradley, A (See Harris & Zoiner, assignors)			
12892	Bradley, Lucius B	Trap, rat	May 22, 1855	XXII.
13483	Bradley, L. B	Traps for catching animals	Aug. 28, 1855	XXII.
	Bradley & Porter. (See Porter & Bradley.)			
	Brailey, Moses R. (See Harsen, Cornelius L.)			
12667	Brainard, Lyman, and Levi Newton	Harrows, rotary	April 10, 1855	I.
	Brayshaw, Wm. (See Millville, J. G.)			
12194	Brayton, Robert	Nuts and washers, machines for making	Jan. 12, 1855	II.
	Breed, *et al* (See Crane, Martin H., assignor.)			
	Brett, J & J. W., *et al.* (See Beasley, William, assignor)			
	Breed, Crane, & Co. (See Crane, Martin H., assignor)			
	Bridges, Albert. (See Davenport, Chas.)			
13451	Briggs, John C	Pendulum, conical, to time-keepers, application of the	Aug. 28, 1855	VIII.
13474	Briggs, Samuel N	Furnaces, hot-air	July 31, 1855	V.
12120	Brigham, Abram	Looms	Jan. 5, 1855	III.
294	Brinckerhoff, Cornelius R	Ploughs	Jan. 30, 1855	Reissue.
1312	Bristol, Charles B	Wrench	June 26, 1855	II.
13382	Broadbent, John	Looms	Aug. 7, 1855	III.
	Brooks & Keith. (See Keith, Jno. S., and Jno. Brooks.)			
12737	Brooks, Stephen P	Piano-forte action	April 18, 1855	XVIII.
12503	Brown, Alanson	Metals, machines for turning, boring, and slotting	Mar. 14, 1855	II.
13484	Brown, A. D. (assignor to Margaret L. Brown)	Gin, cotton, saws	Aug. 28, 1855	III.
13747	Brown, Alex'r H	Brick-machines	Nov. 6, 1855	XV.
13156	Brown, Adison P	Windmill's, self-regulating	July 3, 1855	XI.
13158	Brown, A. & F	Boring and turning wood, machine for	July 3, 1855	XIV.
13422	Brown, A., & A. Coffin, jr	Saws, straining, by atmospheric pressure	Aug. 14, 1855	XIV.
13517	Brown, Collins B	Mowing-machines	Sept. 4, 1855	I.
13249	Brown, Chas. F	Ordnance, mode of mounting	July 17, 1855	XIX.
12942	Brown, Chas. F	Cartridges	May 30, 1855	XIX

12431	Brown, Chas. W. (assignor to Geo. W. Banker and Geo. O. Carpenter.)	Mill, paint	Feb. 20, 1855	XIII.
	Brown, Edmund. (See Carsley, Hiram, assignor to self and Brown)			
13196	Brown, Edward (assignor to Scoville Manufacturing Company)	Daguerreotype face-plates or 'mats,' machine for bevelling and polishing the inner edges of.	July 3, 1855	XVIII.
13211	Brown, Eleazur, jr	Lubricating compounds	July 10, 1855	IV.
13157	Brown, Ephraim	Burglars' alarm	July 3, 1855	XXII.
12269	Brown, George A	Hay-making machine	Jan. 23, 1855	I.
12811	Brown, George W	Planters, seed	May 8, 1855	I.
	Brown, H., *et al.* (See Smith, G , *et al.*, assignors)			
	Brown, H., *et al.* (See Smith, Brown, & Read, assignors)			
12121	Brown, John, and Stephen P. Bartlett	Harvesters, grain and grass	Jan. 5, 1855	I.
13776	Brown, Job	Faucets, weighing attachment for	Nov. 13, 1855	XI.
12308	Brown, Job	Planters, seed	Jan. 30, 1855	I.
321	Brown, John	Hot-water apparatus	Aug. 14, 1855	Reissue.
746	Brown, J. C	Clock-frames	Dec. 11, 1855	Design.
13675	Brown, J. S., (assignor to Jas. Kent)	Lamps, lard	Oct. 9, 1855	V.
12943	Brown, Samuel W	Gas-regulators	May 30, 1855	V.
13210	Brown, Samuel W	Gas-regulators	July 10, 1855	V.
13377	Brown, Samuel W	Gas-regulators	Aug. 7, 1855	V.
13564	Brown, Samuel W	Cotton, machinery for cleaning	Sept. 18, 1855	III.
12178	Brown, Stephen	Press, for printing different colors	Jan. 6, 1855	XVIII.
12620	Brown, Thomas	Ships' riding bitts	April 4, 1855	VII.
	Brown, Thomas W. (See Campbell, Leonard.)			
	Brown, Vernon. (See Taggart, John, assignor.)			
12155	Brown, William H	Purchases, suspended	Jan. 5, 1855	XII.
	Brown & Smith, assignors. (See Smith & Brown.)			
	Brown & St. John. (See St. John, M. W., and J. Brown.)			
13159	Bruce, Gardner A	Harvester reels	July 3, 1855	I.
12813	Bruen, John T	Stone and marble saws	May 8, 1855	XV.
12270	Brunner, Henry J	Stone, instrument for cutting out	Jan. 23, 1855	XV.
	Brunner, Henry J. (See Beitel & Brunner.)			
12435	Bryant, Samuel R	Anchor-tripper	Feb. 28, 1855	VII.
13136	Bryan, Bernard O	Ore, machine for cleaning	June 26, 1855	II.
12171	Buffum, Arnold	Ores, machine for crushing and pulverizing	Jan. 12, 1855	II.
13453	Buffum, A. C	Obstetrical extractor	Aug. 21, 1855	XX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13975	Buhler, Jos.	Syringes, injecting, construction of	Dec. 25, 1855	XX.
13974	Buhler, Jos. M. D.	Bath, vapor, pipes of a	Dec. 25, 1855	XX.
	Butt, George. (See Haggard, J., and George Butt, assignors.)			
	Butt, George. (See Haggard, John H.)			
12300	Butt, John M.	Rails, hand, for stairs	Jan. 23, 1855	IX.
13863	Bullard, E. W.	Sashes, window, mode of hanging	Dec. 4, 1855	IX.
	Bullock, D. (See Parkhurst and D. Bullock.)			
	Burch, James. (See Melville, James, and Joseph Burch.)			
	Burgee, Singleton F. (See Gambrill, Horatio N.)			
12179	Burgess, Warren S.	Engines, steam, arrangement in double piston	Jan. 6, 1855	VI.
13565	Burgess, William	Mowing and reaping machines	Sept. 18, 1855	I.
12122	Burley, Thomas H.	Dovetailing machine	Jan. 5, 1855	XIV.
13289	Burnap, John A.	Pumps, &c., double reciprocating, split piston-rod for	July 24, 1855	XI.
13452	Burnet, William	Can-sealing	Aug. 21, 1855	V.
13976	Burnett, B. J.	Cranes	Dec. 25, 1855	XII.
12712	Burnett, M., and Charles Vanderwoerd	Metal, machine for punching	April 18, 1855	II.
12123	Burnett, Marshall, and Charles Vanderwoerd	Harvesters, grain and grass	Jan. 5, 1855	I.
13969	Burnite, Jeremiah, assignor to Burnite & Clark	Wheels, wind, arrangements and combinations of machinery for regulating velocity of.	Dec. 18, 1855	XI.
	Burnham, Charles. (See Wade, W. W., assignor.)			
12342	Burnham, W. C. and J. S.	Pump, force, double-acting	Feb. 6, 1855	XI.
	Bunn & Birdseye. (See Barnum.)			
13416	Burrows, John E.	Zinc, white, making	Aug 14, 1855	IV.
13742	Burt, Henry	Marble, machines for sawing	Nov. 6, 1855	XV.
13938	Bush, T. C.	Saw-set	Dec. 18, 1855	XIV
13378	Busser, Jacob	Railroad signals	Aug. 7, 1855	IX.
	Butler, William H. (See Holmes, Richard G.)			
	Butler & Holmes. (See Holmes & Butler.)			
12504	Butt, Z.	Carts, self-loading	Mar. 14, 1855	X.
13250	Butterfield, C. H.	Lanterns	July 17, 1855	V.
13539	Butterfield, C. H.	Lantern guards	Sept. 12, 1855	V.
14006	Butterfield, C. H., assignor to Amory Houghton	Lanterns, guards for	Dec. 25, 1855	V.
129	Butterfield, J. S.	Gum-sacks	Dec. 11, 1855	Add'l Imp't.
12124	Butterfield, J. S.	Fire-arms, locks for	Jan. 5, 1855	XIX.
	Butters & Marden. (See Marden & Butters.)			
12990	Butts, Lucien A.	Planters, seed	June 5, 1855	I.
13977	Byington, Geo.	Time indicators	Dec. 25, 1855	VIII.
12125	Caffrey, James	Trap for catching animals	Jan. 5, 1855	XXII.
12180	Cahoon, P. S., & S. F. Ross	Turning elliptical cylinders, chuck for	Jan. 6, 1855	XIV.
12227	Camp, Lyman C., assignor to Phelps, Dodge, & Co.	Kettles, machines for forming, from metal disk	Jan. 12, 1855	II.
13520	Camp, Mortimer M.	Chimney stack or cap	Sept. 4, 1855	V.
13313	Campbell, Andrew	Printing presses, machine for feeding paper to	July 24, 1855	XVIII.
12777	Campbell, Charles	Processes for purifying and cleansing wheat	May 1, 1855	IV.
13213	Campbell, Daniel	Saddle-trees	July 10, 1855	XVI.
13864	Campbell, Daniel	Saddles, military	Dec. 4, 1855	XVI.
13455	Campbell, Dugald	Swimming-glove	Aug. 21, 1855	XXII.
13454	Campbell, Edward	Journal-box, glass	Aug. 21, 1855	X.
12894	Campbell, Leonard, assignor to L. Campbell and Thos. W. Brown.	Gins, cotton	May 22, 1855	III.
13212	Campbell, S. N.	Sun shades	July 10, 1855	XXI.
12853	Canfield, Henry E.	Hinges, spring, double-acting	May 15, 1855	II.
13637	Canfield, Henry E.	Valves, cut-off, for oscillating engines	Oct. 9, 1855	VI.
12713	Carhart, Jeremiah	Melodeons	April 18, 1855	XVIII.
12345	Carpenter, Nelson B., and John Powers	Jack, lifting, for moving rail cars	Feb. 6, 1855	XII.
12357	Carpenter, William B.	Chair and crib, combined, for children	Feb. 6, 1855	XVII.
	Carpenter & Banker, assignees. (See Brown, assignor.)			
13834	Carsley, Hiram, assignor to himself and Edmund Brown.	Graters, nutmeg	Nov. 20, 1855	XVII.
313	Carter, Henry, and Jas. Rees	Nut and washer machine	June 19, 1855	Reissue.
	Carter, Henry, assignees. (See Steer, Isaac, assignor.)			
12714	Case, Jarvis	Harvesters, grain and grass	April 18, 1855	I.
12231	Case, Jarvis	Planters, seed	Jan. 17, 1855	I.
12192	Casselman, William I.	Forms, irregular, machine for turning	Jan. 12, 1855	XIV.
13940	Capen, Frederick W.	Paddle-wheels	Dec. 18, 1855	VII.
12984	Capron, Addison, assignor to A. Capron, J. S. Dennis, and H. M. Richards.	Sewing-machines	May 30, 1855	III.
	Capron, Addison. (See Dennis, Jos. S.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12669	Cate, S. M., and E Jordan	Dies and stocks for ornamenting metal tubes, arrangement of.	April 10, 1855	II.
	Chamberlain, Dexter H. (See Hartshorn, John.)			
12814	Chamberlain, Dexter H	Lamps, for burning fluid	May 8, 1855	V.
13123	Chamberlain, Dexter H	Printing, hand-press for	Aug. 14, 1855	XVIII.
13181	Chamberlain Dexter H	Curtain rollers	Aug. 21, 1855	XVII.
12271	Chamberlain, D H , and John Hartshorn	Curtains, rollers for	Jan. 23, 1855	XVII.
12369	Chamberlain, D H., and John Hartshorn	Brush fountain	Jan. 30, 1855	XVII.
309	Chamberlain, D. H., assignor to C. G. Howard, assignor to Chas. Thompson, jr., assignor to Peter Cooper.	Metal-bars, machinery for reducing	May 15, 1855	Reissue.
	Chamberlain, Ramsay, & Hastings. (See Hastings, Jael, *et al.*)			
12498	Chamberlain, Dexter H , assignor to Henry Woodward.	Gas, illuminating, apparatus for purifying	March 7, 1855	IV.
730	Chambers, G. W., assignor to P A. Palmer	Stoves, cooking, ovens for	Sept. 18, 1855	Design.
12993	Champion, Thomas	Boilers, steam, feeding water to	June 5, 1855	VI.
13146	Champion, Thomas	Boilers, steam-furnace	June 26, 1855	VI.
12360	Champion, Thomas	Steam boilers	Feb. 6, 1855	VI.
12899	Chandler, Rufus K	Shirts, wristbands of	May 22, 1855	XXI.
13865	Chandler, T. A	Plough mold boards, making	Dec. 4, 1855	I.
12854	Chaplin, Handel S	Sash, window, fixtures	May 15, 1855	IX.
13901	Chapman, Henry E	Boot and shoe peg-cutters	Dec. 11, 1855	XVI.
12540	Chapman, W. Z. W. and J. W	Curtains, knobs for fastening, and for other like purposes.	Mar. 20, 1855	XVII.
13300	Chase, Frank	Blinds, window	July 24, 1855	IX.
12898	Chase, John, jr	Brick-presses	May 22, 1855	XV.
12478	Chase, Nehemiah B., and Chancey W. Saunders	Cultivators, hand	Mar. 7, 1855	I.
13842	Chase, Pliny E	Steam-heating apparatus	Nov. 27, 1855	V.
	Chase, North, & North, assignees. (See Gibbs, S. W., assignor.)			

12750	Chatfield, Henry, assignor to Henry Chatfield and T. L. Snyder.	Rakes	April 18, 1855	I.
12855	Chester, Charles T	Galvanic batteries, connecting clamps for the plates of.	May 15, 1555	VIII.
13815	Chichester, L. S	Gins, cotton	Nov. 20, 1855	III.
12856	Chilcott, Jno., and James Scrinegeone	Sewing-machines	May 15, 1855	III.
12670	Chilcott, Jno., and Robert Snell	Boot forms	April 10, 1855	XVI.
12401	Childs, A. B., and H. W. Dickinson	Printing-presses, machine for feeding paper to	Feb. 20, 1855	XVIII.
13777	Chipman, William C	Marble-sawing machine	Nov. 13, 1855	XV.
6 13778	Chope, Thomas	Shafts to axles, attaching	Nov. 13, 1855	X.
	Churchill, Henry. (See Hatch, Jesse W., and Churchill.)			
13487	Cisco, John L	Carriages	Aug. 28, 1855	X.
13697	Clapp, Cyrus	Scythe-fastenings	Oct. 23, 1855	I.
12659	Clareni, Charles, assignor to C. Clareni and Geo. P. Field.	Harrows	April 4, 1855	I.
13816	Clark, D. W	Pumps, double-acting	Nov. 20, 1855	XI.
12897	Clark, D. W., and S. H. Gray	Wheels, carriage	May 22, 1855	X.
12376	Clark, Henry	Gins, cotton	Feb. 13, 1855	III.
13642	Clark, John	Ventilation, self-regulating valve for	Sept. 12, 1855	V.
	Clark & Blaikie. (See Blaikie & Clark.)			
	Clark & Burnite. (See Burnite, Jeremiah, assignor.)			
12404	Clarke, George B	Chimney safes	Feb. 20, 1855	V.
13893	Clarke, Major B	Gin, opening and feeding cotton to the machinery for	Dec. 4, 1855	III.
13026	Clarke, Thomas C	Filter	June 13, 1855	XI.
13027	Clarke, Thomas C	Filtro hydrant	June 13, 1855	XI.
13123	Clayton, Henry	Brick and tile machines	June 26, 1855	XV.
12156	Clayton, Sharpless	Teeth	Jan. 5, 1855	XX.
12377	Clement, Edwin B	Churns	Feb. 13, 1855	I.
13424	Cleveland, Charles	Faucets, ventilating	Aug. 14, 1855	XI.
13566	Cleveland, Newell, & James J. Johnston	Smoothing-irons, heaters for	Sept. 18, 1855	XVII.
13215	Clinton, Lyman	Straw-cutters	July 10, 1855	I.
13902	Close, Charles T	Inkstand, fountain	Dec. 11, 1855	XVIII.
13122	Clow, A. and C. N	Corn-shellers	June 26, 1855	I.
12935	Coburn, Francis N , assignor to Ruggles, Nourse, Mason, & Co.	Screw-wrench	May 22, 1855	II.
13784	Cochran, Robert	Millstones, method of hanging	Aug. 7, 1855	XIII.
12358	Cochrane, John	Trucks, locomotive	Feb 6 1855	X.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13540	Cochrane, John	Marble, machines for sawing	Sept. 12, 1855	XV.
13079	Cocke, John H	Car, railroad, seats	June 19, 1855	X.
	Coes, Loring	Screw-wrenches	April 16, 1855	Extension.
12195	Coffin, David N B, jr	Cock, stop	Jan. 12, 1855	XI.
12344	Coffin, David N. B., jr	Daguerreotype-plate holders	Feb. 6, 1855	XVIII.
	Coffin & Brown. (See Brown, A., & A. Coffin, jr.)			
726	Coggershall, Wm. T	Stoves, cooking	Sept. 4, 1855	Design.
13160	Colburn, Sylvester	Harvesters, grain and grass	July 3, 1855	I.
12288	Cole, Isaac J	Crowbar, compound	Jan. 23, 1855	XII.
13866	Cole, John A	Marble, tapering blocks of, machines for sawing out	Dec. 4, 1855	XV.
13252	Cole, Richard H	Nut-machines	July 17, 1855	II.
13340	Colgate, Henry	Starch-making	July 24, 1855	IV.
12895	Colver, Lewis W	Planters, seed	May 29, 1855	I.
12996	Colver, Lewis W	Washing machines	June 5, 1855	XVII.
12258	Conant, Hezekiah	Projectiles, moulds for casting	Jan. 17, 1855	XIX.
12233	Conant, Jonathan S, assignor to A. B. Ely	Sewing-machines	Jan. 17, 1855	III.
	Conant, Wm E. (See Hubbard, Geo. W., and W. E. Conant.)			
13541	Coney, Geo. H	Connecting-rods, &c., method of securing keys in	Sept. 12, 1855	XIII.
729	Conklin, James H., assignor to S. B. Sexton	Stoves	Sept. 12, 1855	Design.
12671	Connally, Thomas C	Votes in legislative bodies, machines for recording	April 10, 1855	XXII.
13383	Conner, James, and Thomas Newby	Drills, machine	Aug. 7, 1855	II.
13301	Connet, Matthew F	Turning cylinders of wood, &c., machine for	July 24, 1855	XIV.
12457	Conover, Jacob A	Wood, machine for splitting	May 15, 1855	XIV.
12738	Converse, William F	India-rubber springs	April 18, 1855	IV.
12272	Comstock, George R	Carriages	Jan. 23, 1855	X.
12273	Comstock, George R	Carriage-seats	Jan. 23, 1855	X.
13337	Comstock, George R	Presses, cheese	July 24, 1855	XII.
12770	Comstock, John, assignor to Peter Naylor	Hammers, forge	April 24, 1855	II.
12994	Coogan, P. J	Sewers, arrangement of drains for	June 5, 1855	IX.
13676	Cook, James M	Cars, railroad, dust deflector for windows of	Oct. 16, 1855	X.
13780	Cook, Ransom	Boring-implements, making	Nov. 13, 1855	II.
12583	Cook, Ransom	Augers, machine for turning the lips of	Mar. 28, 1855	XIV.
13081	Cook, Richard F	Fish-hook	June 19, 1855	XXII.
13080	Coon, S Park	Cars, railroad, apparatus for replacing upon the track	June 19, 1855	X.
	Cooper, Peter. (See Chamberlain, D. H., assignor.)			
13939	Cooper, W. E	Locomotives, exhaust-pipes of, nozzle for	Dec. 18, 1855	VI.
	Copeland, C. W	Engine, arranging the low pressure or condensing steam, so as to adapt its parts to be used by vessels for ocean service.		Disclaimer.
	Copeland, C. W	Engine, arranging the low pressure or condensing steam, so as to adapt its parts to be used by vessels for ocean service.		Extension.
12293	Copeland, George	Looms	Jan. 23, 1855	III.
13630	Copperthwaite, C. J	Sewing-machines	Oct. 9, 1855	III.
12436	Corbett, Henry V	Vessels, sunken, mode of raising	Feb. 28, 1855	VII.
13779	Corbett, V. P	Cars, railroad, devices for partially excluding dust from.	Nov. 13, 1855	X.
12359	Corbett, V. P	Ships and other vessels, constructing	Feb. 6, 1855	VII.
12541	Corbett, V. P	Ventilation, self, method of, for railroad cars	Mar. 20, 1855	V.
13843	Corbett, Thomas H	Belt-couplings	Nov. 27, 1855	XIII.
12672	Corey, Jason W	Planters, seed	April 10, 1855	I.
12757	Corey, Jason W	Washing-machines, spring connecting-rods for	April 24, 1855	XVII.
	Cosley, Thomas J. (See Mebitt, Jonathan, jr., and T. J. Cosley.)			
12575	Cotton, Charles W	Augers, attaching to handles	Mar. 20, 1855	XIV.
	Covell, W., and A. Bennett. (See Turner, Joshua, jr., assignor.)			
12776	Cowdry, Chauncey, Orrin Tolls, and Chauncey C. Tolls.)	Boring and tenoning machine, wheelwrights'	May 1, 1855	XIV.
12542	Cowing, John P	Pumps, device for air-chamber of	Mar. 20, 1855	XI.
12157	Cowles, Millard	Stereotyping, apparatus for	Jan. 5, 1855	XVIII.
	Cowles & Smith. (See Smith, S. R., and E. Cowles.)			
13479	Cram, John, assignor to John and John S. Cram	Chairs, folding	Aug. 21, 1855	XVII.
12196	Crane, Aaron D	Pendulums, torsion, for time-pieces	Jan. 12, 1855	VIII.
	Crane, J. E. (See Johnson, J.)			
688	Crane, M. H., assignor to Crane, Breed & Co.	Coffins, metallic	Jan. 23, 1855	Design.
301	Crane, Martin H., assignor to Crane, Breed & Co.	Coffins, metallic	Mar. 14, 1855	Reissue.
734	Crane, Martin H., assignor to Crane, Breed & Co.	Burial-cases	Oct. 9, 1855	Deal

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12560	Crane, Ozra A., and Henry J. Lewis (assignors to Ozra A. Crane.)	Scrapers for removing dirt from boots and shoes	April 4, 1855	XVII.
13979	Crane, Thomas	Pumps, rotary	Dec. 25, 1855	XI.
13639	Creemer, John B	Coal-sifter	Oct. 23, 1855	V.
	Cresson, Stewart & Peterson. (See Beesley, J., and E. J. Delany, assignors.)			
12815	Crichton, Robert	Bolts, machine for making	May 8, 1855	II.
13714	Crocker, Wm. R	Corks, machine for manufacturing	Oct. 30, 1855	XIV.
13121	Croke, Martin	Doors, weather strips for	June 26, 1855	IX
13214	Cronk, James E	Pump-barrel, device to allow escape of waste water from.	July 10, 1855	XI.
13482	Crooke, Jno. J	Window-shades	Aug. 21, 1855	XVII.
	Crosby, Joseph B., *et al.* (See Stevens, E. M., *et al.*)			
	Crosby, Pearson	Mill-saw, for resawing boards and other timber	Nov. 2, 1855	Extension.
	Croxon, H. T. (See Tubbs, E. A., assignor)			
12543	Crozier, Archibald H	Barrel-heads, cutting	Mar. 20, 1855	XIV.
12479	Crum, Charles	Bread, processes for making	Mar. 7, 1855	XVII.
13698	Cumberland, Wm. W	Hat-bodies, felting	Oct. 23, 1855	III.
13385	Cumings, Dewelt C	Straw-cutters	Aug. 7, 1855	I
12535	Cunningham, Chas. (assignor to John C. Pedrick).	Benzole vapor apparatus	Mar. 14, 1855	IV.
13978	Currey, Robert L	Brake, steam, double-acting	Dec 25, 1855	X.
12544	Curtis, Charles G	Pump	Mar. 20, 1855	XI.
13781	Curtis, E. D	Seeding-machines	Nov. 13, 1855	I.
13198	Curtis, J., and S. Hoard	Metre, water	July 3, 1855	XI.
14896	Cushman, Robert	Knitting machines, stop motion of	May 22, 1855	III.
13456	Dale, John D	Wrench	Aug. 21, 1855	II.
12995	Dana, Chas. H	Planters, seed	June 5, 1855	I.
	Dandridge & Swyney, assignees. (See Jno. Swyney, assignor.)			
13980	Danforth, Thomas	Window-shades	Dec. 25, 1855	IX.
12914	Daniels, E	Bedsteads, invalid	May 30, 1855	XVII.
12378	Daniels, George	Grain, threshers and cleaners of	Feb. 13, 1855	I.

13024	Darker, Wm., jr. (assignor to J. B. Thompson)	Spinning-ring frame	June 5, 1855	III.
12558	Darling, Levi B	Process for refining jewellers' scraps	Mar. 28, 1855	IV.
13639	Davenport, Charles	Steam, heating buildings by, apparatus for	Oct. 9, 1855	V.
	Davenport, Charles, and Albert Bridges	Railroad carriages, the manner of constructing, so as to ease the lateral motion of the bodies thereof.	May 2 1855	Extension.
13772	Davies, John W	Chimney-cap	Nov. 6, 1855	V.
12545	Davis, Abbott R	Cartridge, shot	Mar. 20, 1855	XIX.
12787	Davis, George E	Plane-stock, bench	May 1, 1855	XIV.
	Davis, George N., assignee. (See Hicks, L. E., assignor)			
13961	Davis, Isaac	Hair-whipping, machinery for	Dec. 25, 1855	III.
13335	Davis, Merwin	Printing-press	July 24, 1855	XVIII.
13489	Davis, R. W. & D	Vise	Aug. 28, 1855	II.
12816	Daugherty, Thomas	Boot-crimps	May 8, 1855	XVI.
13088	Day, Charles M	Saw-mills, &c, feed-motion for	June 13, 1855	XIV.
13782	Day, Joseph C	Bottle-fastenings, ring and gudgeons for	Nov. 13, 1855	XXII.
13941	Day, Joseph C	Fire-arms	Dec. 18, 1855	XIX.
13701	Day, Samuel S	Daguerreotype, plate vise	Oct. 23, 1855	XVIII.
12190	De Berque, Charles	Propeller	Jan. 12, 1855	VII.
12158	Dederick, Levi	Yokes, ox	Jan. 9, 1855	I.
12346	Deering, Richard, sr.	Water-wheels, current	Feb. 6, 1855	XI.
12998	Degges, W. H	Brick-machines	June 5, 1855	XV.
12997	Degges, W. H	Brick-machines, soak-pits of	June 5, 1855	XV.
13302	Degener, F. O	Paging-machine	July 24, 1855	XVIII.
12622	De Guinon, Richard V	Anchors	April 4, 1855	VII.
12621	Debart, Levi M	Paddle-wheel, adjustable	April 4, 1855	VII.
12546	Delano, Howard	Furnaces, feeding fuel to	Mar. 20, 1855	V.
	Delany, Edward J. (See Beesley, Jacob)			
	Delaware Air Spring Manufacturing Company. (See Heyward, Jas. F., assignor.)			
13477	Demain, W. C., assignor to A. B. Ely	Books, &c., machine for paging	Aug. 21, 1855	XVIII.
12480	Demolon, René, Charles, and George, Alexander Charles Thurneysson.	Manure soil, treating fish for	Mar. 7, 1855	I.
13514	Demarest, John, assignor to the J. L. Mott Iron Works.	Flasks for moulding bath-tubs	Aug. 28, 1855	II.
	Dennis, Capron and Richards. (See Capron, Addison, assignor.)			
13409	Dennis, Jas. S., and Addison Capron, assignors to themselves and Henry M. Richards.	Hooks and eyes to cards, machine for attaching	Aug. 7, 1855	XXII.

Alphabetical List of Patentee—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13844	Dennis, H. H	Fences	Nov. 27, 1855	IX.
	Dennison & Bradley. (See Porter & Bradley, assignors.)			
13567	Densmore, Joel	Boilers, steam feed-water apparatus of	Sept. 18, 1855	VI.
12403	Denzler, Frederick	Locks, bank	Feb. 20, 1855	II.
13084	De Saxe, Charles, assignor to Thomas H. Bate	Fish, serpentine spinner to catch	June 13, 1855	XXI.
13216	Deshon, Daniel, 2d	Spark arresters	July 10, 1855	VI
12380	Dexter, Henry F	Boats, wharf	Feb. 13, 1855	VII
	Dey, J. W. S (See Vanzile, Griffin and Dey.)			
13559	De Yampert, Thos. J	Pump, force double-acting	Sept. 12, 1855	XI.
12379	Dick, John	Dress, stays for articles of	Feb. 13, 1855	XXI.
12481	Dickey, Julius C	Harness saddle-trees	Mar. 7, 1855	XVI.
13161	Dickey, Julius C	Mill-step	July 3, 1855	XIII.
13700	Dickey, Julius C	Gas-regulators	Oct. 23, 1855	V.
12458	Dickinson, Henry W	Sewing machines, cording guide for	May 15, 1855	III.
13737	Dickinson, Henry W., assignor to L. B. Swan	Printing-presses, machine for feeding paper to	Oct. 30, 1855	XVIII.
	Dickinson & Childs. (See Childs, A. B., and H. W. Dickinson.)			
13298	Dickinson, J., and O. White	Wind-mill, self-regulating	July 19, 1855	XI.
12584	Dietz, A., and J. G. Dunham	Harvesters, grain and grass	Mar. 28, 1855	I.
12999	Dietz, Andrew, and Jno. C. Dunham	Reaping and mowing machines	June 5, 1855	I.
13217	Dill, Rufus M	Looms	July 10, 1855	III.
308	Dillaway, Hiram	Glass, construction of moulds for pressing	May 1, 1855	Reissue.
13488	Dimpfel, Frederick P	Boilers, steam method of facilitating the removal of incrustation from.	Aug. 28, 1855	VI.
13867	Dinsmoor, O. R., and L. J. Bartlett	Shoe-soles, &c., instrument for chamfering the edges of.	Dec. 4, 1855	XVI.
12859	Dixon, George	Lubricator, velocitrot	May 15, 1855	XII.
	Dixon & Andrews. (See Andrews, Jas., assignor.)			
329	Dodge, L. P., and Wm. F	Pumps	Sept. 25, 1855	Reissue.
	Dodge, Phelps, & Co. (See Camp, Lyman C., assignor.)			
12310	Doe, Alfred	Ploughs	Jan. 30, 1855	I.
13693	Doolittle, John H., assignor to American Hosiery Company.	Knitting-machines	Oct. 16, 1855	III.
12159	Doris, St. John O	Fuel, composition for	Jan. 5, 1855	V.
13748	Doyle, Thomas	Engines, two-beam, with parallel shafts, arrangement of.	Nov. 6, 1855	VI.
12715	Drake, Alfred	Engines, explosive gas	April 18, 1855	VI.
12900	Drawbaugh, Daniel	Stave machine	May 22, 1855	XIV.
12716	Dresser, Nathan	Lubricating compound	April 18, 1855	IV.
13835	Drew, Francis, assignor to F. Drew and S. S. Gray	Jacks, lifting	Nov. 20, 1855	XII
13942	Drigge, S. B	Piano-fortes	Dec. 18, 1855	XVIII.
13336	Dubocc, Augustin	Propellers	July 24, 1855	VII.
12904	Du Bois, M. D	Valve-gear for oscillating engines	May 22, 1855	VI.
13089	Dulany, George L	Mill-bushes	June 13, 1855	XIII.
13115	Dulany, George L., assignor to Reuben Allen	Mill-dress	June 19, 1855	XIII.
13636	Dungan, John G	Churns	Oct. 9, 1855	I.
	Dunham, E. G. (See Jackman, E., and E. G. Dunham.)			
	Dunham, J. G. (See Dietz, A.)			
13962	Dunham, Soranus	Saws, method of hanging	Dec. 25, 1855	XIV.
13326	Dunlap, Daniel	Forms, irregular, cutter-heads for	Aug. 7, 1855	XIV.
13124	Dunzack, Daniel N	Sashes, window, mode of hanging	June 26, 1855	IX.
13563	Durden, Thomas	Felling trees, machine for	Sept. 18, 1855	XIV.
12902	Durgin, Charles A	Sewing-machines	May 22, 1855	III.
12846	Duryea, Hendrick V., assignor to Oswego River Starch Company.	Starch, apparatus for manufacturing	May 8, 1855	IV.
12674	Duryea, Wright	Card-exhibitor	April 10, 1855	XXII.
12903	Duryea, Wright	Umbrellas	May 22, 1855	XXI.
13425	Dutcher, J. J	Boilers, steam	Aug. 14, 1855	VI.
12673	Dutcher, Josiah J	Boilers, locomotive	April 10, 1855	VI.
13162	Dwyer, Robert D	Lightning-rods, attachments for	July 3, 1855	VIII.
12901	Dyott, M. B	Furnace, warm-air	May 22, 1855	V.
12239	Dyott, Michael B	Lamp-shades	Jan. 17, 1855	V.
12505	Eakin, C. M	Railroad rails, excluding dirt from	Mar. 14, 1855	IX.
13125	Eakins, Samuel	Pitcher, ice	June 26, 1855	XVII.
12675	Eames, Benjamin R	Door fasteners, portable	April 10, 1855	II.
12382	Easterly, James	Stove, magazine smoke-consuming	Feb 13, 1855	V.
13544	Eastham, Robert S	Saw-mill carriages	Sept. 12, 1855	XIV.
13253	Eastman, Benjamin	Bedsteads, invalid	July 17, 1855	XVII.
13738	Eaton, D. E., assignor to D. E. and P. O. Eaton	Burglars' alarm	Oct. 30, 1855	XXII.

Alphabetical List of Patentees—Continued.

No.	Names of patentees.	Invention or discovery.	Date.	Class.
12311	Eaton, James	Dies for cap-tube machines	Jan. 30, 1855	II.
	Ely & Goshen. (See Goshen, James G., and Samuel M. Ely.)			
12274	Eccles, James	Looms	Jan. 23, 1855	III.
13903	Echols Josephus	Boilers, steam, water-gauges for	Dec. 11, 1855	VI.
	Eddy, Grow. (See Mann, Russell, assignor.)			
12658	Edgcomb, George W	Washing-machines	April 4, 1855	XVII.
	Edson, Henry L. (See Wynkoop, Francis G., assignor.)			
13254	Edson, Jacob	Pump, valves of, method of operating	July 17, 1855	XI.
	Edwards, Abraham. (See Gatiss, Jno. H., assignor.)			
13749	Egan, Michael	Lubricators, automatic, for railroad-car axles	Nov. 6, 1855	XII.
691	Eichmeyer, Henry A.	Daguerreotype-cases		Design.
13349	Elder, John A., and John Richardson	Paper, machine for ruling and paging	July 31, 1855	XVIII.
13350	Elder, John A., and Ephraim Wood	Warps, machinery for sizing and dressing	July 31, 1855	III.
13868	Elder, John A., and Wm. J. Thorn	Cooking apparatus, flues and dampers of, arrangement of	Dec. 4, 1855	V.
13244	Elgar, John	Wind-mill, self-regulating	July 10, 1855	XI.
13457	Eling, Henry	Cocks, stop, basin	Aug. 21, 1855	IX.
13643	Elliot, Jas D	Cloth, folding and measuring, machinery for	Sept. 12, 1855	III.
13291	Elliot, W. H	Cans, preserve, devices for sealing	July 17, 1855	XVII.
13303	Elliot, W. H	Hydro-pneumatic, machine for exhausting and sealing vessels.	July 24, 1855	XI.
	Elliot, W. H. (See Kirk, Joseph S.)			
12586	Elliot, William H	Governors, combination of speed and resistance	Mar. 28, 1855	IX.
13640	Elliott, Stephen	Corn-shellers	Oct. 9, 1855	I.
12676	Ellis, Selathiel	Walls, concrete, framing for building	April 10, 1855	IX.
	Ellithorp, S. B. (See Stevens, L., and S. B. Ellithorp.)			
12717	Ellithorp, Solomon B	Gas-generator, putting a, in a parlor stove	April 18, 1855	V.
13255	Ells, Edwin	Metal tubes, machines for forming	July 17, 1855	II.
	Ely, A. B. (See J. Conant, assignor.)			
	Ely, A. B. (See Demain, W. C., assignor.)			
12197	Emery, William B	Saws, circular, arranging and driving	Jan. 12, 1855	XIV.
12437	Emery, William B	Boring machines, adjusting cylinders in	Feb. 28, 1855	XIV.
12438	Emery, William B	Planing machines, method of adjusting stuff in	Feb. 28, 1855	XIV.
13506	Emerson, James	Ship's windlass	Aug. 28, 1855	VII.
13593	Emerson, James	Cables, chain, pressure-stoppers for	Sept. 25, 1855	VII.
12718	Emerson, James	Ships' windlasses	April 18, 1855	VII.
12383	Emmons, Phineas	Cracker-machines	Feb. 13, 1855	XVII.
13301	Emmons, Phineas	Hat-bodies, machines for sizing	July 24, 1855	III.
13869	England, Joseph T	Car, railroad, coupling	Dec. 4, 1855	X.
	England, Lewis C. (See Keeler, Rufus, assignor.)			
13348	Ericsson, John	Engines, air	July 31, 1855	VI.
12381	Esterly, George	Ploughs	Feb. 13, 1855	I.
13000	Estlack, Thos	Washboards to walls, mode of securing	June 5, 1855	IX.
14007	Evans, Charles, assignor to C. Evans and G. K. Goodwin.	Grates, revolving	Dec. 25, 1855	V.
12384	Evans, Hampton W	Levels, spirit	Feb. 13, 1855	VIII.
13082	Evans, L. G	Ploughs	June 19, 1855	I.
	Everdell, Wm. jr. (See Ewbank, Jas. S., assignor.)			
12198	Everitt, Charles G	Wrenches, ratchet	Jan. 12, 1855	II.
12338	Ewbank, Jas. S., assignor to Wm. Everdell, jr.	Spurs	Jan. 30, 1855	XXII.
12860	Fahrney, Ezra	Hominy machine	May 15, 1855	XVII.
13870	Fairbairn, Peter, and John Hargrave	Wool-combing machines	Dec. 4, 1855	III.
	Fairbanks, C. & T., & Co. (See Sanborn, Augustus, assignor.)			
12385	Fairchild, Asahel	Boiler, steam, chimneys	Feb. 13, 1855	VI.
13521	Farmer, Aaron D., and Ransom Rathbone	Electrotype shells, mould for backing	Sept. 4, 1855	XVIII.
12199	Farnam, Gilbert B	Pump, forcing	Jan. 12, 1855	XI.
	Farnam, G. B., and O. Snow. (See Borden, John S.)			
318	Fay, C. J	Presses, cotton	July 17, 1855	Reissue.
13702	Fay, Samuel	Carpets, finishing	Oct. 23, 1855	III.
12200	Felt, Charles W	Lights, entry	Jan. 12, 1855	V.
12181	Felton, Amory	Mills, grinding	Jan. 6, 1855	XIII.
	Feuchtwanger, Lewis. (See Beer, Sigismund, assignor.)			
13083	Fennell, James P	Coal-screen	June 19, 1855	V.
13387	Fenwick, R. W., and R. Boeklin	Planters, corn	Aug. 7, 1855	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Ferguson, Alexander. (See Stott & Ferguson.)			
12587	Ferriss, Lemuel W.	Chairs	Mar. 28, 1855	XVII.
13084	Fetter, G., and J. L. Pennock	Shovel-handles, machine for cutting the inside hold of	June 19, 1855	XIV.
13163	Field, Edmund	Locking-latches, for doors	July 3, 1855	II.
13351	Field, Frederick	Sawing cross-cut, machine	July 31, 1855	XIV.
	Field, George P. (See Clareni, Charles.)			
13458	Fields, Wm., and Solomon Gerhard	Water-wheel pressure	Aug. 21, 1855	XI.
	Filley, G F. (See Vedder, N. S., and E. Ripley, assignors.)			
	Filley, G. F. (See Vedder, N. S., assignor.)			
	Fincher, J. C. (See Gray, A. F., and J. C. Fincher.)			
13836	Finger, Louis, assignor to L. Finger and L. Schell)	Faucet, filtering	Nov. 20, 1855	XI.
	Fink, John. (See Fox, D. H.)			
13717	Fink, Julius	Ranges, cooking, and air-heaters	Oct. 30, 1855	V.
13164	Finley, George	Sand, machines for washing	July 3, 1855	XV.
12719	Finzel, Conrad W.	Sugar, processes for melting	April 18, 1855	IV.
12788	Firth, Thomas	Journal boxes, alloys for	May 1, 1855	X.
13001	Fischer, William	Music, method of composing	June 5, 1855	XVIII.
12384	Fiske, L. W.	Compositions for bleaching and stuffing leather	Feb. 6, 1855	IV.
12389	Fiske, L. W.	Tanneries, working liming vats in	Feb. 6, 1855	IV.
13715	Fisher, Luther B.	Saw-mill dogs, device for gauging and setting	Oct. 30, 1855	XIV.
13718	Fisher, Luther B.	Straw cutters	Oct. 30, 1855	I.
13784	Fisher, Luther B.	Marble-sawing machine	Nov. 13, 1855	XV.
	Fitts, R. B., *et al.* (See Messer, Daniel W., assignor.)			
13030	Fitzgerald, Elisha	Vessels, sunken, buoys for raising	June 13, 1855	VII.
319	Fitzgerald, Jesse, assignor to J. Pierce, assignor to D. A. Fitzgerald.	Treenails, machinery for dressing	July 17, 1855	Reissue.
12974	Fitzpatrick, Francis	Straw-cutters	May 30, 1855	I.
12126	Flanders, Thomas J	Saws, circular, construction and mode of driving	Jan. 5, 1855	XIV.
12789	Fleming, James	Piles, machine for sawing off, under water	May 1, 1855	IX.

13031	Fletcher, Calvin	Furnaces, supplying, with hot air	June 13, 1855	V.
13126	Fletcher, M. R.	Tidal alarm apparatus	June 26, 1855	XI.
	Fogg & Somerby. (See Somerby, G. A., & Charles W. Fogg.)			
12751	Foglesong, William G., assignor to Foglesong & Anderson.	Carriages, folding tops for	April 18, 1855	X.
13166	Folsom, Charles	Book-clasps	July 3, 1855	XVIII.
12720	Fondé, Charles H.	Dredging-machines	April 18, 1855	IX.
12147	Foote, Edward H.	Slides and ways, protecting from dust	Jan. 5, 1855	XII.
12402	Forbush, Edwin A.	Sewing machines	Feb. 20, 1855	III.
12721	Forbush, Ethakim B.	Harvesters, grain and grass	April 18, 1855	I.
13032	Ford, William S.	Sashes, window	June 13, 1855	IX.
	Fordan & Hoffman. (See Hoffman, Frederick W., and Charles W. G. Fordan.)			
13871	Forncrook, H.	Feet-warmers	Dec. 6, 1855	V.
13716	Forrester, J. N.	Saws, mulley, method of hanging	Oct. 30, 1855	XIV.
12964	Foster, A., and E. A. Messinger, adm'x, and Wm. A Spencer, adm'r of John A. Messinger, deceased, assignors to A. Foster.	Block building	Jan. 17, 1855	XV.
	Foster, D. P., and James Sargent. (See Tolman, C. C., assignor.)			
12506	Foster, Elmer	Vessels, sailing, hoop-jacks for	Mar. 14, 1855	VII.
12722	Foster, Walter K.	Pencil-sharpeners, moulds for casting	April 18, 1855	XVIII.
12723	Fowler, De Grasse, and George	Metal, machines for punching	April 18, 1855	II.
12312	Fowler, George	Pumps, force, double-acting	Jan. 30, 1855	XI.
720	Fowler, Minard H, and Enoch Jacobs	Railings, iron	Aug. 21, 1855	Design.
13765	Fowler, T.	Pins, separating	Nov. 13, 1855	II.
13165	Fowler, Thomas	Knitting-machines	July 3, 1855	III.
12817	Fowler, William	Faucet	May 8, 1855	XI.
13763	Fouser, Jno.	Jacks, supporting	Nov. 13, 1855	XII.
12818	Fox, D H., and John Fink	Ventilators, railroad-car	May 8, 1855	V.
	Fox, Jacob. (See Gartley, J. C., and Jacob Fox.)			
13817	Fraissinet, E. P., and H. E. Reboul	Holders, ticket	Nov. 20, 1855	XXII.
	Franklin, Mills. (See Pepper, John, assignor.)			
13872	Francis, Joseph	Wagons, military	Dec. 4, 1855	X.
13247	Frantz, Benjamin, assignor to John Phillips	Windmill, self-regulating	July 10, 1855	XI.
13256	Fraser, John, assignor to Logan, Vail, & Co.	Vises, adjustable	July 17, 1855	II.
13750	French, A.	Knitting-machines	Nov. 6, 1855	III.
13085	French, Arasmus	Hinges, &c., springs for	June 19, 1855	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13092	French, Franklin J	Boot jack	June 5, 1855	XXI.
12275	Frost, Henry A	Window blinds, means for holding	Jan. 23, 1855	II.
12588	Frost, Henry A	Table-leaves, mode of supporting	Mar. 28, 1855	XVII.
302	Frost, J., and James Monroe	Flour, machine for separating from bran	Mar. 14, 1855	Reissue.
12623	Frost, Samuel W	Coal-holes, safety-port for	April 4, 1855	IX.
13395	Fulghum, Benjamin	Sawing-machine	July 24, 1855	XIV.
13677	Fuller, Albert	Faucet	Oct. 16, 1855	XI.
13086	Funston, A. C	Scaffold	June 19, 1855	IX.
738	Fulton, Calvin, assignor t McClure, Bedell, & Barry	Stove-plates	Oct. 30, 1855	Design.
13167	Fultz, H. H	Horse-power	July 3, 1855	XIII.
13426	Fultz, H. H	Presses, cotton	Aug. 14, 1855	XII.
13641	Fultz, H. H	Gins, cotton	Oct. 9, 1855	III.
12386	Fuzzard, William	Hat-bodies, machinery for felting	Feb. 13, 1855	III.
314	Fuzzard, William	Hat-bodies, machine for felting	July 10, 1855	Reissue.
	Gallaher, John S., jr. (See Smith, John W.)			
13904	Gallaher, John S., jr., and John W. Smith	Gas apparatus	Dec. 11, 1855	V.
12724	Gallup, Isaac	Music book, apparatus for turning the leaves of	April 18, 1855	XVIII.
13389	Gamewell, John N	Telegraph wires, apparatus for discharging atmospheric electricity from.	Aug. 7, 1855	VIII.
12469	Gambrill, Horatio N., and Singleton F. Burges	Carding machines	Feb. 28, 1855	III.
13258	Gamble, J. K. and W. P	Bridges, draw, railroad	July 17, 1855	IX.
12589	Ganse, Hervey D	Cultivators	Mar. 28, 1855	I.
13305	Gardiner, P G	Springs, railroad car	Dec. 11, 1855	X.
13645	Gardiner, Samuel, jr	Amalgamator	Oct. 9, 1855	II.
752	Gardner, Joseph W., assignor to Lamson, Goodnow, & Co.	Knives and forks	Dec. 25, 1855	Design.
696	Gardner, Joseph W	Forks, table	Mar. 20, 1855	Design.
12613	Gardner, Smith, assignor to American White Zinc Company, assignor to Charles T. Pearson, assignor to Edward Kellogg.	Zinc, white, manufacture of	Mar. 28, 1855	IV.
	Gardner, William H. (See Pearson, Samuel, jr., & Gardner.)			
	Gardner, William H (See Pearson, Samuel, jr., and W. H. Gardner.)			
12238	Garratt, Alfred C	Axles, plugs, for lubricating	Jan. 17, 1855	X.
13127	Garratt, Joseph, sr	Journal-boxes, alloys for	Aug. 14, 1855	X.
13643	Garrette, Elwood	Pumps, vibrating	Oct. 9, 1855	XI.
	Garrison, Wm. F. (See Guild, Wm. H.)			
320	Garsed, Richard	Loom for weaving figured fabrics	July 24, 1855	Reissue.
13260	Gartley, J C., and Jacob Fox	Fan-blower	July 17, 1855	V.
12677	Garvin, H. C., and J. H. King	Boring hubs, tool for	May 1, 1855	XIV.
12547	Gaston, Alexander, and Joseph Smith	Rakes and elevators	Mar. 20, 1855	I.
13895	Gatiss, John H., assignor to Abraham Edwards	Water-wheels	Dec. 4, 1855	XI.
13426	Gay, Benjamin W	Vehicle, extension	Aug. 14, 1855	X.
13492	Gedney, G. W. B	Wood-splitting machine, rotary	Aug. 28, 1855	XIV.
13572	Gedney, G. W. B	Brick-machine	Sept. 18, 1855	XV.
13057	Gee, William V	Soda-water generator	June 13, 1855	IV.
13571	Gee, William V	Looms for weaving suspender webbing	Sept. 18, 1855	III.
12457	Gee, W. V., assignor to the Atwater and Bristol Manufacturing Company.	Looms	Feb. 28, 1855	III.
12347	Geisendorff, Geo. W. and Jacob C	Axle-box rollers	Feb. 6, 1855	X.
13644	Geiser, Peter	Grain-separators	Oct. 9, 1855	I
13945	George, A. M	Spike-machines	Dec. 18, 1855	II.
	George, A. M. (See Nichols, Oldin, and A M. George.)			
12439	George, Ammi M	Chain-links, machines for making	Feb. 28, 1855	II.
13642	George, Daniel	Organ-pipes, wind regulator for	Oct. 9, 1855	III.
	George, William S	Shingles, machines for riving and dressing	May 21, 1855	Extension.
	Gerhard, S. (See Fields, Wm., and Solomon Gerhard)			
12612	Gesner, Abraham, assignor to "The Asphalte Mining and Kerocene Gas Company," assignors to A. Gesner, assignor to "North American Kerocene Gas-light Company."	Processes for making kerocene	Mar. 28, 1855	IV.
12936	Gesner, Abraham, assignor to "The Asphalte Mining and Kerocene Gas Company," assignors to A. Gesner, assignor to "North American Kerocene Gas-light Company."	Burning fluids	May 22, 1855	V.
12987	Gesner, Abraham, assignor to "The Asphalte Mining and Kerocene Gas-light Company," assignors to A. Gesner, assignor to "North American Kerocene Gas-light Company."	Burning-fluid compound	May 30, 1855	V.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13129	Gesner, W. N.	Windlasses	Aug. 14, 1855	XII.
12188	Gibbons, Dwight, assignor to Frederick Starr	Piano frames, brace for	Jan. 5, 1855	XVIII.
13261	Gibbs, L. H.	Auger or bit, expanding	July 17, 1855	XIV.
692	Gibbs, S. W., assignor to North, Chase, & North	Stoves	Feb. 20, 1855	Design.
693	Gibbs, S. W., assignor to North. Chase, & North.	Stoves, cooking	Feb. 20, 1855	Design.
713	Gibbs, Saml. W., assignor to Skinner & Brothers.	Stove-plates	June 26, 1855	Design.
718	Gibbs, Saml. W., assignor to A. H. McArthur & Co.	Stove-plates, ornamenting	Aug. 14, 1855	Design.
13491	Gilbert, Asahel, jr.	Sash-fasteners	Aug. 28, 1855	II.
13493	Gill, John L.	Ploughs	Aug. 28, 1855	I.
12590	Gilman, L. D.	Screw-wrenches	Mar. 28, 1855	II.
125	Gilman, Lorenzo D.	Screw wrenches	July 17, 1855	Addit'nal improvement.
13873	Gilman, Samuel H.	Furnaces, Bagasse	Dec. 4, 1855	V.
727	Gleason, Edward	Casters, table	Sept. 12, 1855	Design.
12482	Gleason, F. A.	Mitre and other joints, machine for cutting	Mar. 7, 1855	XIV.
13629	Glines, H. M., assignor to John M. and S. F. Stanton.)	Seine-needles, machinery for filling	Oct. 2, 1855	III.
13058	Glover, Augustus M.	Paddle-wheels, buckets of	June 13, 1855	VII.
13199	Glover, Augustus M.	Presses, cotton	July 3, 1855	XII.
12361	Glynn, Henry	Paper-pulp, manufacture of	Feb. 6, 1855	IV.
13306	Goddard, Kingston	Bridle-reins	July 24, 1855	XVI.
	Goddard & Ogden, assignees. (See Ogden, assignor.)			
13615	Goetz, Bernard	Reflectors, corrugated	Oct. 2, 1855	VIII.
12945	Goodale, E. W.	Paper bags, machine for making	May 30, 1855	XVIII.
13647	Goodale, E. W.	Envelopes, &c., machine for making	Oct. 9, 1855	XVIII.
	Goodnow, Lamson & Co. (See Gardner, Jos. W., assignor.)			
13646	Goodrum, Thomas	Engines, boring, portable	Oct. 9, 1855	VI.
12624	Goodrum, Thomas	Valves for steam-engines	April 4, 1855	VI.
12127	Gore, Ezekiel	Churns	Jan. 5, 1855	I.
699	Gorham, John	Spoons	April 10, 1855	Design.
12625	Gorsuch, Robert B.	Pumps, steam, direct acting hydraulic	April 4, 1855	XI.

13088	Gorton, Stephen, and Francis Morris	Stump-machine	June 19, 1855	IX.
	Gorton, *et al.* (See Morris, *et al.*)			
12417	Goshen, Jos. G., and Saml. M. Eby	Tobacco, maize leaf substitute for	Feb. 20, 1855	XXII.
13983	Gosin, Henry F. and Louis	Boiler, steam, furnaces	Dec. 25, 1855	VI.
13594	Gould, Ezra	Mortising machines, method of regulating length of stroke in.	Sept. 25, 1855	XIV.
13943	Gourlay, Jno	Augers, adjustable, crank-brace for	Dec. 18, 1855	XIV.
13257	Gourley, Wm	Harrows	July 17, 1855	I.
13906	Graessle, G.	Roofing-tile	Dec. 11, 1855	IX.
13059	Graessle, Gottleib	Tile machines	July 7, 1855	IX.
13388	Graham, Alden	Wrench	Aug. 7, 1855	II.
13430	Graham, E. B.	Trusses, hernial	Aug. 14, 1855	XX.
12135	Graham, Edmund H	Fire-arms	Jan. 17, 1855	XIX.
13569	Granger, R. D.	Mills, corn and cob	Sept. 18, 1855	XIII.
13390	Gray, A. F., and J. C. Fincher	Saws, hand gauge attachment for	Aug. 7, 1855	XIV.
12362	Gray, James A.	Piano-fortes, sounding-board for	Feb. 6, 1855	XVIII.
13087	Gray, Robert R	Collars, horse, expanding-block for	June 19, 1855	XVI.
13536	Gray, Solomon S., assignor to S. S. Gray and S. A. Woods.	Planing machines, universal dog for	Sept. 4, 1855	XIV.
	Gray, S. H. (See Clark, D. W.)			
13459	Gray, S. H	Pumps	Aug. 21, 1855	XI.
	Gray, S. S. (See Drew, Francis, assignor to Drew & Gray.)			
	Grannis & Howe. (See Howe & Grannis.)			
13944	Green, H. C	Saw-mills, automatic feed-motion for	Dec. 18, 1855	XIV.
	Green, J., and Wm. P. Walter. (See Walter & Green.)			
13490	Green, Oliver C.	Rakes, harvester	Aug. 28, 1855	I.
	Green, Samuel. (See Ames, Nathan, assignor.)			
12507	Greene, Noble T	Valves, cut-off, for steam-engines	Mar. 14, 1855	VI.
	Greene, Mauran, & Jackson. (See Hopkins, Saml. H., assignor.)			
12277	Greenebaum, Michael	Furnace, hot-air	Jan. 23, 1855	V.
13033	Greenleaf, Wm. P	Scythes to snaths, fastening	June 13, 1855	I.
13944	Griffen, John	Common wrought-iron, manufacture of	Dec. 25, 1855	XIX.
13072	Griffin, Caleb H., assignor to C. H. Griffin and Geo. W. Otis.	Boot and shoe soles, machine for cutting out	June 13, 1855	XVI.
	Griffin, Searles M. (See Van Zile, Griffin, & Dey.)			
12348	Griffith, John S	Corn and cob crusher	Feb. 6, 1855	XIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13720	Griffiths, Robert	Nut-machine	Oct. 30, 1855	II.
335	Grimes, William C	Spark-arresters	Dec. 25, 1855	Reissue.
12313	Griswold, Hezekiah	Shirts, yoke of	Jan. 30, 1855	XXI.
12739	Griswold, Martin R	Metal-tubes, arrangement of rollers for making	April 18, 1855	II.
12591	Groat, Warner	Journal-boxes, packing	Mar. 28, 1855	X.
12276	Groebl, Louis Francis	Marquetry	Jan. 23, 1855	XIV.
12826	Groom, Smith	Hose coupling	April 4, 1855	XI.
12906	Gross, Henry	Fire-arms	May 22, 1855	XIX.
12905	Gross, Henry	Bedstead-rails, machine for cutting screws on	May 22, 1855	XVII.
13060	Grout, Jonathan	Press, cotton, self-acting	June 13, 1855	XII.
13570	Grover, William	Wire, cutting	Sept. 18, 1855	II.
13307	Guard, Chauncey H., assignor to J A. Scroggs and C. H. Guard.	Hubs, machine for boring and mortising	July 24, 1855	X.
333	Guild, Joseph	Mortising machine	Dec. 11, 1855	Reissue.
12592	Guild, Wm H, and Wm F. Garrison	Valves, operating, in direct-acting steam-engines	Mar. 28, 1555	VI.
12513	Guiwits, William H	Sleighs	Mar. 14, 1855	X.
13933	Haggard, J., and George Bull, assignors to Bull, Haggard, & Newsteter.	Harvester rakers	Dec. 11, 1855	I.
12387	Haggard, John W., and George Bull	Ploughs, rotary	Feb. 13, 1855	I.
12548	Haines, Joel	Tables, extension	Mar. 20, 1855	XVII.
12907	Haines, Jonathan	Harvesters, grain	May 22, 1855	I.
331	Haines, Jonathan	Harvesting-machines	Nov. 6, 1855	Reissue.
13523	Haines, Jonathan	Harvesters, grass	Sept. 4, 1855	I.
12351	Haldeman, Daniel	Burglars' alarm	Feb. 6, 1855	XXII.
12415	Haldeman, Daniel	Harrows	Feb. 20, 1855	I.
13751	Haldeman, Daniel	Washing-machines	Nov. 6, 1855	XVII.
13067	Hale, John P	Salt, apparatus for making	Dec. 25, 1855	IV.
13522	Haley, John J	Dovetailing-machine	Sept. 4, 1855	XIV.
12315	Hall, Alexander	Piano-fortes	Jan. 30, 1855	XVIII.
12414	Hall, Charles C	Paper from resinous barks, preparation of	Feb. 20, 1855	IV.
12226	Hall, Hiram L., assignor to James C. Stimpson	Leather, japanned, processes for making	Jan. 12, 1855	XVI.
	Hall, H L. (See Hicks, Lucien E.)			

13595	Hall, Joshua E	Coffee-pot	Sept. 25, 1855	XVII.
12702	Hall, John B	Printing-presses, apparatus for feeding paper to	April 10, 1855	XVIII.
12627	Hall, Thomas J	Ploughs	April 4, 1855	I.
12791	Hall, Thomas J	Ploughs, gang	May 1, 1855	I.
13127	Halsted, Jonas S., and C. J. Ackerman	Mitre and bevel square, carpenters'	June 26, 1855	XIV.
13410	Halvorson, H., assignor to Horace Barnes	Daguerreotype cases, manufacture of	Aug. 7, 1855	XVIII.
12160	Hammer, Adolph	Beer, fermenting-tuns for	Jan. 5, 1855	IV.
12205	Hammer, Adolph	Mash-machines	Jan. 12, 1855	IV.
12204	Hammer, Adolph	Hop-extracting apparatus	Jan. 12, 1855	IV.
12413	Hammer, Gustavus	Pump-valves	Feb. 20, 1855	XI.
12628	Hammer, Gustavus	Musical instruments, wind-valve for	April 4, 1855	XVIII.
134	Hamilton, James	Quartz-crushing machines	May 22, 1855	Add'l imp't.
13874	Hamilton, Samuel, jr	Burglars' alarm	Dec. 4, 1855	XXII.
13680	Hancock, Benjamin	Excavators	Oct. 16, 1855	IX.
495	Hanfbauer, John, and Henry Waas	Stoves	Feb. 28, 1855	Design.
12202	Hanley, James	Bottles, devices for stoppers of	Jan. 12, 1855	XXII.
12549	Hanson, Thomas	Hydraulic rams, valve for	Mar. 20, 1855	XI.
120	Hanson, E W	Pen-holders	April 10, 1855	Add'l imp't.
	Hanyan, J. H. (See Moore, E. N., and J. H. Hanyan.)			
13460	Hardeman, J. L.	Hemp-cutters	Aug. 27, 1855	I.
	Hardin & Stuber. (See Stuber & Hardin.)			
12820	Hardinge, Benjamin	Granite, &c., artificial, facing-beds for grinding	May 8, 1855	XV.
12819	Hardinge, Benjamin	Silica, apparatus for dissolving	May 8, 1855	IV.
	Hargrave, John. (See Fairbairn & Hargrave.)			
	Harkness, G. C. (See Wardwell, B., *et al.*)			
13838	Harmon, Emanuel	Envelopes	Nov. 20, 1855	XVIII.
12161	Harmon, Emanuel	Buildings, iron, fire-proof	Jan. 5, 1855	IX.
12278	Harn, William H	Mill for cutting and grinding vegetables	Jan. 23, 1856	XIII.
	Hartman, John, jr. (See Smith, Robert A.)			
13985	Harris, Bishop J	Millstones, mode of dressing, for scouring and hulling buckwheat, &c.	Dec. 25, 1855	XIII.
691	Harris, C., and P. W. Zoiner	Stoves, coal	Jan. 23, 1855	Design.
13128	Harris, Charles S	Valve, balance	June 26, 1855	VI.
749	Harris, Conrad, and Paul Wm. Zoiner	Stoves, cooking	Dec. 11, 1855	Design.
748	Harris, Conrad, and Paul Wm Zoiner	Stoves, box, six-plate	Dec. 11, 1855	Design.
747	Harris, Conrad, and Paul Wm. Zoiner	Stoves, parlor, to burn coal	Dec. 11, 1855	Design.
745	Harris, Conrad, and Paul Wm. Zoiner	Stoves, parlor, to burn wood	Dec. 11, 1855	Design.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
724	Harris, Conrad, and Paul Wm. Zoiner, assignors to A. Bradley.	Stoves, cooking	Aug. 28, 1855	Design.
12593	Harris, David S	Looms	Mar. 28, 1855	III.
12550	Harris, Elbridge	Lamps	Mar. 20, 1855	V.
13575	Harris, Horace	Plane-bit	Sept. 18, 1855	XIV.
13308	Harris, J. & E	Stamp, hand	July 24, 1855	XVIII.
12131	Harris, James B	Chair, railroad, machines	Jan. 5, 1855	IX.
13306	Harris, John K	Hay, machine for raking and loading	Dec. 11, 1855	I.
13309	Harris, John	Rope, machinery for making	July 24, 1855	III.
13752	Harris, John	Mules, self-acting	Nov. 6, 1855	III.
12759	Harris, Norman C	Pencils, slate, manufacture of	April 24, 1855	XXII.
	Harris, N. M., *et al.* (See Hooker, Thomas, and W. D. Beaumont, assignors.)			
	Harris & Tiffany. (See Tiffany, J., and M. Harris.)			
13352	Harrison, James, jr	Vault-covers	July 31, 1855	IX.
13353	Harrison, James, jr	Sewing-machines	July 31, 1855	III.
13616	Harrison, James, jr	Sewing-machines	Oct. 2, 1855	III.
12790	Harsen, Cornelius L., and Moses R. Brailey	Gates, farm	May 1, 1855	IX.
13703	Harsha, Thomas	Printing-press, card	Oct. 23, 1855	XVIII.
13168	Harshman, Jacob	Boilers, steam	July 3, 1855	VI.
12861	Hart, Francis P	Lumb r, gauge for slitting	May 15, 1855	XIV.
12574	Hartley, W. M. B	Press for making cylindro-conical hollow projectiles by pressure.	Mar. 20, 1855	XIX.
	Hartshorn, John. (See Chamberlain, Dexter H.)			
12661	Hartshorn, John, and Dexter H. Chamberlain, assignors to John Hartshorn.	Curtain-rollers, fixtures for	April 4, 1855	XVII.
12792	Hartshorn, John and Jacob	Curtains, spring-rollers for	May 1, 1855	XVII.
13907	Hartshorn, S S	Buckles	Dec. 11, 1855	II.
13218	Hartshorn, Sheldon S	Buckles	July 10, 1855	II.
13169	Hartwell, Isaac B	Cutting cavities, spherical, ellipsoidal, &c., machine for.	Nov. 2, 1855	XIV.

12467	Haslam, Joseph, by his heirs, John and James Haslam.	Thread, covering with wool or silk	Feb. 28, 1855	III.
12416	Hastings, Joel, James Ramsey, and H. G. Chamberlain.	Tenons, machines for cutting	Feb. 20, 1855	XIV.
12128	Hatch, Jesse W., and Henry Churchill	Boot and shoe soles, machines for cutting out	Jan. 5, 1855	XVI.
13875	Hatch, Jesse W	Boot and shoe soles, cutting out, machine for	Dec. 4, 1855	XVI.
12206	Hatcher, J. W	Shingle, rotary, machine	Jan. 12, 1855	XIV.
13786	Hathaway, John H	Engines, rotary	Nov. 13, 1855	VI.
	Hawes, J. J. (See Southworth, A. S., and J. J. Hawes.)			
12255	Hawes, R. L	Paper, boxes of, machine for making	Jan. 17, 1855	XVIII.
12771	Hawes, R. L., assignor to Robert Rennie	Lawns, machines for dressing	April 24, 1855	III.
12129	Hawkes, Charles W., and George P. Reed	Time-keepers, compensation balances for	Jan. 5, 1855	VIII.
12455	Hawley, Niram	Hubs, &c., mandrel for holding carriage	Feb. 28, 1855	X.
	Hay, C. D., *et al.* (See Huffman, Samuel, assignor.)			
13648	Hay, Samuel L	Engines, locomotive, variable exhaust of	Oct. 9, 1855	VI.
733	Hayden, Hiram W	Daguerreotype and other mats, ornamenting	Oct. 9, 1855	Design.
13171	Hayes, E. & M	Carriage-tops, apparatus for setting bows for	July 3, 1855	X.
13375	Hayes, John P	Ovens	July 31, 1855	V.
13170	Hayes, James D	Lamp, lard	July 3, 1855	V.
13845	Heacock, Joel P	Drilling and screw-cutting machine	Nov. 27, 1855	II.
13846	Heacock, Joel P	Cooper's tool	Nov. 27, 1855	XIV.
13970	Healey, John, assignor to James Bishop	Fabrics, woven	Dec. 18, 1855	III.
13219	Heard, John J	Pumps, ship	July 10, 1855	XI.
13545	Heath, John E	Harvesting-machines	Sept. 12, 1855	I.
715	Hebbard, Henry, and John Polhamus	Spoons	July 3, 1855	Design.
12885	Heck, John M, assignor to Henry Terry	Thread, sewing and dressing	May 15, 1855	III.
13264	Heckrotte, Aaron G	Car, railroad, coupling	July 23, 1855	X.
	Helm, John. (See Tyer, Henry G., & Helm.)			
12946	Henderson, John	Hub and axle fastening	May 30, 1855	X.
13818	Henderson, Thomas	Printing yarns and cloths, machine for	Nov. 20, 1855	XVIII.
13494	Herr, Daniel (Pequea)	Kilns, lime	Aug. 28, 1855	XV.
13876	Hervey, H. L	Burglars' alarm	Dec. 4, 1855	XXII.
13461	Hervey, H. L., and R. E. Osborn	Bridges	Aug. 21, 1855	IX.
13034	Hess, Florian	Bedsteads	June 13, 1855	XVII.
13248	Heyward, James F., assignor to the Delaware Air Spring Manufacturing Company.	Springs, pneumatic	July 16, 1855	X.
12314	Hibbs, Jonathan	Clover-huller	Jan. 30, 1855	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13879	Hickok, W. O.	Mills for grinding apples	Nov. 20, 1855	XIII.
12937	Hicks, L. E., assignor to himself and George N. Davis.	Hose-couplings	May 22, 1855	XI.
12986	Hicks, L. E., assignor to L. E. Hicks and H. L. Hall.	Trusses, hernial, pads for	May 30, 1855	XX.
12182	Hicks, William	Brush, paint	Jan. 6, 1855	XVII.
12207	Hicks, William C.	Valve, slide, and exhaust passages, arrangement of, in steam-engines.	Jan. 12, 1855	VI.
13932	Highfield, Amos D., assignor to himself and W. H. Harrison	Saws, circular, method of adjusting obliquely to their shafts.	Dec. 11, 1855	XIV.
13089	Hildreth, George W.	Bells, mode of hanging	June 19, 1855	XXII.
13088	Hill, Benjamin	Paddle wheels	Dec. 25, 1855	VII.
13003	Hill, Luther	Boot and shoe counters, machine for skiving	June 5, 1855	XVI.
13090	Hill, Orris C.	Doors	June 19, 1855	IX.
13754	Hill, Stephen, and W. J. Wood	Gas-holders	Nov. 6, 1855	IV.
	Hill, Samuel L. (See Swift, Anson A., assignor.)			
13909	Hinkley, Benjamin	Bedsteads	Dec. 11, 1855	XVII.
12388	Hitchcock, Alonzo	Doors, weather-strips for	Feb. 13, 1855	IX.
13226	Hite, J. J., assignor to W. F. Pagett	Harvesters	July 10, 1855	I.
12509	Hoard, J. W.	Gas regulators	Mar. 14, 1855	V.
	Hoard & Curtis. (See Curtis, J., and S. Hoard.)			
12551	Hoagland, Isaac W.	Augers, &c., ship	Mar. 20, 1855	XIV.
12909	Hoagland, J. W.	Treenail machine	May 22, 1855	VII.
12316	Hobbs, John	Ship-carpenters' rainstaff, screws for	Jan. 30, 1855	VII.
705	Hodgetts, George	Water-coolers	May 22, 1855	Design.
13116	Hodgson, Thomas, assignor to Robert L. Wright.	Stone, artificial, manufacture of	June 19, 1855	XV.
	Hoe, R., & Co. (See McDonald, Wm., assignor.)			
13175	Hoffman, Frederick, & Ch. W. G. Fordan	Rivets, machines for making	July 3, 1855	II.
13721	Hogg, Peter	Engines, steam, surface-condensers for	Oct. 30, 1855	VI.
12793	Holden, Warren	Boot and shoe stretchers	May 1, 1855	XVI.
12948	Holland, Homer	Processes for treating auriferous and argentiferous sulphurets.	May 30, 1855	IV.
12950	Hollely, Joseph	Faucet, fluid	May 30, 1855	XI.
12862	Holliday, Lorton	Mitre and bevelling machine	May 15, 1855	XIV.
12470	Hollingsworth, Jehu, and Ralph S. Mershon	Fire arms	Feb. 28, 1855	XIX.
12471	Hollingsworth, Jehu, and Ralph S. Mershon	Fire-arms, repeating	Feb. 28, 1855	XIX.
13172	Holly, Birdsill	Wheels, turbine, method of regulating the issue apertures and of suspending.	July 3, 1855	XI.
	Holly, B. (See Race, W., and B. Holly.)			
12350	Holly, Birdsill	Pumps, elliptical rotary	Feb. 6, 1855	XI.
13262	Holmes, John B., assignor to J. R. Pratt	Ships' capstans	July 28, 1855	VII.
13612	Holmes, John B., assignor to Jno. R. Pratt and Jno. B. Holmes.	Ships' windlasses	Sept 25, 1855	VII.
13722	Holmes, R. G., and Wm. H. Butler	Locks	Oct. 30, 1855	II.
12594	Holmes, R. G., and Wm. H. Butler	Fire-proof safes	Mar. 28, 1855	II.
12130	Holstrom, Alexander	Pile-driving, apparatus for atmospheric	Jan. 5, 1855	IX.
13495	Holt, Horace	Stamp, hand	Aug. 28, 1855	XVIII.
	Holton, John. (See Phelps, Orson C., assignor.)			
	Holzer, J., *et al.* (See Smith, G., *et al.*, assignors.)			
	Homan, Muhle, & Ackerman. (See Ackerman, assignor.)			
12847	Hooker, Thomas, and Wm. D. Beaumont, assignors to A. A. Pray, N. M. Harris, E. C. Lemoyne, J. R. Jennings, G. G. and L. A. Kirk.	Fuel, artificial	May 10, 1855	V.
13546	Hooper, George K.	Life-preserving beds for ships	Sept. 12, 1855	VII.
13462	Hope, John and Thomas	Printers' calico rollers, machine for engraving	Aug. 21, 1855	XVIII.
13005	Hopkins, Landing E.	Hats, process of manufacturing	June 5, 1855	III.
12725	Hopkins, Samuel H., assignor to Wm. C. Greene, Jno. T. Mauran, and Chas. Jackson.	Button, stud and, fastening	April 18, 1855	XXI.
12234	Hopper, Wm. C.	Plane, bench	Jan. 17, 1855	XIV.
12389	Horn, Geo. H. and Benj. H.	Sewing-machines	Feb. 13, 1855	III.
13729	Horsford, E. N., and J. R. Nichols	Lamps, for burning volatile liquids	Oct. 30, 1855	V.
12908	Horton, Chase B.	Hullers of buckwheat	May 22, 1855	I.
13787	Horton, Eli	Lathe-chuck	Nov. 13, 1855	XIV.
13946	Horton, H. B.	Music, registering, machine for	Dec. 18, 1855	XVIII.
12794	Horton, Hosea B.	Boot-crimping machine	May 1, 1855	XVI.
739	Horton, James, assignor to Liebrandt, McDowell, & Co.	Stoves, coal	Oct. 30, 1855	Design.
13678	Hotchkin, A.	Bench-hook	Oct. 16, 1855	XIV.
13679	Hotchkiss, Andrew	Ordnance, projectiles for	Oct 16, 1855	XIX.
12552	Hotchkiss, Gideon	Brakes, railroad car	Mar. 20, 1855	X.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class
13310	Hotchkiss, Horace	Files, machines for cutting	July 24, 1855	II.
13129	Hough, A. V	Brick-machines	June 26, 1855	XV.
	Houghton, Amory. (See Butterfield, C. H., assignor.)			
12629	Houghton, Luther	Cannon, rifled, mode of loading	April 4, 1855	XIX.
13263	House, J. Carroll	Bedsteads, alarm	July 17, 1855	XVII.
12291	Hover, Lewis	Lanterns	Jan. 23, 1855	V.
13173	Hovey, Wm. H	Harvesters, grain and grass	July 3, 1855	I.
12778	How, John	Wool, fleeces of, machine for bundling	May 1, 1855	XII.
	Howard, C. G. (See Chamberlain, D. H., assignor.)			
12201	Howard, D. S	Dredging-machines	Jan. 12, 1855	IX.
12949	Howard, D. S	Water-wheel	May 30, 1855	XI
13573	Howard, Dean S	Sawing-mill	Sept. 18, 1855	XIV.
12863	Howard, Wm. H	Fibrous materials, condensers for	May 15, 1855	III.
	Howe, Abraham, and S. S. Grannis	Wire heddles, manufacture of	Oct. 11, 1855	Extension.
13877	Howe, George A	Cotton pickers, hand	Dec. 4, 1855	I.
13265	Howe, Tyler	Bedsteads	July 17, 1855	XVII.
13819	Howell, Theodore P., and Noah F. Blanchard	Leather for enamelling, treating	Nov. 20, 1855	XVI.
12390	Howes, Frederick	Ships' standing rigging	Feb 13, 1855	VII.
12795	Hoyt, Eben, jr	Projectile for fire-arms	May 1, 1855	XIX.
	Hoyt & Oliver (See Oliver, R. W.)			
12203	Hubbard, Geo. W., and Wm. E. Conant	Valves, slide, operating, in direct-action engines	Jan. 12, 1855	VI.
13788	Hubbard, Geo. W	Marble-sawing machine	Nov. 13, 1855	XV.
12484	Hubbard, Guy H	Auger-handle, fastening	Mar. 7, 1855	II.
12162	Hubbard, M. G	Planing-machine mode of hanging the knife in	Jan. 5, 1855	XIV.
12910	Hubbard, M. G	Springs, carriage	May 22, 1855	X.
12990	Hubbard, M. G	Springs for carriages	May 15, 1855	X.
13004	Hubbard, M. G	Harvesters, grain and grass	June 5, 1855	I.
13174	Hubbard, M. G	Plane-stocks and their mouth-pieces, mode of hanging	July, 3, 1855	XIV.
13311	Hubbard, M. G	Carriages	July 24, 1855	X.
12947	Hubbell, W. W., and D. Matthew	Engines, vapor	May 30, 1855	VI.

12295	Huffman, Samuel, assignor to S. Huffman and D. O. Hare.	Cannon, repeating	Jan. 23, 1855	XIX.
12886	Huffman, Samuel, assignor to S. Huffman and C. D. Hay.	Votes in legislative bodies, mode of indicating the number of the yea and nay balls in machines for taking.	May 15, 1855	XXII.
13574	Hughes, Amos P	Dovetail key cutter	Sept. 18, 1855	XIV.
12456	Hughes, D. W	Hemp-breaker	Feb. 28, 1855	III.
13920	Hughes, D. W	Planters, seed, hand	Nov. 20, 1855	I.
13354	Hull, Liveras	Sawing ratan, machines for	July 31, 1855	XIV.
13391	Hull, Liveras	Braiding-machines	Aug. 7, 1855	III.
13719	Hull, Liveras	Braiding, machinery for	Oct. 30, 1855	III.
13147	Hull, Stephen	Harvesters, attaching the raker's seat to	June 26, 1855	I.
	Humes, Peter H. (See Stockstill, Stephen L.)			
13334	Humiston, Willis	Candle-mould apparatus	July 24, 1855	IV.
13753	Humphrey, D. W. G	Locks	Nov. 6, 1855	II.
12349	Hunt, F. B., and E. Nordyke	Flour-bolts, wire-cloth	Feb. 6, 1855	XIII.
13704	Hunt, George G	Melodeons	Oct. 23, 1855	XVIII.
	Hunt, Nehemiah. (See Neilson, George, assignor.)			
	Hunt, Nehemiah. (See Taggart, John, assignor.)			
	Hunter & O'Neill. (See O'Neill, Andrew, assignor.)			
13739	Hunter, John R., assignor to S. R. Blair	Gas-bracket	Oct. 30, 1855	III.
13986	Hurd, Reuben	Seeding-machines	Dec. 25, 1855	I.
13618	Hurlbut, S. C. and W. W	Planing-machines, &c., feed-motion for	Oct. 2, 1855	XIV.
13989	Hurlbut, W. W	Saws, circular, method of hanging	Dec. 25, 1855	XIV.
12779	Hurt, James B	Wheel, eccentric, mode of applying to water-power	May 1, 1855	XI.
12251	Hutchins, Parley	Trucks, hand	Jan. 17, 1855	X.
12679	Hutchinson, Charles B	Saws, grinding, reciprocating	April 10, 1855	XIV.
12595	Hyatt, Thaddeus	Vault-cover, illuminating	Mar. 28, 1855	IX.
303	Hyatt, Thaddeus	Vault-covers	April 4, 1855	Reissue.
12951	Hyde, Edward G	Ear-trumpets, construction of	May 30, 1855	XX.
12510	Hyde, Joseph	Screw-wrenches	Mar. 14, 1855	II.
13463	Hyde, Joseph	Vessels, apparatus for, to indicate their locality when they sink, and to supply a means of raising them.	Aug. 29, 1855	VII.
13617	Hyde, Joseph	Wrenches, screw	Oct. 2, 1855	II.
12485	Hyde, Marcus F	Soda-water apparatus	Mar. 7, 1855	IV.
12163	Imel, John	Cultivators	Jan. 5, 1855	I.
12821	Ingersoll, Simon	Sawing or felling trees, machine for	May 8, 1855	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12596	Irish, William S	Looms	Mar. 28, 1855	III.
13392	Irwin, John L	Tires upon wheels, mode of securing	Aug. 7, 1855	II.
12279	Ives, William	Book-brace	Jan. 23, 1855	XVIII.
13220	Jackman, Enoch, and Edwin G. Dunham	Carpets, fastenings for	July 10, 1855	XVII.
13355	Jackman, Solon S	Iron, machines for compressing puddlers' balls, and other masses of.	July 31, 1855	II.
	Jackson, Greene, & Mauran. (See Hopkins, Samuel H., assignor.)			
13393	Jackson, Peter H	Ships' winches	Aug. 7, 1855	VII.
13847	Jackson, Peter H	Anchor stoppers, cat-head	Nov. 27, 1855	VII.
13006	Jackson, Wm. R	Vessels, steam and other, floating-cabins for	June 5, 1855	VII.
	Jacobs & Fowler. (See Fowler, M. H., and E. Jacobs.)			
13821	Jacobs, Lyman, and E. C. Landon	Carriages, mode of attaching tops to seats of	Nov. 20, 1855	X.
	James, A., *et al.* (See Messer, D. W., assignor.)			
13476	James, Daniel S., assignor to himself, J. B. White, and J. W. McIntyre.	Mills, corn and cob	Aug. 21, 1855	XIII.
13266	Jeannots, Jules	Bottle fastenings	July 17, 1855	XXII.
13464	Jeffers, Ebenezer	Car, railroad, seats	Aug. 21, 1855	X.
13007	Jeffery, Edwin A	Pump, double-acting	June 5, 1855	XI.
312	Jenks, B. H	Looms	June 5, 1855	Reissue.
12630	Jenks, B. H	Looms	April 4, 1855	III.
13312	Jenne, John	Stalls for horses	July 24, 1855	XXII.
	Jennings, J. R., *et al.* (See Hooker, Thomas, and W. D. Beaumont assignors.)			
12318	Jennings, R	Augers	Jan. 30, 1855	XIV.
13910	Jewett, F. A	Lamps, extinguishers to, mode of attaching	Dec. 11, 1855	V.
13650	Jillson, J. A., and H. Whinfield	Fibrous and textile substances, apparatus for washing and bleaching.	Oct. 9, 1855	III.
13848	Jillson, L. B., and G. Sparhawk	Looms, bag	Nov. 27, 1855	III.
307	Johnson, A. Livingston	Shutters, rolling iron, hinges of	April 24, 1855	Reissue.
13130	Johnson, Charles H	Gas-burners	June 26, 1855	V.

13789	Johnson, Charles H	Gas-burners, Argand	Nov. 13, 1855	V.
12208	Johnson, Frank G	Wind-mill, self-regulating	Jan. 12, 1855	XI.
12758	Johnson, J., and J. E. Crane	Stoves, &c.	April 24, 1855	V.
13681	Johnson, Jasper	Vices	Oct. 16, 1855	II.
13649	Johnson, Job	Fish-hook	Oct. 9, 1855	XXII.
	Johnson, John, and C. Tompkins. (See Tompkins and Johnson.)			
13356	Johnson, Josee	Washing-machines	July 31, 1855	XVII.
13547	Johnson, Josee	Fire-arms, charger for	Sept. 12, 1855	XIX.
13947	Johnson, Wm. W	Planing felloes, machine for	Dec. 18, 1855	XIV.
	Johnson, Cox, Lisley, & Co., assignors. (See Ripley and Vedder, assignors.)			
	Johnston & Cleveland. (See Cleveland, N., and J. J. Johnston.)			
13912	Johnston, James J	Corn-shellers	Dec. 11, 1855	I.
13948	Jones, Eber	Casting bells, moulds for	Dec. 18, 1855	II.
13913	Jones, Gilbert D	Sand-paper making machine	Dec. 11, 1855	XXII.
13911	Jones, Henry C	Locks for freight cars	Dec. 11, 1855	II.
	Jones, J. H. (See Randall, S. G., and J. H. Jones.)			
12680	Jones, James H	Car, railroad, coupling	April 10, 1855	X.
12280	Jones, Samuel G	Jacks, lifting	Jan. 23, 1855	XII.
13431	Jones, Samuel T	Zinc, white, making	Aug. 14, 1855	IV.
13338	Jones, Samuel T	Furnaces for treating zinc ores	July 24, 1855	V.
127	Jones, Wm. D., assignor to Henry Whinfield	Propellers	Aug. 21, 1855	Addit'nal improvement.
12752	Jones, Wm. D., assignor to Henry Whinfield	Propellers	April 18, 1855	VII.
121	Jones, William E	Saddle-trees	April 18, 1855	Addit'nal improvement.
	Jordan, E. (See Cate, S. M.)			
13221	Joslyn, Benj. F	Wrenches, slide	July 10, 1855	II.
13496	Joslyn, Benj. F	Scythe-fastening	Aug. 28, 1855	I.
13507	Joslyn, Benj. F	Fire-arms, breech-loading	Aug. 28, 1855	XIX.
12631	Joslyn, Benj. F	Pumps, double acting	April 4, 1855	XI.
	Judd, Charles G., and Andrew Oliver. (See Ketcham, Charles, assignor.)			
12252	Judd, O. B	Harvesters, grain and grass	Jan. 17, 1855	I.
13682	Keech, Joseph	Wash-boards	Oct. 16, 1855	XVII.
12148	Keeler, Rufus, assignor to Lewis C. England	Tanning processes	Jan. 5, 1855	XVI.
13357	Keeney, F. H	Saw, circular, mandrel	July 31, 1855	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12632	Keeney, Wm. J., and James R. Tarbox	Rakes and hay-elevators	April 4, 1855	I.
12132	Keith, Asa P	Gins, cotton	Jan. 5, 1855	III.
12411	Keith, John S., and John Brooks	Bullet-mould	Feb. 20, 1855	XIX.
13678	Keller, Matthias	Violins, machine for cutting the fronts and backs of	Dec. 4, 1855	XVIII.
	Kellogg, Edward. (See Gardner, Smith, assignor.)			
13577	Kelly, James H	Lanterns for locomotives	Sept. 18, 1855	V.
13313	Kelren, James, assignor to himself and Geo. Banks	Chairs, railway, machines for making	July 24, 1855	IX.
13267	Keleca, Harold	Thread, sewing, trebling a single strand and twisting	July 17, 1855	III.
12183	Kelsey, Sidney	Printing-press	Jan. 6, 1855	XVIII.
12563	Kenniston, Charles	Press for printing, hand	Mar. 20, 1855	XVIII.
13035	Kennedy, M. T	Staves machine for planing	June 13, 1855	XIV.
13036	Kennedy, M. T	Staves, jointing, machine for	June 13, 1855	XIV.
13314	Kenney, Francis	Stoves, parlor	July 24, 1855	V.
13679	Kent, Edw. N	Amalgamators	Dec. 4, 1855	II.
13091	Kerrison, Robt. M	Piano-forte action	June 19, 1855	XVIII.
13680	Kershaw, Edw	Locks	Dec. 4, 1855	II.
13475	Ketcham, Charles, assignor to Chas. G. Judd and Andrew Oliver.	Sawing shingles, machine for	Aug. 21, 1855	XIV.
12371	Ketcham, Geo. P	Cars, mechanism for retaining, upon the track	Feb. 6, 1855	X.
12412	Ketcham, Geo. P	Saws, reciprocating, method of driving pairs of	Feb. 20, 1855	XIV.
12164	Keyes, Asa	Slate, machines for cutting and trimming	Jan. 5, 1855	XV.
12352	Kimball, Alpheus	Roads, machine for repairing	Feb. 6, 1855	IX.
13791	Kimball, Wm. B	Marble-sawing machine	Nov. 13, 1855	XV.
12598	Kimble, Urias	Boring hubs to receive boxes, tool for	Mar. 28, 1855	XIV.
12953	Kindleberger, Tobias J	Mills, cider	May 30, 1855	XIII.
13061	King, George	Pressing tobacco in plugs	June 13, 1855	XII.
	King, J. H. (See Garvin, H. C.)			
12952	King, John N	Bridges, swing	May 30, 1855	IX.
13790	Kinsley, R	Presses, tobacco	Nov. 13, 1855	XII.
	Kirk, G. G. and L. A., *et al.* (See Hooker, Thos., and Wm. D. Beaumont, assignors.)			
12597	Kirk, Jos. S., and Wm. H. Elliot	Grate-bar	Mar. 28, 1855	V.

12458	Kirkwood, Alexander	Vessels, method of pumping water out of	Feb. 28, 1855	VII.
13092	Kite, John L	Furnace, hot-air	June 19, 1855	V.
13578	Kitson, Richard	Fibrous materials, machinery for picking	Sept. 18, 1855	III.
13850	Kleemann, Joseph	Umbrella sticks, &c., of ratan, preparation of	Nov. 27, 1855	XXI.
12681	Klein, Ferdinand	Fire-arms	April 10, 1855	XIX.
12240	Kline, John C	Locks, door, latch	Jan. 17, 1855	II.
13037	Kline, John C	Locks, door	June 13, 1855	II.
12864	Knapp, Thomas J	Tenoning tool, adjustable	May 15, 1855	XIV.
12599	Knight, Samuel B	Chalking lines, method of	Mar. 28, 1855	XXII.
12134	Knowles, Hazard	Tonguing and grooving, cutters for	Jan. 5, 1855	XIV.
12536	Knox, Samuel A., assignor to Ruggles, Nourse, Mason, & Co.	Cultivators	Mar. 14, 1855	I.
12511	Koch, Louis	Boxes, paper, machine for making	Mar. 14, 1855	XXII.
13412	Koch, Louis, assignor to Peter B. Sweeney and Michael Lacour.	Paper pulp, machinery for making	Aug. 7, 1855	III.
12149	Koch, Louis, assignor to Theodore Pincus	Boxes, wooden, manufacturing	Jan. 5, 1855	XIV.
13849	Krake, John A	Winnowing-machines, mode of hanging the screens of	Nov. 27, 1855	I.
13741	Krauser, Samuel	Mills, cider or wine	Oct. 30, 1855	XIII.
13792	Krauser, S., and C. Ritter	Meter, water	Nov. 13, 1855	XI.
12911	Krebs, Isaac	Whiffle-trees	May 22, 1855	X.
12133	Kroehl, Julius H	Flanges on wrought-iron beams, machines for forming	Jan. 5, 1855	II.
13684	Kroger, A. E	Harvesters	Sept. 4, 1855	I.
13851	Krupp, Alfred	Cannon	Nov. 27, 1855	XIX.
12956	La Baw, George W	Mitre machine	May 30, 1855	XIV.
12683	Lackey, Walter	Straw-cutters	April 10, 1855	I.
	Lacour & Sweeney. (See Koch, Louis, assignor.)			
12209	Lambert, Guillaume	Ovens, coke	Jan. 12, 1855	V.
	Lamson, Goodnow, & Co. (See Gardner, Joseph W., assignor.)			
13971	Lancaster, Joseph B., administrator of John K. Lancaster, deceased.	Stoves, cooking	Dec. 18, 1855	V.
12760	Lancaster, Palmer	Shearing sheep, implement for	April 24, 1855	I.
13222	Lancaster, Wright	Washing-machines	July 10, 1855	XVII.
12955	Lansdell, William	Propellers, buoyant	May 30, 1855	VII.
12459	Landphere, Asa, and S. Remington	Spoke-machine	Feb. 28, 1855	XIV.
	Landon, E. C. (See Jacobs, Lyman, and E. C. Landon.)			
13755	Lane, Horace	Saw horse	Nov. 6, 1855	XIV.
13727	Langdon, L. W	Sewing-machines	Oct. 30, 1855	III.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13315	Larchar, Edwin B.	Boats, gutta percha, making	July 24, 1855	VII.
12912	Latta, A. B.	Engines, steam fire, carriage for	May 22, 1855	XI.
12682	Latta, A. B.	Steam generators	April 10, 1855	VI.
12523	Lawrence, Henry	Bridge, ferry safety	Mar. 14, 1855	IX.
	Lawrence & Abbott. (See Smith, G., *et al.*, assignors.)			
	Lawrence & Abbott. (See Smith, Brown & Read, assignors.)			
13466	Lawton, Benjamin F.	Journal-box alloys	Aug. 21, 1855	X.
13465	Lawton, Benjamin F.	Journal-box alloys	Aug. 21, 1855	X.
12512	Leach, George.	Grain cleaner	Mar. 14, 1855	XIII.
13724	Leach, James O.	Looms	Oct. 30, 1855	III.
12460	Lear, Peter	Paddle-wheels, submerged horizontal, method of arranging and operating.	Feb. 28, 1855	VII.
12461	Leavitt, Charles	Mills, portable grain	Feb. 28, 1855	XIII.
12600	Leavitt, Charles	Shingle machine	Mar. 28, 1855	XIV.
13923	Leavitt, E. D., jr.	Valves, slide, for steam engines	Dec. 11, 1855	VI.
12135	Lee, Wesley M.	Forging car-wheels, machines for	Jan 5, 1855	II.
13432	Leeds, Joseph	Furnaces for heating buildings	Aug. 14, 1855	V.
13525	Leeds, Lewis M.	Furnaces, hot-air, apparatus to prevent an over-supply of coal to the fire-box of.	Sept. 4, 1855	V.
13467	Lefebvre, Louis H.	Bath, warm, apparatus	Aug. 21, 1855	XX.
12265	Leighton, William, assignor to New England Glass Company.	Door-knobs	Jan. 17, 1855	II.
12136	Lemoulnier, Jean François	Pavements, constructing	Jan. 5, 1855	IX.
	Lemoyne, E. C., *et al.* (See Hooker, Thomas, and W. D Beaumont, assignors.)			
12922	Lempeke, A.	Mill, wind, mode of checking	May 8, 1855	XIII.
12954	Leverich, Gabriel	Books, paging, apparatus for	May 30, 1855	XVIII.
	Lewis, Henry J (See Crane, Ozro A.)			
12684	Lewis, Robert F. R.	Cars, railroad, spiral wheel for replacing upon the track.	April 10, 1855	X.
725	Lewis, Thomas	Trade marks	Sept. 4, 1855	Design.
12185	Lewis, James	Printing-press	Jan. 5, 1855	XVIII.
13852	Lewis, Jno. S.	Boots, uppers of, mode of cutting the	Nov. 27, 1855	XVI.
13725	Lewis, W. L. B.	Ventilating railroad cars, method of	Oct. 30, 1855	V.
	Liebrandt, McDowell, & Co., assignees. (See Horton, assignor.)			
	Liebrandt, McDowell, & Co., assignees. (See Smith & Brown, assignors.)			
13990	Lightheiser, Alexander	Meat, mincing, machines for	Dec. 25, 1855	XVII.
751	Lincoln, A. A., jr.	Stoves, ships' caboose	Dec. 18, 1855	Design.
13651	Lincoln, William	Wire dish-covers, machine for making	Oct. 9, 1855	II.
13881	Lindsey, H.	Pumps	Dec. 4, 1855	XI.
12601	Ling, Thomas.	Pump, self-adjustable or anchoring	Mar. 28, 1855	XI.
12823	Link, Henry	Propeller	May 8, 1855	VII.
12780	Litchfield, Laroy	Looms, shuttles for	May 1, 1855	III.
	Little, E. C., *et al.* (See Warren, George.)			
13176	Little, James, & Wylie	Harvesters, attaching the connecting bar to the cutters of.	July 3, 1855	I.
12761	Livingston, J. B., and Miles Waterhouse	Printing-presses, machine for feeding paper to	April 24, 1855	XVIII.
12184	Locher, C.	Boats, life, fording	Jan. 6, 1855	VII.
13652	Longacre, George M.	Steam, economizing	Oct. 9, 1855	VI.
13008	Loring, Harrison	Bleaching rags, apparatus for	June 5, 1855	IV.
700	Lorton, William B.	Clock fronts	May 1, 1855	Design.
13177	Loudon, John, and Otto Ahlstrom	Screw fastenings	July 3, 1855	II.
13009	Loughborough, William S.	Carpets, fastenings for	June 5, 1855	XVII.
13710	Loughborough, William S.	Types, composing and setting, machine for	Oct. 23, 1855	XVIII.
12686	Loughridge, William	Engine, stationary, hydro-pneumatic, for extinguishing fire.	April 10, 1855	XI.
12685	Loughridge, William	Brakes, car, graduating the tension of	April 10, 1855	X.
13692	Love, Charles	Washing-machine	Oct. 16, 1855	XVII.
13915	Lovis, A., and R. Prince	Printing, calico, processes for	Dec. 11, 1855	XVIII.
12913	Loveless, Charles B.	Stove, cook, air-heating	May 22, 1855	V.
13587	Lowe, Samuel W., assignor to himself and Jacob M Beck.	Printers, metallic plates for, preparation of	Sept. 18, 1855	XVIII.
12508	Ludington, H., and S. R. Lupton	Lime-spreaders	Mar. 14, 1855	I.
13277	Ludwig, Matthew	Sawing down trees, machine for	July 17, 1855	XIV.
12914	Lum, Henry B.	Gates, farm	May 22, 1855	IX.
12824	Lupton, T. N.	Harvesters, grain	May 8, 1855	I.
13596	Lupton, Thos. N.	Rakes for reaping-machines	Sept. 25, 1855	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13726	Luther, Henry	Spinning-frames, ring, and traveller	Oct. 30, 1855	III.
	Luttgens, H. A. (See Uhry, H.)			
13707	Lutz, Stimmel	Cans, sealing preserving	Oct. 23, 1855	XVII.
118	Macfarlane, J. Graham	Planters, seed	Feb. 6, 1855	Add'l imp't.
13316	Macferran, Samuel	Processes for smelting iron	July 24, 1855	IV.
12165	Mackenzie, P. W.	Blasts, &c., machine for blowing	Jan. 5, 1855	XI.
12391	MacLaurin, William S.	Penmanship, method of teaching	Feb. 13, 1855	XVIII.
13705	Mahon, Charles	Cars, railroad, safety-attachment in front of	Oct. 23, 1855	X.
315	Malone, Samuel	Planters, corn	July 10, 1855	Reissue.
12688	Manahan, John F.	Boring wells, machinery for	April 10, 1855	IX.
	Manchester Locomotive Works. (See Stone, J. M., assignor.)			
	Manchester Locomotive Works. (See Bayley, O. W., assignor.)			
714	Mann, Russell, assignor to Geo. W. Eddy	Stoves, cooking	July 3, 1855	Design.
286	Manny, John H.	Harvesters, mowing-machines and, (marked A.)	Jan. 4, 1855	Reissue.
287	Manny, John H.	Harvester-frames, arrangement of joints for attaching trucks to, (marked B.)	Jan. 4, 1855	Reissue.
288	Manny, John H.	Harvester-cutters, arrangements for controlling, (marked C.)	Jan. 4, 1855	Reissue.
289	Manny, John H.	Harvesters having a leading-truck, (marked D.)	Jan. 4, 1855	Reissue.
290	Manny, John H.	Harvesters, triangular frame, construction of, (marked E.)	Jan. 4, 1855	Reissue.
292	Manny, John H.	Harvesters, (marked F.)	Jan. 4, 1855	Reissue.
291	Manny, John H.	Harvesters, cutter-fingers of, (marked G.)	Jan. 4, 1855	Reissue.
298	Manny, John H.	Harvesters, grain and grass	Mar. 7, 1855	Reissue.
299	Manny, John H.	Harvesters, grain and grass	Mar. 7, 1855	Reissue.
300	Manny, John H.	Harvesters, grain	Mar. 7, 1855	Reissue.
12825	Manny, John H.	Harvesters, grain and grass	May 8, 1855	I.
13149	Manny, John H., (1)	Harvesters, cutters of	June 26, 1855	I.
13150	Manny, John H., (B)	Harvesters, guard-fingers of	June 26, 1855	I.
12499	Manny, John H., and Henry Marcellus	Harvesters, grain and grass	Mar. 7, 1855	I.

12740	Manny, Pells	Press, hay	April 18, 1855	XII.
12462	Mansfield, Martin H.	Clover-seed, hulling and cleaning	Feb. 28, 1855	I.
12781	Marble, Ezra P.	Looms, shuttles for	May 1, 1855	III.
13822	Marcellus, A. A.	Potato-digger	Nov. 20, 1855	I.
12916	Marcher, Robert J.	Mouldings, tool for grooving	May 22, 1855	XIV.
12917	Marcher, Robert J.	Mouldings, tool for grooving	May 22, 1855	XIV.
	Marcher, R. J., assignee. (See Barber, J. S., assignor.)			
13756	Marden, J., and H. A. Butters	Leather, machines for splitting	Nov. 6, 1855	XVI.
13853	Maring, Leonard S.	Trunks, attaching castors to	Nov. 27, 1855	XXII.
13794	Markillie, Thomas R.	Planters, corn	Nov. 13, 1855	I.
13882	Markillie, Thomas R.	Spoke-machines	Dec. 4, 1855	XIV.
12442	Marland, Obadiah	Paper-making, rolls and dryers for	Feb. 28, 1855	III.
12918	Marshall, Jacob	Lubricating compounds	May 22, 1855	IV.
	Marshall & Ross. (See Ross & Marshall.)			
13093	Marston, Joseph H.	Stereoscopic photographs, apparatus for taking	June 19, 1855	XVIII.
13581	Marston, William W.	Fire-arms	Sept. 18, 1855	XIX.
	Martin, A. (See Robbins, Z. C., assignor.)			
13931	Martin, John S.	Curtains, mosquito	Dec. 11, 1855	XVII.
336	Martine, Charles F.	Bedsteads, sofa	Dec. 25, 1855	Reissue.
12486	Martz, George	Coal-screen	Mar. 7, 1855	V.
12633	Martz, George	Cars, coal, apparatus for hoisting and dumping	April 4, 1856	IX.
12257	Mascher, John F.	Medallion, stereoscopic	Jan. 17, 1855	XVIII.
13526	Maskell, Thomas	Furnaces, heating, consuming escape-steam as an adjunct in.	Sept. 4, 1855	V.
	Mason, Nourse, Ruggles, & Co. (See Coburn, Francis S., assignor.)			
	Mason, Nourse, Ruggles, & Co. (See Knox, Saml. A., assignor.)			
	Mason, William H., *et al.* (See Rowland, Thomas F., *et al.*)			
	Massachusetts Arm Co. (See Stevens, Joshua, assignor.)			
328	Massey, John.	Bands, endless, for grain-dryers	Sept. 12, 1855	Reissue.
12726	Masson, Abraham	Engines, rotary	April 18, 1855	VI.
	Mather, James D. (See Northrup, Joel G., assignor.)			
12634	Mathers, E., and W. D. Siegfried	Printing-presses, hand, apparatus for feeding paper to.	April 4, 1855	XVIII.
13763	Matteson, E., and Walter M. and H. Parris	Engines, steam, rotary	Nov. 6, 1855	VI.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
130	Matthew, David	Engines, locomotive, apparatus for heating feed-water to.	Dec. 11, 1855	Add'l imp't.
12915	Matthew, David	Spark-arresters	May 22, 1855	VI.
12865	Matthew, David	Spark-arresters	May 15, 1855	VI.
13270	Matthew, David	Engines, locomotive, apparatus for heating feed-water to.	July 17, 1855	VI.
	Matthew & Hubbell. (See Hubbell, W. W., and D. Matthew.)			
13468	Matthews, John, jr.	Gauges, pressure	Aug. 21, 1855	VI.
12514	Mauck, Robert C	Ditching-machine	Mar. 14, 1855	IX.
	Mauran, Greene & Jackson. (See Hopkins, Samuel H., assignor.)			
12957	Maurer, William	Locks, door	May 30, 1855	II.
12689	Maxam, Samuel N.	Apples, paring, machine for	April 10, 1855	XVII
12383	Maydole, James H., and A. W. Morse	Harvesters, grass	Feb. 6, 1855	I.
12515	Mayer, Andrew	Gas burners, valves for	Mar. 14, 1855	V.
12741	Mayer, Andrew	Stoves, gas cooking	April 18, 1855	V.
	McArthur, A. H., & Co. (See Gibbs, Samuel W., assignor.)			
12210	McAvoy, H. L.	Refrigerators	Jan. 12, 1855	XVII.
13469	McBurth, Augustus	Projectiles, percussion	Aug. 21, 1855	XIX.
12727	McClelland Hugh K.	Pen, fountain	April 18, 1855	XVIII.
13038	McComb, James J.	Brakes, self-acting car, arrangement of bumpers for	June 13, 1855	X.
13823	McCord, Joseph	Rattles, policemen's	Nov. 20, 1855	XXII.
13949	McCorkle, S. B.	Collars, horse, machines for stuffing	Dec. 18, 1855	XVI.
13683	McCormick, E.	Planters, seed	Oct. 16, 1855	I.
12516	McCracken, James	Evaporating apparatus	Mar. 14, 1855	IV.
13131	McCurdy, R. A. L.	Gins, cotton	June 26, 1855	III.
13197	McDonald, William, assignor to R. Hoe & Co.	Printers' rules, machine for mitreing	July 3, 1855	XVIII.
13010	McDougall, Samuel T.	Vapor, hydrocarbon, apparatus	June 5, 1855	IV.
13824	McEvoy, Charles A	Indicators, railroad station	Nov. 20, 1855	XXII.
12641	McGaffey, Ives W.	Planters, seed	April 4, 1855	I.
13394	McIntire, Wm. J	Propelling vessels by the direct action of steam on the water.	Aug. 7, 1855	VII.
	McIntyre, White, & James. (See James, Daniel S., assignor.)			
13527	McKenzie, Philip W.	Valves for regulating steam-engines	Sept. 4, 1855	VI.
13684	McLaughlin, John	Wringers for clothes	Oct. 16, 1855	XVII.
	McLean, Aaron R. (See Borden, Chester B. and Benj. S.)			
13395	McNair, John G.	Carpets, manufacturing	Aug. 7, 1855	III.
12320	McNamee, Wm. H	Door-latches, locking spindle	Jan. 30, 1855	II.
12602	McNeill, John	Furnaces, charcoal	Mar. 28, 1855	V.
12246	McPherson, John L.	Scales	Jan. 17, 1855	XII.
13497	McPherson, John L.	Scales, weighing	Aug. 28, 1855	XII.
12340	Meacham, George A	Window-washer	Jan. 30, 1855	XVII.
12635	Mell, J. B.	Gins, cotton	April 4, 1855	III.
12636	Mellish, Henry	Lancets	April 4, 1855	XX.
12959	Mellish, Henry	Mills, grain, shoe for	May 30, 1855	XIII.
13376	Melville, Jas., and Jos. Burch	Printing textile fabrics, machine for	Aug. 7, 1855	XVIII.
12762	Melville, J. G., and Wm. Brayshaw	Looms	April 24, 1855	III.
13358	Meredith, Stephen	Distilling coal with hydrogen gas	July 31, 1855	IV.
12392	Merriam, M. H., and J. B. Crosby	Leather-splitting machines	Feb. 13, 1855	XVI.
13991	Merrill, William H	Blocks, hoisting	Dec. 25, 1855	VII.
	Mershon, Ralph S. (See Hollingsworth, Jehu.)			
13317	Messer, D. W.	Processes for hulling cotton-seed	July 24, 1855	IV.
12468	Messer, Daniel W., assignor to D. W. Messer, R. B. Fitts, and A. James.	Stamp, hand	Feb. 28, 1855	XVIII.
	Messinger, John A., deceased, and E. A., administratrix. (See Foster, A.)			
12281	Mettam, Charles	Shutters, iron, rolling	Jan. 23, 1855	IX.
12321	Middlebrook, S. S., J. B. Blakeslee, & C. T. Blakeslee	Hat-bodies, machinery for felting	Jan. 30, 1855	III.
12866	Miles, Perches	Curtain fixtures	May 15, 1855	XVII.
13620	Miller, Benj. F.	Chimney-stack	Oct. 2, 1855	V.
13992	Miller, Charles	Hulling-machines	Dec. 25, 1855	I.
12443	Miller, Charles	Hinges, butt, machines for making	Feb. 28, 1855	II.
13094	Miller, Felix	Carpets, fastenings for	June 19, 1855	XVII.
12166	Miller, Henry	Brakes, car, steam, railroad	Jan. 5, 1855	X.
704	Mills, Clark	Statue, equestrian	May 15, 1855	Design.
18269	Mingay, Edw.	Derricks	July 17, 1855	XII.
12958	Minniss, Thomas S.	Planters, seed	May 30, 1855	I.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13011	Minthorn, Daniel	Garments, braces for supporting	June 5, 1855	XXI.
13548	Mitchell, F. G.	Trusses, hernial	Sept. 12, 1855	XX.
13063	Molliere, Jean Pierre	Boot and shoe soles, machine for cutting the edges of.	June 13, 1855	XVI.
13095	Molliere, Jean Pierre	Boot and shoe soles and heels, machines for cutting leather into strips for.	June 19, 1855	XVI.
13178	Molliere, Jean Pierre	Sewing machines	July 3, 1855	III.
13796	Molliere, Jean Pierre	Boot and shoe uppers, machines for cutting	Nov. 13, 1855	XVI.
13854	Molliere, Jean Pierre	Boots and shoes, machines for rasping and dressing the heels and soles of.	Nov. 27, 1855	XVI.
13914	Molliere, J. P.	Boots and shoes, soles and heels of, machines for cutting out and pricking and stamping the.	Dec. 11, 1855	XVI.
13950	Molliere, J. P.	Boots and shoes, soles and heels of, machines for polishing and burnishing the edges of.	Dec. 18, 1855	XVI.
13951	Molliere, J. P.	Boots and shoes on lasts, "uppers" of, machines for mounting the.	Dec. 18, 1855	XVI.
295	Monnin, Charles, and Wm. M. Booth	Lanterns, fastening	Jan. 30, 1855	Reissue.
	Monroe, James. (See Frost, J.)			
13339	Montgomery, James	Shafts, wrought-iron	July 24, 1855	XIII.
13062	Montgomery, Joseph & James	Fans, wheat	June 13, 1855	I.
13599	Montgomery, Richard	Beams, corrugated	Sept. 25, 1855	II.
13132	Moodey, Peter	Collar, horse, blocks	June 26, 1855	XVI.
13619	Moore, Charles	Boilers, steam	Oct. 2, 1855	VI.
13935	Moore, Daniel, assignor to himself, George S. Cameron, and James H. McWilliams.	Types, rubbing, machine for	Dec. 11, 1855	XVIII.
13319	Moore, E. N., and J. H. Hanyan	Gate, water, balance	July 24, 1855	XI.
12637	Moore, F. H.	Coal-hole covers	April 4, 1855	IX.
12517	Moore, Hiram	Pumps, operating, by wind	Mar. 14, 1855	XI.
12603	Moore, Hiram	Planters, seed	Mar. 28, 1855	I.
13318	Moore, Jonas, and D. P. Adams	Medicines, pulverulent, apparatus for administering.	July 24, 1855	XX.
12639	Moore, Thomas	Stove-pipe tube	April 4, 1855	V.
	Moore, Wm., jr. (See Wilson, C.)			
13329	Mootry, William	Refrigerators	July 24, 1855	XVII.
13728	Mootry, William	Stoves	Oct. 30, 1855	V.
12212	Morey, Charles	Compounds, hard-rubber, reworking	Jan. 12, 1855	IV.
12256	Morgan, Elijah	Planters, seed	Jan. 17, 1855	I.
12518	Morgan, Elijah	Washing-machines	Mar. 14, 1855	XVII.
13268	Morgan, J. S.	Windmill	July 17, 1855	XI.
12690	Morrel, A. H.	Cultivators	April 10, 1855	I.
12867	Morrel, A. H.	Planters, cotton-seed	May 15, 1855	I.
12444	Morris, Charles	Leather straps, machine for shaving	Feb. 28, 1855	XVI.
13579	Morris, Edmund	Press, seal and stamping	Sept. 18, 1855	XVIII.
12296	Morris, Edmund	Pumps, chain, buckets for	Jan. 23, 1855	XI.
	Morris, Francis. (See Gorton, S., and Francis Morris.)			
13883	Morris, G. M., and J. Newton	Knives, scouring, machines for	Dec. 4, 1855	XVII.
13685	Morris, Hiram, Elijah K. Gorton, and Edward Sarger.	Water-wheel	Oct. 16, 1855	XI.
12339	Morrison, Edwin A., assignor to E. A. and R. J. Morrison, of Richmond, Va.	Harvesters, grain, delivering apparatus of	Jan. 30, 1855	I.
	Morrison, E. B. (See Wyckoff & Morrison.)			
12393	Morrison, Robert J., assignor to R. J. and Edwin A. Morrison.	Harvesters, grass	Feb. 13, 1855	I.
13433	Morrison, Robert J.	Harvesters, cutting apparatus of	Aug. 14, 1855	I.
	Morse, A. W. (See Maydole, James H.)			
12248	Morse, C. B.	Moulding-machine	Jan. 17, 1855	XIV.
12211	Morse, C. B.	Planing and matching-machine	Jan. 12, 1855	XIV.
12554	Morse, Ebenezer	Planters, seed	Mar. 20, 1855	I.
744	Morse, J. O., and J. W. Adams	Covers, steam-tube and hot-air	Nov. 27, 1855	Design.
13795	Morse, Joseph	Throstle-frames, giving tension to the endless band of.	Nov. 13, 1855	III.
12167	Morse, Russell S.	Dryers, fruit	Jan. 5, 1855	V.
13580	Morton, John S.	Piano-forte action	Sept. 18, 1855	XVIII.
	Moss, Lucien. (See Wiler, Wm., and Lucien Moss.)			
296	Mott, Jordan L.	Caldron and furnace, mode of constructing a combined, for the use of agriculturists and others.	Feb. 6, 1855	Reissue.
322	Mott, J. L.	Bathing-tubs	Aug. 14, 1855	Reissue.
	Mott, The J. L., Iron Works. (See John Demarest, assignor.)			
12647	Mueller, C. Gustav	Locks, bank	April 4, 1855	II.
	Muhle, Homan, and Ackerman. (See Ackerman, T., assignor.)			
12763	Munroe, William	Piano-forte action	April 24, 1855	XVIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12764	Murgatroyd, Thomas, jr	Springs, carriage	April 24, 1855	X.
13223	Murphy, James	Boilers, steam	July 10, 1855	VI.
12640	Murtaugh, Andrew	Dumb-waiters, pulley arrangements for	April 4, 1855	XVII.
	Naylor, Peter. (See Comstock, John, assignor.)			
12440	Neal, Daniel B	Fire-arms, repeating, single-barrelled	Feb. 28, 1855	XIX.
13706	Neal, Daniel B	Planters, seed	Oct. 23, 1855	I.
12213	Neale, Robert	Printing, machine for, from engraved plates	Jan. 12, 1855	XVIII.
12755	Neilson, Geo., assignor to himself and Nehemiah Hunt.	Pavements, cast-iron	April 18, 1855	IX.
13600	Nelson, Jacob	Awning for horse and dray	Sept. 25, 1855	XXII.
13793	Nelson, Richard L	Wheel, tide, self-feathering, adjusting	Nov. 13, 1855	XI.
13549	Nesbitt, Jonathan, jr., and Thos. J. Cosley	Hominy-machines	Sept. 12, 1855	XIII.
	Nesmith, O. (See Tavenner, E. C.)			
12555	Newbury, Frederick	Fire-arms	Mar. 20, 1855	XIX.
13039	Newbury, Frederick	Fire-arms, revolving	June 13, 1855	XIX.
126	Newbury, Frederick	Fire-arms	July 31, 1855	Add'l imp't.
13582	Newbury, F	Fire-arms, revolving	Sept. 18, 1855	XIX.
	Newby, Thomas. (See Conner, Jas., and Thos. Newby.)			
13040	Newcomb, Isaac M	Sawing-machine	June 13, 1855	XIV.
12215	Newcomb, John E	Harvesters, grain	Jan. 12, 1855	I.
	New England Glass Company. (See Leighton, William, assignor.)			
	Newsteter, Bull, & Haggard. (See Haggard, J., and Geo. Bull, assignors.)			
12556	Newton, Abner N	Cartridges	Mar. 20, 1855	XIX.
12282	Newton, Daniel	Folding-machines, metal	Jan. 23, 1855	II.
13096	Newton, Jonah	Cutters, mode of securing, to rotary discs	June 19, 1855	XIV.
	Newton, J. (See Morris, G. M., and J. Newton.)			
	Newton, Levi. (See Brainard, Lyman.)			
732	Newton, Orrin	Jugs, metallic, covers for	Oct. 9, 1855	Design.
12868	Nichols, Eben W	Bits, brace, securing, in their sockets	May 15, 1855	XIV.

12322	Nichols, John B	Sewing-machines	Jan. 30, 1855	III.
12214	Nichols, Oldin	Windlasses	Jan. 12, 1855	XII.
13952	Nichols, Oldin, and A. M. George	Stone-dressing machines	Dec. 18, 1855	XV.
	Nichols & Horsford. (See Horsford & Nichols.)			
12888	Nicholson, Benj. S., administrator of Jno. F. Nicholson, deceased.	Harvesters, grain	May 15, 1855	I.
12869	Niles, A. H	Carriages, joint-bodied	May 15, 1855	X.
12150	Niles, Peter H., assignor to P. H. Niles and Jona. A. Richards.	Curtain fixtures	Jan. 5, 1855	XVII.
13588	Niles, Peter H., assignor to R. C. Webster	Curtain fixtures	Sept. 18, 1855	XVII.
13757	Nixon, William	Planers, rotary, cutter-head for	Nov. 6, 1855	XIV.
12410	Noble, Samuel H	Wrenches, screw	Feb. 20, 1855	II.
13829	Noette, F., and A. Schmidt	Marble-sawing machine	Nov. 20, 1855	XV.
	Nordyke, E. (See Hunt, F. B.)			
12691	Norris, Benjamin T	Mortising blinds, machine for	April 10, 1855	XIV.
	North American Kerocene Gas Light Company. (See Gesner, Abraham, assignor.)			
	North, Chase, & North, assignees. (See Gibbs, assignor.)			
710	North, John	Birds, sewing	May 30, 1855	Design.
13069	Northrup, Joel G., assignor to Jas. D. Mather	Printing-presses	June 13, 1855	XVIII.
13653	Norton, Harrison	Ploughs	Oct. 9, 1855	I.
	Nourse, Ruggles, Mason, & Co. (See Coburn, Francis S., assignor.)			
	Nourse, Ruggles, Mason, & Co. (See Knox, Saml. A., assignor.)			
12742	Noyes, C. A	Lathes, slide-rest for	April 18, 1855	XIV.
13434	Noyes, Daniel	Forging machine	Aug. 14, 1855	II.
	Noyes, Ira. (See Richmond, E., assignor.)			
12394	Noyes, Josiah H	Lamp-extinguishers	Feb. 13, 1855	V.
12441	Nudd, Amos	Engine, fire	Feb. 28, 1855	XI.
	Nutting, M. (See Bailey, Gilbert L., assignor.)			
13136	Ockershausen, H. J. (See Bolles, Jesse Norris, assignor.)			
	O'Connor, Bernard. (See Sprague, John A.)			
12826	Odiorne, Henry B	Hemming and cording, guides for	May 8, 1855	III.
13550	Offhaus, Christian E	Engine, steam, rotary	Sept. 12, 1855	VI.
12430	Ogden, John T., assignor to J. T. Ogden and Thos. Goddard.	Carriage-windows	Feb. 20, 1855	X.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Oliver, Andrew, and Chas. G. Judd. (See Ketcham Charles, assignor.)			
13810	Oliver, Reuben W., assignor to Reuben W. Oliver and H. Hoyt.	Scrapers, road	Nov. 13, 1855	IX.
13224	O'Neil, John	Clay, machines for pulverizing	July 10, 1855	XV.
740	O'Neill, Andrew, assignor to O'Neill & Hunter	Stoves	Oct. 30, 1855	Design.
13758	O'Reilly, B.	Fires, composition for kindling	Nov. 6, 1855	V.
12137	Orr, Adrian V. B.	Shingle-machine	Jan. 5, 1855	XIV.
	Osborn & Hervey. (See Hervey & Osborn.)			
12919	Osgood, Jason C.	Excavating machines, submarine	May 22, 1855	IX.
	Oswego River Starch Company. (See Duryea, Frederick V., assignor.)			
	Otis, George W. (See Griffin, Caleb H., assignor.)			
13117	Otis, Marvin S., assignor to Chas. Rumley	Boring cylinders, machines for	June 19, 1855	II.
12519	Overdeer, Edward F.	Compositions, fire-extinguishing	Mar. 14, 1855	IV.
13400	Page, Edward	Pitchers, molasses	Aug. 7, 1855	XVII.
	Page, George	Mill-saw, portable, circular	July 17, 1855	Extension.
	Pagett, W. F. (See Hite, J. J., assignor.)			
12245	Paige, Lucius	Brake-blocks for railroad cars	Jan. 17, 1855	X.
12765	Paige, Lucius	Desk, writing, combined table and	April 24, 1855	XVII.
	Palmer, P. A. (See Chambers, G. W., assignor.)			
12323	Palmer, Aaron	Harvesters, grass, construction of the frame of	Jan. 30, 1855	I.
305	Palmer, Aaron, and S. G. Williams	Harvesters, grain	April 10, 1855	Reissue.
12604	Palmer, George W.	Bill-holder	Mar. 28, 1855	XXII.
	Palmer, J. N. (See Woodruff, G. B.)			
13273	Palmer, Oliver	Pump, rotary, wrecking	July 17, 1855	XI.
12445	Pangborn, Z.	Vessels, construction of	Feb. 28, 1855	VII.
13097	Parce, Royal	Hoops, wooden, machine for cutting locks and tapering ends of.	June 19, 1855	XIV.
12692	Parham, Samuel P.	Gas regulator	April 10, 1855	V
	Paris, W. M., and H. and E. Matteson. (See Matteson *et al.*)			

13953	Parish, Daniel	Eye, instruments for modifying focal length of the	Dec. 18, 1855	XX.
	Parker, C., assignee. (See Wm. Baker, assignor.)			
	Parker, Charles. (See Van Vliet, assignor.)			
13398	Parker, C. E., and J. Sanger	Blinds to windows, &c., mode of adjusting	Aug. 7, 1855	IX.
12324	Parker, Elijah F.	Lantern-frames	Jan. 30, 1855	V.
123	Parker, Ephraim	Sawing and planing clap-boards, machine for	May 15, 1855	Add'l imp't.
13227	Parker, F. A.	Saw-sets	July 10, 1855	XIV.
13954	Parker, Isaac N.	Mill spindle-steps	Dec. 18, 1855	XIII.
12395	Parker, Jefferson	Hogs, machine for slaughtering	Feb. 13, 1855	XXII.
	Parker, Theodore D. (See Taggart, John, assignor.)			
13098	Parker, W. D.	Ice-house	June 19, 1855	XXII.
13399	Parkhurst, B. E.	Sawing lumber, machine for	Aug. 7, 1855	XIV.
13993	Parkhurst, H. M.	Dividers, proportional	Dec. 25, 1855	VIII.
13225	Parkhurst, O., and D. Bullock	Bedsteads, machine for cutting screws on	July 10, 1855	XVII.
13272	Parmalee, S. T.	Soles, India-rubber, attaching metallic heels to	July 17, 1855	XVI.
13503	Parsons, James	Wagons	Aug. 28, 1855	X.
	Patrick, R. M. (See Bowles, Thomas, assignor.)			
13730	Patten, George	Mills, corn and cob	Oct. 30, 1855	XIII.
13656	Patton, William	Sash fastener	Oct. 9, 1855	II.
12827	Pauli, William	Ventilating railroad-cars	May 8, 1855	V.
13759	Payne, Loomis E., and Orris Pier	Mortising-machine	Nov. 6, 1855	XIV.
12828	Payne, Lyman E.	Sashes, window	May 8, 1855	IX.
13435	Payne, Lyman E.	Sashes, window, mode of hanging	Aug. 14, 1855	IX.
12707	Paynter, David E., assignor to Israel M. Bissell	Mill, paint	April 10, 1855	XIII.
12728	Peabody, Francis	Hay-making machine	April 18, 1855	I.
12870	Peabody, Francis	Mills, wind, regulating	May 15, 1855	XIII.
12963	Peabody, Francis	Harvester, grass	May 30, 1855	I.
13271	Peabody, Joseph A.	Mortising window-blinds, machine for	July 17, 1855	XIV.
13228	Peacock, A. and S.	Ploughs, attaching cast-point to steel mould-boards of.	July 10, 1855	I.
12446	Peale, Franklin	Propellers	Feb. 28, 1855	VII.
12920	Pearce, Henry	Cordage machinery	May 22, 1855	III.
13622	Pearn, Samuel	Pumps, ships'	Oct. 2, 1855	XI.
13916	Pearsall, Geo. T.	Marble, &c., machines for sawing, in taper form	Dec. 11, 1855	XV.
	Pearson, Jos. W., *et al.* (See Stevens, E. M., *et al.*)			
12138	Pearson, Samuel, jr., and William H. Gardner	Roving, regulating the size of	Jan. 5, 1855	III.
13229	Pearson, Samuel, jr., and William H. Gardner	Rope and cordage machines	July 10, 1855	III.
13686	Pease, Lewis P.	Churns	Oct. 16, 1855	I.
12283	Peaslee, Horace W.	Paper stock, machines for washing	Jan. 23, 1855	III.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13655	Peaslee, W. A.	Telegraphs	Oct. 9, 1855	VIII.
13179	Peck, Milo	Trip-hammers	July 3, 1855	II.
13137	Peckham, Henry	Straw-cutters	June 26, 1855	I.
13180	Peckham, Paul	Dressing conical tapering surfaces, machine for	July 3, 1855	XIV.
13994	Pécoul, Adolphe	Log and sounding line, combined	Dec. 25, 1855	VII.
	Pederson, J. (See Arneson, Pederson, & Rees.)			
	Pedrick, John C. (See Cunningham, Chas., assignor.)			
12429	Peirson, Jacob	Hoops, machine for manufacturing	Feb. 20, 1855	XIV.
13654	Pelton, A. S.	Steam-heating apparatus, radiators of	Oct. 9, 1855	V.
13955	Pelton, Samuel	Horse-powers	Dec. 18, 1855	XIII.
	Pennock, J. L. (See Fetter, G., and J. L. Pennock.)			
	Pennock, Moses and Samuel	Drill, seed	Mar. 9, 1855	Extension.
13041	Penny, Jos. H., and Thos. B. Rogers	Propellers	June 13, 1855	VII.
13289	Pepper, John, assignor to the "Franklin Mills"	Knitting-machines	July 17, 1855	III.
13396	Perkins, D. W.	Chairs, dental	Aug. 7, 1855	XX.
12871	Perkins, John M.	Axles, mode of attaching hubs to	May 15, 1855	X.
13012	Perkins, Sylvanus	Wheels, wagon	June 5, 1855	X.
13760	Perley, Charles	Chain locker pipes	Nov. 6, 1855	VII.
	Perrin, William	Dove-tails, square joint, machine for cutting	Mar. 22, 1855	Extension.
12244	Perry, Alonzo D.	Fire-arms	Jan. 17, 1855	XIX.
13359	Perry, Frederick	Valves, cut-off, for steam-boilers	July 31, 1855	VI.
	Peterson, Cresson, & Stewart. (See Beesley, J., and E. J. Delany, assignors.)			
12642	Peterson, Frederick A.	Ceiling, floor, fire-proof	April 4, 1855	IX.
12353	Petter, S. E.	Hats and bonnets, pressing	Feb. 6, 1855	III.
	Petter, S. E. (See Smith, J. A.)			
13761	Pettingill, H. N.	Boilers, steam	Nov. 6, 1855	VI.
13917	Pettis, Joel W.	Engines, steam, packing pistons for	Dec. 11, 1855	VI.
12743	Pheatt, J. T.	Life-preserving doors	April 18, 1855	VII.
	Phelps, Dodge, & Co. (See Camp, Lyman C., assignor.)			
13070	Phelps, Orson C., assignor to O. C. Phelps and John Holton.	Filtering, metallic medium for	June 13, 1855	XI.
324	Philips, William G.	Gates, method of opening and closing	Aug. 21, 1855	Reissue.
12557	Phillips, Daniel H.	Planters, seed	Mar. 20, 1855	I.
	Phillips, John. (See Frantz, Benjamin, assignor.)			
13825	Phin, John	Locks, gun	Nov. 20, 1855	XIX.
12872	Phipps, George W.	Window-shutters	May 15, 1855	IX.
	Pier & Payne. (See Payne & Pier.)			
13099	Pierce, David	Ware, wooden, machine for manufacturing	June 19, 1855	XIV.
13447	Pierce, Samuel, assignor to Curtis B. Pierce	Coffee-roaster	Aug. 14, 1855	XVII.
	Pierson, Charles T., assignee. (See Gardner, Smith.)			
	Pincus, Theodore. (See Koch, Louis, assignor.)			
12782	Pine, R. G.	Marble-sawing machine	Nov. 6, 1855	XV.
12954	Pitts, John A.	Straw-cutters	Jan. 17, 1855	I.
13321	Plegar, Joseph	Hinges	July 24, 1855	II.
13042	Plumbe, John	Bricks, cutting clay into	June 13, 1855	XV.
13551	Plummer, F., and G. B. Rollins	Planters, seed	Sept. 12, 1855	I.
	Polhamus, John. (See Hebbard, Henry, and J. Polhamus.)			
13025	Pollak, Anthony	Beams or girders, wrought iron	June 5, 1855	II.
	Pollak, Anthony	Beams and girders, iron		Disclaimer.
13100	Pollock, D., & J. R.	Fan-blower	June 19, 1855	V.
13884	Pomeroy, J. H.	Locks	Dec. 4, 1855	II.
12960	Pond, Erasmus A.	Pill-making machine	May 30, 1855	XX.
13797	Porter, Ansel W.	Carriage-bodies, mode of hanging	Nov. 13, 1855	X.
12753	Porter & Bradley, assignors to Dennison & Bradley.	Pump, elastic-tube	April 18, 1855	XI.
13397	Postley, Charles A.	Measuring and weighing grain, machine for	Aug. 7, 1855	XII.
13138	Powell, A., jr	Bomb-shells, fuze-stock for	June 26, 1855	XIX.
13621	Powell, Joseph	Knitting machines	Oct. 2, 1855	III.
12487	Powell, Samuel W.	Mill for grinding and bolting sumac	Mar. 7, 1855	XIII.
13200	Power, John	Cork-machine	July 3, 1855	XIV.
	Pratt, John R. (See Holmes, John B., assignor.)			
	Pray, A. A., *et al.*, assignees. (See Hooker, Thos., and W. D. Beaumont, assignors.)			
12964	Prentiss, E. Freeman	Lubricating compounds	May 30, 1855	IV.
12572	Prentiss, George A.	Wheels, axles, and friction-rollers, arrangement of	Mar. 20, 1855	X.
12301	Prince, Newell A.	Pens, fountain	Jan. 23, 1855	XVIII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Inventions or discoveries.	Date.	Class.
13995	Prince, Newell A	Pens, fountain	Jan. 23, 1855	XVIII.
	Prince, R. (See Lovis, A., and R. Prince.)			
	Prince & Stephenson. (See Thornton, Thos. F., assignor.)			
13826	Provost, W. F. and C. J	Presses, cotton	Nov. 20, 1855	XII.
13956	Pullinger, Geo. B	Railroad crossings, automatic gate for	Dec. 18, 1855	IX.
	Pullman, Emily C., administratrix of Lewis Pullman.	Building and machines for removing	Aug. 21, 1855	Extension.
	Putnam, James M., administrator of J. R. Putnam, deceased.	Harbors and rivers, machinery for removing bars and other obstructions from, and for forming and cleaning out docks.	May 5, 1855	Extension.
12961	Putnam, Silas S	Forging machine	May 30, 1855	II.
13918	Queal, Atchinson	Water-wheel, impact	Dec. 11, 1855	XI.
12317	Race, W., and B. Holly	Wheels, carriage	Jan. 30, 1855	X.
293	Radley, James, and John W. Hunter	Spark-arresters	Jan. 17, 1855	Reissue.
12783	Raines, Presley	Planters, corn	May 1, 1855	I.
12243	Ramsay, George M	Moulding machine	Jan. 17, 1855	XIV.
	Ramsay, Hastings, & Chamberlain. (See Hastings, Joel, *et al.*)			
13401	Randall, S. G., and J. H. Jones	Planters, seed	Aug. 7, 1855	I.
13013	Rankin, Andrew	Hats, manufacture of	June 5, 1855	III.
	Ransom, F., and U. Wenman	Engines, fire, mode of applying water to, so as to render their operation more effective.	Feb. 9, 1855	Extension.
12558	Ransom, L. E	Bricks, manufacture of	Mar. 20, 1855	XV.
	Rathbone & Farmer. (See Farmer, Aaron D., & R. Rathbone.)			
13436	Ray, Richard	Cotton-stalks, machine for gathering	Aug. 14, 1855	I.
13528	Ray, Richard	Cars, earth, mode of operating and dumping	Sept. 4, 1855	X.
13529	Ray, Richard	Cars, dumping, operating	Sept. 4, 1855	X.
	Read, J. A., *et al.* (See Smith, G., *et al.*, assignors.)			
	Read, J. A., *et al.* (See Smith, Brown, & Read, assignors.)			

	Reboul & Fraissinet. (See Fraissinet, E. P., and H. E. Reboul.)			
13731	Redmond, Owen	Spoke and axe-helve machine	Oct. 30, 1855	XIV.
13627	Reed, C. C., assignor to C. C. Reed and Wm. S. Reinert.	Ratans, &c., machine for preparing	Oct. 2, 1855	XXII.
	Reed, George P. (See Hawkes, Chas. W., and Reed.)			
12325	Reed, Jesse	Cable-stoppers	Jan. 30, 1855	VII.
12488	Reed, Jesse	Steering apparatus	Mar. 7, 1855	VII.
	Reed, Jesse	Pumps		Disclaimer.
	Reed, Jesse	Pumps	April 16, 1855	Extension.
12873	Reed, John A	Valves, steam-engine	May 15, 1855	VI.
12216	Reed, John A	Engines, oscillating	Jan. 12, 1855	VI.
13919	Reed, Shepherd W	Hubs, carriage	Dec. 11, 1855	X.
13583	Reeder, John M	Boilers, steam, safety apparatus for	Sept. 18, 1855	VI.
	Rees, H. (See Arneson, Pederson, and H. Rees.)			
	Rees, James. (See Carter, Henry, and Jas. Rees.)			
13885	Rehn, Isaac	Photographic bath	Dec. 4, 1855	XVIII.
13708	Reichenbach, Oscar	Oil, preparing cotton-seed for extracting	Oct. 3, 1855	IV.
13328	Reily, John	Harvesting-machines	Nov. 20, 1855	I.
13290	Reinhardt, A., assignor to Schlumberger & Co	Wool, machinery for preparing, for combing	July 17, 1855	III.
	Rennie, Robert, assignee. (See Hawes, R. L., assignor.)			
	Remington, S. (See Landphere, Asa.)			
12921	Reyman, J B	Fences	May 22, 1855	IX.
13623	Reynolds, E. K	Clock-escapement	Oct. 2, 1855	VIII.
13103	Reynolds, Harrison D	Grain-cleaners	June 19, 1855	I.
12398	Reynolds, Ira	Ploughs	Feb. 13, 1855	I.
13292	Reynolds, John A	Fire-arms	July 17, 1855	XIX.
13293	Reynolds, John A	Fire-arms	July 17, 1855	XIX.
13294	Reynolds, John A	Fire-arms, repeating, apparatus for cooling (L)	July 17, 1855	XIX.
12832	Rhodes, M. M. and J. C	Jacks, machine for leathering	May 8, 1855	XXII.
13360	Rhodes, William H	Legs, artificial	July 31, 1855	XX.
13043	Rice, A. S., and Guy Tozer	Saw-mill dog	Sept. 8, 1855	XIV.
13798	Rice, Charles, and Sylvanus H. Whorf	Shoes, lasting and applying soles to	Nov. 13, 1855	XVI.
13972	Richmond, E, assignor to Ira Noyes	Lamp-extinguishers	Dec. 18, 1855	V.
	Richmond, Wager, & Smith. (See Wager, Richmond, & Smith.)			
12520	Rider, F. C	Lamps	Mar. 14, 1855	V.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13501	Riehl, M.	Books, machine for trimming	Aug. 28, 1855	XVIII.
	Ripley, E. (See Vedder, N. S.)			
741	Ripley, E., and N. S. Vedder, assignors to Johnson, Cox, Lesley, & Co.	Stoves, cooking	Oct. 30, 1855	Design.
12830	Ripley, Ezra	Faucet, balance-gate	May 8, 1855	XI.
13996	Ripley, Ezra	Mills for grinding grain, &c	Dec. 25, 1855	XIII.
	Ritter & Krauser. (See Krauser, S., and C. Ritter.)			
13997	Robb, James	Corn-shellers	Dec. 25, 1855	I.
13044	Robbins, E. A	Accordeons, method of tuning	June 13, 1855	XVIII.
13322	Robbins, H T	Looms, shuttle-guides for	July 24, 1855	III.
13601	Robbins, John S	Ships' rudders	Sept. 25, 1855	VII.
12766	Robbins, Louis S	Stone, machines for polishing	April 24, 1855	XV.
13448	Robbins, Z. Coleman, assignor to A. Martin	Mills for compressing and grinding grapes and other small fruit.	Aug. 14, 1855	XIII.
12284	Roberts, Albert W	Engines, fire	Jan. 23, 1855	XI.
13827	Rice, Charles, and S. H. Whorf	Boots and shoes, machine for preparing leather for manufacture of.	Nov. 20, 1855	XVI.
13920	Rice, Charles, and S. H. Whorf	Leather, machines for cutting articles from	Dec. 11, 1855	XVI.
12490	Rice, Edward	Car, railroad, coupling	Mar. 7, 1855	X.
13139	Rice, Elisha E	Brake, railroad car	June 26, 1855	X.
12139	Rich, Obadiah	Processes for extracting tannin from leather	Jan. 5, 1855	IV.
	Richards, Capron, & Dennis. (See Capron, Addison, assignor.)			
12826	Richards, Gilbert	Spark-arrester	May 8, 1855	VI.
	Richards, Henry M. (See Dennis, Joseph S., and A. Capron, assignors.)			
	Richards, Jonathan A. (See Niles, Peter H., assignor.)			
	Richardson & Elder. (See Elder, John A., and John Richardson.)			

13102	Richardson, John	Harvester rakes, &c., producing intermittent acceleration of motion in.	June 19, 1855	I.
		Chisels, socket, handles for	June 19, 1855	XIV.
13101	Richardson, L. T	Franklin fire-place	July 31, 1855	Design.
716	Richardson, N. P	Stoves, cooking	Aug. 14, 1855	Design.
719	Richmond, Apollos, assignor to A. C. Barstow & Co.	Hose-pipes, nozzle for	May 8, 1855	XI.
12831	Roberts, Albert W	Sewing-machines	Mar. 20, 1855	III.
12557	Robertson, T. J. W., assignor to Robertson & A. E. Beach.	Sewing-machines	May 22, 1855	III.
12923	Robertson, T. J. W	Sewing-machines	June 13, 1855	III.
13064	Robertson, T. J. W	Soda-fountains, combination of an air-chamber, water-cooler, and force-pump in.	Mar. 7, 1855	IV.
12489	Robins, Newton D	Sewing-machines, guide for	July 17, 1855	III.
13275	Robinson, Frederick R	Cultivator, hand	Feb. 20, 1855	I.
12428	Robinson, Jonathan A	Plane for finishing grooves in gutters, &c	Dec. 18, 1855	XIV.
13957	Robinson, John P	Kilns, lime	Jan. 17, 1855	XV.
12242	Robinson, Samuel H	Stave-machine	July 10, 1855	XIV.
13230	Robinson, William	Mowing-machines	July 3, 1855	I.
13181	Rockafellow, Samuel	Mowing-machines	Dec. 11, 1855	Reissue.
334	Rockafellow, Samuel	Candlesticks	Feb. 28, 1855	Reissue.
297	Rockwell, Francis A., assignor to John W. Rockwell	Sash-supporters	May 8, 1855	IX.
12833	Rode, Charles R	Bedstead-fastenings	April 10, 1855	XVII.
12693	Rodefer, Joseph	Pump, force	Jan. 30, 1855	XI.
12326	Rogers, Henry	Signal-flags	Jan. 5, 1855	VII.
12140	Rogers, Henry J			
	Rogers, Thomas B. (See Penny, Jos. H., and Thos. B. Rogers.)			
717	Rogers, W. A	Bottles and jars, labels on	Aug. 7, 1855	Design.
13500	Rohan, David	Shutters or blinds for stores	Aug. 28, 1855	IX.
13855	Rolland, Jean Louis	Ovens for baking bread and other aliments	Nov. 27, 1855	V.
12217	Rolland, John Lewis	Dough, kneading, machines for	Jan. 12, 1855	XVII.
13998	Rollins, John P	Bit, extension	Dec. 25, 1855	XIV.
	Rollins & Plummer. (See Plummer, F., and G. B. Rollins.)			
13182	Rollow, John J	Corn, machine for shucking and shelling	July 3, 1855	I.
12447	Romaine, Robert	Planters, seed	Feb. 28, 1855	I.
12285	Root, E. K	Rifling-machine, compound	Jan. 23, 1855	XIX.
12874	Root, E. K	Lathe, slide	May 8, 1855	XIV.
13999	Root, E. K	Fire arms, revolving	Dec. 25, 1855	XIX.
12643	Roscoe, Stephen R	Fire-escape ladder	April 4, 1855	XXII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12695	Rose, Charles	Blinds, Venetian window	April 10, 1855	IX.
12694	Rose, Ira	Straw-cutters	April 10, 1855	I.
12965	Rosenthal, Henry A	Uterine supporters	May 30, 1855	XX.
13499	Ross, F. A., and W. H. Marshall	Sewing-machine cases	Aug. 28, 1855	III.
13764	Ross, J. W.	Sashes, window, mode of hanging	Nov. 6, 1855	IX.
	Ross, S. F. (See Cahoon, P. S., and Ross.)			
13183	Rowand, A. H	Printing-presses, machine for feeding sheets of paper to.	July 3, 1855	XVIII.
13657	Rowland, Robert, Dr	Vinegar rooms and white lead corroding chambers, mutual arrangement of	Oct. 9, 1855	IV.
12922	Rowland, Thomas F., James Stephens, and W. H. Mason.	Drying grain, apparatus for	May 22, 1855	V.
12168	Rudolph, F.	Scaffolds, elevating	Jan. 5, 1855	IX.
	Ruggles, B. H. (See Billings, A. C., and B. H. Ruggles.)			
	Ruggles, Nourse, Mason, & Co. (See Coburn, Francis S., assignor.)			
	Ruggles, Nourse, Mason, & Co. (See Knox, Samuel, assignor.)			
13437	Ruggles, Stephen P	Gas-regulators	Aug. 14, 1855	V.
13470	Ruggles, Stephen P	Stamp, hand	Aug. 21, 1855	XVIII.
	Rumley, Charles, assignee. (See Otis, Marvin S., assignor.)			
12782	Russell, Clement	Horse-powers	May 1, 1855	XIII.
12327	Russell, David	Harvester-cutters	Jan. 30, 1855	I.
12466	Russell, David	Ploughs, spade	Feb. 28, 1855	I.
12696	Russell, David	Straw-cutters	April 10, 1855	I.
12785	Russell, David	Sash, window, supporters	May 1, 1855	IX.
13498	Russell, E. G.	Valve, regulating, for steam-engines	Aug. 28, 1855	VI.
12463	Russell, Fisk	Mowing-machines	Feb. 28, 1855	I.
12559	Russell, Fisk	Mowing-machines	Mar. 20, 1855	I.
13438	Russell, Fisk	Harvesters	Aug. 14, 1855	I.

13323	Russell, J. Thornton	Wagons	July 24, 1855	X.
13104	Russell, John W	Turning excentrics, chuck for	June 19, 1855	XIV.
12521	Russell, Jesse	Kilns, brick	Mar. 14, 1855	XV.
12875	Russell, S. J	Furnace, hot-air	May 15, 1855	V.
323	Ruttan, Henry	Buildings, &c., warming and ventilating	Aug 14, 1855	Reissue.
128	Ruttan, Henry	Ventilating and warming houses	Dec. 4, 1855	Add'l imp't.
13274	Ryan, John	Car, railroad, coupling	July 17, 1855	X.
13765	Sadgebury, James	Clamps, clothes	Nov. 6, 1855	XVII.
	Sarger, *et al.* (See Morris, *et al.*)			
12425	Sage, William	Heater, air	Feb. 20, 1855	V.
13364	Salisbury, Elam C	Cars, railway, excluding dust from	July 31, 1855	X.
13886	Sampson, James H	Boot-trees	Dec. 4, 1855	XVI.
13331	Sanborn, Augustus, assignor to C. and T. Fairbanks & Co.)	Scales, union-platform	July 24, 1855	XII.
306	Sanders, B. D	Winnowing-machine	April 10, 1855	Reissue.
13324	Sandgren, T. E	Hydrodynamic friction-joints	July 24, 1855	XI.
13802	Sanford, D. W. C	Refrigerators	Nov. 13, 1855	V.
12426	Sanford, N. C	Skates	Feb. 20, 1855	XXII.
12427	Sanford, N. C	Skates	Feb. 20, 1855	XXII.
12218	Sanford, Samuel T	Carriage-cramp	Jan. 12, 1855	X.
	Sanger, J. (See Parker, C. E., and J. Sanger.)			
325	Sangster, H. and J	Lanterns	Aug. 21, 1855	Reissue.
	Sargent, Epes W. (See Weissenborn, Gustavus, assignor.)			
	Sargent, Jas., and D. P. Foster. (See Tolmon, C. C., assignor.)			
13801	Satterthwait, Barclay A	Teeth, artificial, preparing	Nov. 13, 1855	XX.
	Saunders, Chauncey W. (See Chase, Nehemiah B.)			
13231	Saunders, Stephen	Ships and other vessels, vibrating stop-water for	July 10, 1855	VII.
13767	Savage, Elliot	Screw-blanks, arranging and feeding	Nov. 6, 1855	II.
13667	Savage, Elliot, and Noah C. Smith	Cans, double-seaming, machine for	Oct. 9, 1855	XVII.
13799	Sawyer, S	Projectile, compound	Nov. 13, 1855	XIX.
12141	Sawyer, Sylvanus	Ratans, machine for splitting into strips	Jan. 5, 1855	XXII.
13800	Saxton, Nathaniel S	Adding numbers, machine for	Nov. 13, 1855	XIII.
	Schell & Finger. (See Finger, Louis, assignor.)			
12729	Schenck, John B	Valve gear, cut-off	April 18, 1855	VI.
13232	Schemer, Frederick	Scales, counter	July 10, 1855	XII.
13602	Schevenell, H. and Richard S	Mouldings, ornamental, machines for cutting	Sept. 25, 1855	XIV.
13887	Schinz, Charles	Furnaces, self-regulating, hot blast for	Dec. 4, 1855	V.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12967	Schlough, Jacob C	Furnaces, grate-bars for	May 30, 1855	V.
	Schlumberger & Co. (See Reinhardt, A.)			
13960	Schonacker, H	Piano-fortes	Dec. 18, 1855	XVIII.
	Schmidt, A. (See Noette, F., and A. Schmidt.)			
12286	Schmitz, Eloy	Furnaces, apparatus for supplying, with pulverized material.	Jan. 23, 1855	V.
12784	Schneider, John	Locks, door, alarm attachment for	May 1, 1855	II.
	Scholefield, H. (See Bell & Scholefield.)			
12530	Schooley, John C	Meats, processes of curing	Mar. 14, 1855	XVII.
13961	Schwabe, Jul. E	Ore, galena or lead, treating	Dec. 18, 1855	II.
316	Scott, Lyman	Mills, portable grinding	July 10, 1855	Reissue.
13666	Scott, William J	Shingle-bolt, method of feeding the, to knives	Oct. 9, 1855	XIV.
	Scoville Manufacturing Company. (See Brown, Edward, assignor.)			
	Scrimgeour, James. (See Chilcott, John.)			
13962	Scripture, E. S	Hubs, attaching, to axles	Dec. 18, 1855	X.
	Scroggs, J. A. (See Guard, C. H., assignor.)			
13051	Searles, H. D	Railroads, guard rails of, to be used with pronged cow-catchers.	June 13, 1855	IX.
13963	Searles, Isaac	Hat bodies, felting	Dec. 18, 1855	III.
12328	Sehorn, A. O. H. P	Fire-arms, portable	Jan. 30, 1855	XIX.
13105	Selby, James	Drills, seed	June 19, 1855	I.
12329	Selleck, Thaddeus	Franklinite ore, methods of working	Jan. 30, 1855	IV.
13361	Sellers, William	Hats, ventilating	July 31, 1855	XXI.
13625	Sellers, William, and James Walker	Moulding circular and under-cut work	Oct. 2, 1855	II.
13152	Senneff, Jacob	Looms, harness for, machines for making	June 26, 1855	III.
13439	Sexton, Samuel B	Furnaces for heating buildings	Aug. 14, 1855	V.
	Sexton, S. B. (See Conklin, James H., assignor.)			
12971	Seymour, Alfred B	Metal, sheet, pipes, machines for helically creasing	May 30, 1855	II.
13449	Seymour, Edward L., assignor to W. O. Bourne	Sifting, apparatus for	Aug. 14, 1855	XXII.
13326	Seymour, P	Planters, seed	July 24, 1855	I
	Shaler, J. S., *et al.* (See Taggart, John, assignor.)			

12576	Shaler, Reuben	Ore-separator	Mar. 20, 1855	II.
13049	Sharps, Christopher, and George E. Adriance	Tenoning-machine	June 13, 1855	XIV.
13965	Shattuc, Samuel	Collar, horse	Dec. 18, 1855	XVI.
	Shaw, J. A. B. (See Wimbey, John M., assignor.)			
12267	Shaw, William F	Gas-heater	Jan. 23, 1855	V.
13365	Shepard, George S	Musical reed instruments	July 31, 1855	XVIII.
13803	Sherman, H. N	Bedstead-screws, forming heads on	Nov. 13, 1855	XVII.
12834	Sherman, Josiah J	Processes for preparing liquids for aiding digestion	May 8, 1855	IV.
12968	Shibles, W., assignor to W. Shibles and Edward O'Brien.	Sails, top, reefing	May 30, 1855	VII.
	Shinn, John. (See Whiteside, William.)			
12560	Shive, David	Daguerreotype-plates, machine for polishing	Mar. 20, 1855	XVI.
13665	Shive, David	Daguerreotype-plate holder	Oct. 9, 1855	XVIII.
12605	Sholl, David	Coffins	Mar. 28, 1855	XXII.
13766	Shryock, Samuel W	Drilling and boring machine	Nov. 6, 1855	II.
13831	Sickels, Gerard	Coal-sifters	Nov. 20, 1855	V.
	Sergfried, W. D. (See Mathers, E.)			
13585	Sigourney, John M	Wheels, car, cooling cast-iron	Sept. 18, 1855	X.
13202	Silver, Thomas	Engine, marine, steam-governors	July 3, 1855	VI.
13050	Silvy, Joseph C	Locks, door	June 13, 1855	II.
13888	Simmons, Nathan	Cloth-stretching rollers	Dec 4, 1855	III.
12699	Simonton, Thomas C., and Loren J Wicks	Straw-cutters	April 10, 1855	I.
12731	Simpson, John	Horse-powers	April 18, 1855	XIII.
13441	Simpson, John	Gins, cotton	Aug. 14, 1855	III.
13921	Singer, Isaac M	Carving wood, &c., machine for	Dec. 11, 1855	XIV.
12364	Singer, Isaac M	Sewing-machines	Feb. 6, 1855	III.
12969	Singer, Isaac M	Sewing-machines	May 30, 1855	III.
13065	Singer, Isaac M	Sewing-machines	June 12, 1855	III.
13362	Singer, Isaac M	Sewing-machines	July 31, 1855	III.
13661	Singer, Isaac M	Sewing-machines	Oct. 9, 1855	III.
13662	Singer, Isaac M	Sewing-machines	Oct. 9, 1855	III.
13687	Singer, Isaac M	Sewing-machines	Oct. 16, 1855	III.
13768	Singer, Isaac M	Sewing-machines	Nov. 6, 1855	III.
13966	Singer, Isaac M	Sewing-machines	Dec. 18, 1855	III.
12169	Sirret, Emile	Rakes	Jan. 5, 1855	I.
13624	Sizer, Henry, and Elisha Stone	Hatchways, opening and closing, apparatus for	Oct. 2, 1855	IX.
12330	Skelley, John	Carriage-wheels	Jan. 30, 1855	X.
	Skinner & Brothers, assignees. (See Gibbs, Sam'l W., assignor.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13658	Skinner, S. A	Gate, farm	Oct. 9, 1855	IX.
12186	Slaight, Thomas	Locks, pad	Jan. 5, 1855	II.
12835	Sloan, Thomas J	Boilers, steam, apparatus for regulating supply of water to	May 8, 1855	VI.
	Slocum, Samuel	Pins, machine for sticking into paper	Oct. 1, 1855	Extension.
332	Slocum, Samuel	Pins, machine for sticking into paper	Dec. 4, 1855	Reissue.
13233	Smart, Joseph	Pumps, &c., self-regulating, water-packing for	July 10, 1855	XI.
	Smiley, De Witt C. (See Swan, Elias A.)			
13171	Smith, Albert M	Car, railroad, seats	Aug 21, 1855	X.
13347	Smith, Alfred E	Axles, washers for	July 24, 1855	X.
13804	Smith, Alfred E	Shafts, mode of securing to axles	Nov. 13, 1855	X.
12644	Smith, Alpheus D	Car, railroad, seats	April 4, 1855	X.
12241	Smith, Arnton	Ploughs	Jan 17, 1855	I.
12754	Smith, E. Harry, assignor to Wheeler & Wilson Manufacturing Company.	Sewing-machines	April 18, 1855	III.
13184	Smith, Edward Q	Mortises, method of cutting straight or curved	July 3, 1855	XIV.
684	Smith, G., H Brown, and J. A. Read, assignors to J. G. Abbott and A. Lawrence.	Stoves, cooking	Jan. 5, 1855	Design.
685	Smith, G., H. Brown, and J. A. Read, assignors to J. G. Abbott and A. Lawrence.	Stoves, parlor cook	Jan. 5, 1855	Design.
686	Smith, G., H. Brown, and J. Holzer, assignors to Abbott & Lawrence.	Stoves	Jan. 5, 1855	Design.
702	Smith, G., H. Brown, and J. A. Read, assignors to J. G. Abbott and A. Lawrence.	Water-coolers	May 1, 1855	Design
14001	Smith, Gilbert	Fire-arms, breech-loading	Dec. 25, 1855	XIX.
13403	Smith, George W	Tanning apparatus	Aug. 7, 1855	XVI.
14000	Smith, George W	Looms for weaving wire	Dec. 25, 1855	III.
742	Smith, G., and H. Brown, assignors to Leibrandt, McDowell, & Co.	Stoves, coal	Nov. 6, 1855	Design.
12247	Smith, H. B	Sewing-machine	Jan. 17, 1855	III.
13664	Smith, H. R	Seeding-machines	Oct. 9, 1855	I.
13048	Smith, Henry W	Organs and melodeons, coupling for	June 13, 1855	XVIII.
13663	Smith, Hezekiah B	Mortising-machine	Oct. 9, 1855	XIV.
12786	Smith, J. E., and S. E. Petter	Paper bags and envelopes, machine for making	May 1, 1855	XVIII.
12531	Smith, James	Stone pasteboard, manufacture of	Mar. 14, 1855	XV.
13413	Smith, James, assignor to Smith & Botterill	Looms, temples for	Aug. 7, 1855	III.
12454	Smith, Jeremiah P	Corn-shellers	Feb. 28, 1855	I.
13922	Smith, Jeremiah P	Corn-shellers	Dec. 11, 1855	I.
12187	Smith, John	Engines, steam, crank connexion in double piston	Jan. 5, 1855	VI.
	Smith, John W. (See Gallaher, John S., jr., and John W. Smith.)			
12491	Smith, John W., and John S. Gallaher, jr	Fire-place	Mar. 7, 1855	V.
	Smith, Joseph. (See Gaston, Alexander H.)			
12732	Smith, Lewis	Bearings, compensation	April 18, 1855	XII.
	Smith, Noah C. (See Savage and Smith.)			
12354	Smith, Robert A., and John Hartman, jr	Street-sweeping machine	Feb. 6, 1855	IX.
13709	Smith, Robert A	Sweeping gutters, machine for	Oct. 23, 1855	XXII.
13014	Smith, S. J. H	Portfolios	June 5, 1855	XVIII.
12797	Smith, Solomon P	Sash, &c., machine for clamping	May 1, 1855	XIV.
12424	Smith, S. R., and E. Cowles	Slivers, machines for cutting wood into	Feb. 20, 1855	XIV.
	Smith, T. B., and E. Strange. (See Strange, E., and T. B. Smith.)			
12606	Smith, William S	Wheel, current	Mar. 28, 1855	XI.
	Smith, Wager, & Richmond. (See Wager, Richmond, & Smith.)			
12653	Smithson, F. L	Cultivators	April 4, 1855	I.
13659	Smylie, John, jr	Bottle fastenings, register	Oct. 9, 1855	XXII.
12698	Smyth, David M	Balances, platform	April 10, 1855	XII.
12561	Snell, Benjamin M	Planters, seed	Mar. 20, 1855	I.
12970	Snell, Daniel W	Looms	May 30, 1855	III.
	Snell, Robert. (See Chilcott, John.)			
	Snow, O., and G. B. Farnum. (See Barden, John S., assignor.)			
	Snyder, T. L. (See Chatfield, Henry, assignor.)			
13440	Somerby, Gustavus A., and Charles W. Fogg	Brake, railroad car	Aug. 14, 1855	X.
12655	Soule, George H	Fire-arms, breech-loading	April 4, 1855	XIX.
13234	Soule, Samuel W	Excavators	July 10, 1855	IX.
12700	Southworth, A. S	Cameras, plate-holder for	April 10, 1855	XVIII.
13106	Southworth, A. S., and J. J. Hawes	Stereoscopic pictures, apparatus for moving	June 19, 1855	XVIII.
13235	Spafford, Sophia B., and George Alexander, administratrix and administrator of Simeon L. Spafford.	Railroad signal, draw-bridge	July 25, 1855	IX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
	Sparhawk, G. (See Jillson & Sparhawk.)			
13404	Spaulding, Addison	Legs, artificial	Aug. 7, 1855	XX.
13964	Spaulding, Isaac	Saw-sets	Dec. 18, 1855	XIV.
12796	Spear, Matthew	Mitre-box	May 1, 1855	XIV.
13552	Speed, J. J., jr., and J. A. Bailey	Springs, railroad car, conical plate	Sept. 12, 1855	X.
12448	Spencer, George S. G	Furnaces, hot-air	Feb. 28, 1855	V.
13015	Spencer, George S. G	Furnace for warming buildings	June 5, 1855	V.
	Spencer, Wm. A., administrator. (See Foster, A.)			
13016	Spiller, Joseph D	Bench-rest	June 5, 1855	XIV.
12562	Sprague, John A., and Bernard O'Connor	Carts, self-loading	Mar. 20, 1855	X.
12331	Squire, George L	Straw-cutters	Jan. 30, 1855	I.
12492	Stainthorp, John	Candles, machines for making	Mar. 7, 1855	IV.
13140	Starr, Alfred A	Blinds, window, adjuster of	June 26, 1855	IX.
	Starr, Frederick, assignee. (See Gibbons, Dwight, assignor.)			
12573	Stedman, George W	Sewing-machines	Mar. 20, 1855	III.
12798	Stedman, George W	Sewing-machines	May 1, 1855	III.
13201	Stedman, George W	Sewing-machines	July 3, 1855	III.
13856	Stedman, George W	Sewing-machines	Nov. 27, 1855	III.
12449	Steele, William	Tenoning-machine	Feb 28, 1855	XIV.
13118	Steer, Isaac H., assignor to Henry Carter	Nuts, making	June 19, 1855	II.
13411	Stenger, Philip, assignor to Pascal Yearsley	Glass, sheet, manufacture of	Aug. 7, 1855	XV.
	Stephens, James, *et al.* (See Rowland, Thos. F.)			
12423	Stephens, William	Lathes, slide-rest for	Feb. 20, 1855	XIV.
13530	Stephenson, C. and G	Seeding-machines	Sept. 4, 1855	I.
	Stephenson & Prince. (See Thornton, Thos F., assignor.)			
13047	Sterry, Edward A	Faucet	June 13, 1855	XI.
12924	Stevens, E. M., Jos. B. Crosby, & Jos. W. Pearson.	Planters, seed	May 22, 1855	I.
12189	Stevens, Joshua, assignor to Massachusetts Arm Company.	Fire-arms, repeating	Jan. 5, 1855	XIX.
13141	Stevens, L., and S. B. Ellithorp	Blinds, window, doors, &c	June 26, 1855	IX.
13107	Stevens, Sylvester	Engines, rotary	June 19, 1855	VI.
	Stevens, Robert L. and Francis B., assignors to James A. Stevens.	Valves, steam, of steam-engines when the steam is cut off and allowed to act expansively, method of working the.	Jan. 5, 1855	Extension.
12450	Stevenson, Joseph	Life-preserver, bed-boat or.	Feb. 28, 1855	VII.
12219	Stevenson, William J	Tin cans, apparatus for soldering	Jan. 12, 1855	II.
12799	Stever, Jeremiah	Metals, machines for burnishing	May 1, 1855	II.
	Stewart, Cresson, & Peterson. (See Beesley, J., and E. J. Delany, assignors.)			
12493	Stewart, Linns	Saw-plates, constructing, and setting teeth therein	Mar. 7, 1855	XIV.
14003	Stickney, Ancil	Planters, hand seed	Dec. 25, 1855	I.
12807	Stillman, Alfred, deceased, Elizabeth A. Stillman, administratrix of.	Furnaces for burning bagasse	May 2, 1855	V.
13363	Stillman, Paul	Boilers, steam, water-gauges for	July 31, 1855	VI.
12396	Stillman, S. N. and W. F	Rakes, garden	Feb. 13, 1855	I.
	Stimpson, James C. (See Hall, Hiram L., assignor.)			
12876	Stimpson, James H	Butter-coolers	May 15, 1855	XVII.
13584	Stinson, John	Latitude and longitude, instrument for determining	Sept. 22, 1855	VIII.
13185	Stinson, William	Planters, corn	July 3, 1855	I.
13330	St. John, M. W., and J. Brown	Street sweeping-machine	Nov. 20, 1855	IX.
12332	Stockdale, Joseph	Cultivator-teeth	Jan. 30, 1855	I.
12260	Stockstill, Stephen L, and Peter H. Humes	Planters, seed	Jan 17, 1855	I.
12532	Stoddard, F. S	Spinning wool, machinery for	Mar. 14, 1855	III.
13668	Stoddard, J. C	Music, producing, by steam or condensed air	Oct. 9, 1855	XVIII.
13151	Stoddard, Oren	Planters, corn, to be operated by hand	June 26, 1855	I.
12656	Stoddard, William	Bedsteads, folding	April 4, 1855	XVII.
12966	Stoddart, David	Valves, cut-off	May 30, 1855	VI.
13236	Stoeckel, Andrew	Pianos, tables, &c, machine for cutting legs for	July 10, 1855	XVIII.
13402	Stone, Amasa	Bottles, glass, and similar articles, forming screw-threads, &c., in the necks of.	Aug. 7, 1855	XXII.
12708	Stone, J. M., assignor to Manchester Locomotive Works.	Locomotive-drivers, lathes for turning	April 10, 1855	II.
13598	Storm, Wm. Mt	Engines, gas, method of actuating	Sept. 22, 1855	VI.
13660	Storm, Wm. Mt	Cartridges, fire-extinguishing, applying	Oct. 9, 1855	V.
12355	Storm, Wm. Mt	Steam-generators	Feb. 6, 1855	VI.
13276	Stott, John B., and Alexander Ferguson	Valves, steam-engine, cross-head attachment for working.	July 17, 1855	VI.
14002	Stout, Thomas B	Mills, corn and cob	Dec. 25, 1855	XIII.
13046	Stow, Orson W	Metal, sheet, folding-machine	June 13, 1855	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12836	Stowell, John	Fire-arms	May 8, 1855	XIX.
12654	Strait, Hiram	Boilers, steam, arrangement of means for freeing from sediment.	April 4, 1855	VI.
13531	Strange, E., and T. B. Smith	Sawing hoops, machine for	Sept. 4, 1855	XIV.
12972	Stratton, Richard A	Chairs for dentists' use	May 30, 1855	XX.
12973	Street, Chapin	Grain-drills	May 30, 1855	I.
12563	Street, Elihu	Mortising and tenoning	Mar. 20, 1855	XIV.
12289	Streeter, Abel W	Bitts, centre, fastening	Jan. 23, 1855	II.
12988	Streeter, Leander R, assignor to Leander R. Streeter and Ira Leonard.	Amalgamating the precious metals	May 30, 1855	IV.
12744	Stryker, John	Cultivators	April 18, 1855	I.
13723	Stuber, J., and T. Hardin	Lamps	Oct. 30, 1855	V.
	Sturdevant, Lewis G	Gins for ginning cotton, manner of constructing		Extension.
12451	Stull, John	Stereoscope case	Feb. 28, 1855	XVIII.
12837	Suffern, Andrew J	Rolling railroad rails, machine for	May 8, 1855	II.
12533	Sutton, James H.	Furnaces, air-heating	Mar. 14, 1855	V.
12259	Sutton, John	Lubricator for steam-engines	Jan. 17, 1855	XII.
12280	Sutton, John	Lubricator for steam-machinery	Jan. 23, 1855	XII.
13769	Sutton, John	Lubricator, self-feeding atmospheric	Nov. 6, 1855	XII.
	Swan, assignee. (See Dickinson, assignor.)			
13343	Swan, Elias A., and Dewitt C. Smiley	Stone, dressing and carving, machinery for	July 24, 1855	XV.
13045	Swan, George H	Stave-machine	June 13, 1855	XIV.
13237	Swany, C. M	Rails, stair	July 10, 1855	XIV.
	Sweeney & Lacour, assignees. (See Koch, Louis, assignor.)			
12701	Sweeney, Thomas & John	Friction-rollers, adjustable	April 10, 1855	IX.
	Sweet, George C. (See Boardman, Byron.)			
	Swetland, S. H., *et al.* (See Warren, Geo., *et al.*)			
13857	Swett, C. A	Printing-press	Nov. 27, 1855	XVIII.
13562	Swift, Anson A, assignor to himself and Samuel L. Hill.	Thread, a single, machine for trebling	Sept. 12, 1855	III.
12985	Swingle, Alfred, assignor to Elmer Townsend	Pegging, hand, machines	May 30, 1855	XVI.

13474	Swyney, John, assignor to Jno. Swyney and James Dandridge.	Fire-arms, magazine, breech-loading	Aug. 21, 1855	XIX.
13142	Sykes, Joseph	Mandrel-guide, wheelwrights'	June 26, 1855	XIV.
12745	Sylla, Philo	Harvesters, grain and grass	April 18, 1855	I.
12848	Taggart, John, assignor to himself and Nehemiah Hunt.	Sawing wedges or shingles, machine for	May 8, 1855	XIV.
12887	Taggart, John, assignor to J. Taggart and J. S. Shaler.	Meter, fluid	May 15, 1855	XI.
13611	Taggart, John, assignor to himself and Theodore D. Parker.	Legs, artificial	Sept. 25, 1855	XX.
13896	Taggart, John, assignor to himself and Vernon Brown.	Stone, channelling, machine for.	Dec. 4, 1855	XV.
12422	Taggart, Samuel	Bolts, flour, feeding	Feb. 20, 1855	XIII.
13925	Talbot, G. H	Auger-handles	Dec. 11, 1855	XIV.
12170	Taplin, John A	Saw, path-finding, method of hanging a	Jan. 5, 1855	XIV.
	Tarbell & Co. (See Blanchard, A. J., assignor.)			
	Tarbox, James R. (See Keeney, William J.)			
122	Tasker, Thomas T	Furnace of hot-water apparatus, mode of regulating the.	May 8, 1855	Additn'l improvement.
	Tatham, Benjamin and George N	Pipes or tubes of lead, tin, and other metallic substances, machinery for making.	Sept. 24, 1855	Extension.
12838	Tavenner, E. C., and O. Nesmith	Ploughs	May 8, 1855	I.
13407	Tay, John B	Leather-splitting machines, bed-spring of	Aug. 7, 1855	XVI.
13143	Taylor, Charles	Grain, grass, &c, machines for cutting.	June 26, 1855	I.
13366	Taylor, C. C	Water-wheel, bucket for	July 31, 1855	XI.
13924	Taylor, Francis	Piano-forte action	Dec. 11, 1855	XVIII.
13626	Taylor, Hiram and Jno. C	Plane, crozing, coopers'	Oct. 2, 1855	XIV.
12465	Taylor, James A	Mop-heads	Feb. 6, 1855	XVII.
13732	Taylor, J. K	Ventilating railroad cars	Oct. 30, 1855	V.
13052	Taylor, Samuel	Roofs, plank, for buildings	June 13, 1855	IX.
12453	Teese, Lewis, & Son	Forks for gold-diggers	Feb. 28, 1855	I.
12808	Temple, James, assignor to Israel Ward & James Temple.	Boring fence-posts, machine for	May 1, 1855	XIV.
13405	Temple, William J	Tongue, iron, self-adjusting	Aug. 7, 1855	X.
13108	Ten Eyck, Peter	Brake, self-acting, for vehicles	June 19, 1855	X.
	Terry, Henry. (See Heck, John M., assignor.)			
12975	Terry, J. B.	Pin-sticking machine	May 30, 1855	II.
13553	Terry, J. B.	Pins, sticking, machine for crimping paper for	Sept. 12, 1855	II.
12222	Tesh, Frederick	Beef-spreader	Jan. 12, 1855	XXII.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12250	Tewkesbury, Abijal R.	Steering apparatus	Jan. 17, 1855	VII.
327	Thatcher, J. M.	Stoves, air-heating	Sept. 12, 1855	Reissue.
13017	Thayer, H. H.	Clay, machines for kneading	June 5, 1855	XV.
13111	Thomas, Charles F.	Boilers, steam	June 19, 1855	VI.
13238	Thomas, Charles F.	Locomotives, means for increasing draughts in	July 10, 1855	VI.
13832	Thomas, George H.	Evaporating pans, method of inserting tubes in	Nov. 20, 1855	V.
12746	Thomas, John J.	Engines, rotary	April 18, 1855	VI.
12207	Thomas, Leopold and Jos.	Match-machines	Jan. 23, 1855	XIV.
13186	Thomas, Samuel T., (No. 1)	Looms	July 3, 1855	III.
13187	Thomas, Samuel T., (No. 2)	Looms	July 3, 1855	III.
12703	Thomas, William	Cabin-chairs	April 10, 1855	VII.
	Thompson, A. & D. (See Barber, D. S.)			
13026	Thompson, A. S.	Cloaks, cutting	Dec. 11, 1855	XXI.
12733	Thompson, Caleb A.	Printers' ink, making	April 18, 1855	XVIII.
	Thompson, Charles. (See Chamberlain, D. H., assignor.)			
13325	Thompson, George	Potash and soda, preparing	July 24, 1855	IV.
	Thompson, J. B. (See Darker, Wm., jr., assignor.)			
12877	Thompson, J. H., J. M., and H. Q.	Boots and shoes, machine for polishing the soles of	May 15, 1855	XVI.
12767	Thompson, James H.	Metal, machines for planing	April 24, 1855	II.
13406	Thompson, James M.	Drippers, oil	Aug. 7, 1855	XII.
13508	Thompson, John	Harvesters, grain and grass	Aug. 28, 1855	I.
13509	Thompson, John A.	Straw-cutters	Aug. 28, 1855	I.
12678	Thompson, Moses.	Furnaces for burning wet fuel	April 10, 1855	V.
12220	Thompson, Nathan, jr.	Life-preserving seats	Jan. 12, 1855	VII.
13510	Thompson, Nathan, jr.	Boat, collapsible	Aug. 28, 1855	VII.
13144	Thompson, Reuben H.	Boots and shoes, pegging, hand-machines for	June 26, 1855	XVI.
13109	Thompson, William.	Gate, circular, self-operating	June 19, 1855	IX.
12800	Thomson, William R.	Furnaces for heating wrought-iron wheels for forging	May 1, 1855	V.
13053	Thomson, William R.	Forging, heating wrought-iron wheels for	June 13, 1855	II.
12938	Thornton, Thos. F., assignor to Prince & Stephenson.	Melodeons, &c., improved swell for	May 22, 1855	XVIII.

13959	Thornton, Thos. F.	Organ-melodeons	Dec. 18, 1855	XVIII.
12878	Thornton, W. M.	Leather straps, machines for creasing the edges of	May 15, 1855	XVI.
	Thurneysson, George Alexander Charles. (See Demolon, René Charles.)			
13958	Tiffany, J., and M. Harris.	Shingle-machines	Dec. 20, 1855	XIV.
12142	Tilghman, Richard A.	Processes for making soap	Jan. 5, 1855	IV.
13110	Till, Levi.	Brick-machine	June 19, 1855	XV.
13502	Till, Levi.	Brick-machines	Aug. 28, 1855	XV.
12879	Tilton, Jeremiah C.	Looms, temples for	May 15, 1855	III.
12880	Tilton, Leonard.	Planing-machines, devices for adjusting	May 15, 1855	XIV.
687	Titus, William D.	Lanterns	Jan. 12, 1855	Design.
12397	Titus, Wm. D., and R. W. Fenwick.	Bridle-bits	Feb. 13, 1855	XVI.
12421	Todd, George N.	Water-gate, self-regulating	Feb. 20, 1855	XI.
13603	Tolles, Robert B.	Optical instruments	Sept. 25, 1855	VIII.
	Tolls, Orrin, and Chauncey E. (See Cowdry, Chauncey.)			
13897	Tolman, C. C., assignor to James Sargent and D. P. Foster.	Gimlet	Dec. 4, 1855	XIV.
13018	Tomlinson, O. B.	Cloth, felt, manufacture of ornamental	June 5, 1855	III.
13586	Tompkins, C., and John Johnson.	Knitting-machines	Sept. 18, 1855	III.
13858	Tompkins, S. E.	Harnesses, metallic saddle-trees for	Nov. 27, 1855	XVI.
12229	Tongue, William, assignor to Wm. Tongue and James Buckley.	Looms	Jan. 12, 1855	III.
12734	Towers, William H.	Pen-holder	April 18, 1855	XVIII.
	Townsend, Elmer. (See Swingle, Alfred.)			
	Tozer, Guy. (See Rice, A. S., and Guy Tozer.)			
13827	Treadwell, Daniel.	Cannon, manufacture of	Dec. 11, 1855	XIX.
12221	Treadway, James W.	Stave-jointer	Jan. 12, 1855	XIV.
12399	Tremper, John.	Valves, steam	Feb. 13, 1855	VI.
13889	Tremper, John.	Valve, regulator, and governor's stem, means of connection between.	Dec. 4, 1855	VI.
12534	Trimble, Isaac P.	Ventilators, apparatus for operating	Mar. 14, 1855	V.
12704	Trimble, J. R.	Railways, wooden splice-piece for	April 10, 1855	IX.
12657	Trimmer, B. T.	Grain-cleaner	April 4, 1855	XIII.
12420	Tripp, Thomas.	Water-wheel	Feb. 20, 1855	XI.
13442	Tromley, Michael.	Locks, gun	Aug. 14, 1855	XIX.
12333	Trotter, Jonathan G.	Zinc white, construction of furnaces for	Jan. 30, 1855	IV.
13890	True, Daniel E.	Blind-fastener	Dec. 4, 1855	IX.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12809	Tubbs, E. A., assignor to E. A. Tubbs and H. T. Croxon.	Sawing fire-wood, &c., machine for	May 1, 1855	XIV.
13145	Tuck, Joseph H	Packing for stuffing-boxes, &c	June 26, 1855	VI.
12143	Tucker, Farnham Z	Life-preserving rafts	Jan. 5, 1855	VII.
13188	Tucker, Hiram	Bed, spring-bottom	July 3, 1855	XVII.
12925	Tucker, John	Yokes, ox	May 22, 1855	I.
13278	Tufts, Otis	Ships, iron, constructing	July 17, 1855	VII.
	Tupper, C. W., *et al.* (See Beasley, William, assignor.)			
12926	Turner, George	Sticks, tapering, mandrel for cutting	May 22, 1855	XXII.
12839	Turner, Grant B	Smut-machines	May 8, 1855	XIII.
13071	Turner, Joshua, jr., assignor to A Bennett and W. Covell.	Leather, rolling, machine for	June 13, 1855	XVI.
12144	Tyer, Henry G, and John Helm	India rubber cloth, process of making	Jan. 5, 1855	IV.
12334	Tyer, Henry G., and John Helm	India-rubber cloth, processes for making	Jan. 30, 1855	IV.
12607	Tyer, Henry G., and John Helm	Boots and shoes, manufacture of	Mar. 28, 1855	XVI.
12927	Tyler, John	Water-wheels, curb for	May 22, 1855	XI.
12564	Uhry, H, and H. A. Luttgens	Valve-gearing for steam engines	Mar. 20, 1855	VI.
	Union India-Rubber Lamp Co. (See Bennett, William, assignor.)			
12524	Urann, Frederick W	Curtain-rollers	Mar. 14, 1855	XVII.
13330	Urmy, Jesse	Harvesters, grain and grass	July 24, 1855	I.
13239	Ustick, Stephen	Brick-presses	July 10, 1855	XV.
13589	Van, John	Stoves, cooking	Sept. 18, 1855	V.
13408	Van Anden, William	Spoke-machine	Aug. 7, 1855	XIV.
13189	Van Benschoten, T. J	Collars, horse, blocks	July 3, 1855	XVI.
	Vander Woerd, Charles. (See Burnett & Vander Woerd)			
	Vander Woerd, Charles. (See Burnett, M.)			
13287	Van De Water, Henry	Water wheel, turbine	July 17, 1855	XI.
13367	Van Haagen, Anton	Soap-cutting machines	July 31, 1855	IV.
13368	Van Haagen, Anton	Soap-cutting machines	July 31, 1855	IV.

13891	Van Hoesen, Levi	Apples, paring and slicing, machines for	Dec. 4, 1855	XVII.
12747	Van Horn, Chester	Lathes, slide-rest for	April 18, 1855	XIV.
12609	Van Horn, R P	Cultivators	Mar. 28, 1855	I.
13532	Van Horne, J	Grain-separators	Sept. 4, 1855	I.
12565	Van Riper, Lewis	Looms	Mar. 28, 1855	III.
13669	Vansyckel, Samuel	Grate-bars, interlocking	Oct. 9, 1855	V.
13837	Van Vliet, C. W., assignor to Charles Parker	Mills for grinding coffee, &c	Nov. 20, 1855	XIII.
13771	Van Zile, Peter, Searles M. Griffin, & J. W. S. Dey.	Boat, life, sofa	Nov. 6, 1855	VII.
12525	Vaughan, Edward	Stump machine	Mar. 14, 1855	IX.
690	Vedder, N. S, and E. Ripley, assignors to G. F. Filley, of St. Louis, Mo.	Stoves, for parlor	Jan. 23, 1855	Design.
689	Vedder, N. S., assignor to G. F. Filley	Stoves, open-front, for parlor	Jan. 23, 1855	Design.
	Vedder, N. S. (See Ripley, E.)			
13533	Victor, Joseph Alexander	Brick-machines	Sept. 4, 1855	XV.
12801	Von Kammerhueber, W. J	Projectiles	May 1, 1855	XIX.
13892	Vose, Richard	Quartz-crushing machines	Dec 4, 1855	II.
706	Vose, Samuel D., (No. 1)	Stoves, cooking	May 30, 1855	Design.
707	Vose, Samuel D., (No. 2)	Stoves, cooking	May 30, 1855	Design.
708	Vose, Samuel D., (No. 3)	Stoves, cooking	May 30, 1855	Design.
709	Vose, Samuel D., (No. 4)	Stoves, parlor	May 30, 1855	Design.
12566	Vose, William T	Pumps	Mar. 20, 1855	XI.
13240	Vosmus, O. D	Stirrup, open	July 10, 1855	XVI.
	Waas, Henry. (See Hanfbauer, Jno.)			
13133	Wade, Isaac M	Churns	June 26, 1855	I.
119	Wade, Robert M	Lubricators, steam	Mar. 28, 1855	Add'l imp't.
12803	Wade, Robert M	Lubricator	May 1, 1855	XII.
13934	Wade, W. W., assignor to himself and Charles Burnham.	Engines, steam, variable cut-off gear for	Dec. 11, 1855	VI.
12174	Wadleigh, Warren	Forms, irregular, machine for cutting	Jan. 5, 1855	XIV.
13610	Wagener, D. S	Mills, flouring	Sept. 25, 1855	XIII.
735	Wager, James	Stoves, cooking	Oct. 16, 1855	Design.
736	Wager, James	Stoves, cooking	Oct. 16, 1855	Design.
737	Wager, James	Stove, parlor, plates	Oct. 16, 1855	Design.
683	Wager, Richmond, & Smith	Stoves, parlor	Jan. 5, 1855	Design.
13511	Wait, P. H	Forms, irregular, machines for cutting	Aug. 28, 1855	XIV.
13342	Walcott, Albert	Lumber, machine for dressing from the log	July 24, 1855	XIV.
12610	Walker, Joseph	Hulling cotton seeds	Mar. 28, 1855	I.
	Walker & Sellers. (See Sellers, Wm., and Jas. Walker.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12298	Wallis, John U.	Paddle-wheels	Jan. 23, 1855	VII.
13190	Wallis, John U.	Paddle-wheels	July 3, 1855	VII.
13245	Walter, Wm. P	Glass, plate, manufacturing, from cylinders	July 10, 1855	XV.
13513	Walter, Wm. P., and J. Green, assignors to Wm. P. Walter.	Vault-lights	Aug. 28, 1855	IX.
12173	Warburton, Wm. F	Hats	Jan. 5, 1855	XXI.
12151	Ward, Andrew H., jr., assignor to A. H. Ward, jr., and Kirk Boott.	Composition for unhairing hides	Jan. 2, 1855	IV.
12146	Ward, Daniel T	Sewing-machines	Jan. 5, 1855	III.
	Ward, Israel. (See Temple, James, assignor.)			
12608	Ward, Myron	Planters, seed	Mar. 28, 1855	I.
12145	Ward, William E.	Blinds, sheet-iron	Jan. 5, 1855	IX.
13241	Ward, William E	Bolts, machines for making	July 10, 1855	II.
743	Wardwell, Benjamin	Stoves	Nov. 20, 1855	Design.
703	Wardwell, B., E. R. Barstow, and G. C. Harkness.	Stoves, cooking	May 8, 1855	Design.
13735	Wardwell, C. P. S.	Tenons, double, machine for cutting	Oct. 30, 1855	XIV.
12650	Warlick, Noah	Ploughs	April 4, 1855	I.
12172	Warner, Chapman	Pavements, cast-iron	Jan. 5, 1855	IX.
13055	Warner, Shelden	Sawing, curvilinear, machine	June 13, 1855	XIV.
13805	Warren, Chas. T	Marble-sawing machine	Nov. 13, 1855	XV.
701	Warren, George, S. H. Swetland, and E. C. Little.	Stoves, cooking	May 1, 1855	Design.
12526	Warwick, William	Locks, door	Mar. 14, 1855	II.
13112	Waterhouse, Albert M	Hose couplings	June 19, 1855	XI.
	Waterhouse, Miles. (See Livingston, J. B.)			
13512	Waterman, Henry	Reaping and mowing machines	Aug. 28, 1855	I.
13054	Waterman, Nathaniel	Filter, portable floating	June 13, 1855	XI.
13859	Waterman, Nathaniel	Feet-warmers	Nov. 27, 1855	V.
13286	Waters, Charles	Lanterns	July 17, 1855	V.
12335	Waters, Elisha	Boxes, cylindrical	Jan. 30, 1855	XXII.
12567	Watson, Alexander T	Fire-arms, breech-loading	Mar. 20, 1855	XIX.
13285	Watson, David	Harvesters	July 17, 1855	I.
13443	Wattles, Otis B.	Tanning compounds	Aug. 14, 1855	XVI.

13691	Weaver, H. B.	Fire-arms, breech-loading	Oct. 16, 1855	XIX.
13067	Webb, Charles R	Wind-mill	June 13, 1855	XI.
13674	Webb, John G	Lamps, argand	Oct. 9, 1855	V.
12748	Webb, William H., jr	Hones, metallic	April 18, 1855	XXII.
13673	Weber, John K	Gates, farm, method of operating	Oct. 9, 1855	IX.
13604	Webster, Alonzo	Carriages, hold-back for	Sept. 25, 1855	X.
12881	Webster, Benjamin B	Curtain, spring, rollers	May 15, 1855	XVII.
12976	Webster, Harvey and Alonzo	Whiffletrees	May 30, 1855	X.
12370	Webster, Hazen	Churns	Feb. 6, 1855	I.
13019	Webster, Henry	Engine, steam, regulators	June 5, 1855	VI.
12840	Webster, Joel	Silvering looking-glasses	May 8, 1855	IV.
	Webster, R. C. (See Niles, Peter H., assignor.)			
13609	Weed, Samuel S	Types, printers', machine for making	Sept. 25, 1855	XVIII.
12356	Weigle, Joel	Mill, crushing and grinding	Feb. 6, 1855	XIII.
13608	Weimer, Peter L	Hammers, trip	Sept. 25, 1855	II.
13367	Weis, Joseph	Pumps, suckers for	Dec 18, 1855	XI.
12882	Weiser, David	Safes, fire-proof, composition for filling in	May 15, 1855	V.
12261	Weissenborn, Gustavus	Boilers, steam, arrangement of filtering apparatus to prevent incrustation in.	Jan. 17, 1855	VI.
13628	Weissenborn, Gustavus, assignor to Epes W. Sargent.	Filter, thermoudoric	Oct. 2, 1855	XI.
13928	Welling, Wm. W	Bleaching ivory, devices for	Dec. 11, 1855	IV.
12177	Wells, Daniel	Burglars' alarm	Jan. 5, 1855	XXII.
12705	Wells, Hiram	Saw, circular, spindles to yield, device allowing	April 10, 1855	XIV.
12225	Welsh, Joseph	Loom	Jan. 12, 1855	III.
12568	Wells, Lemuel T	Printing-press	Mar. 20, 1855	XVIII.
13135	Wells, Moses D.	Seeding-machines	June 26, 1855	I.
13281	Wells, Moses D.	Churns	July 17, 1855	I.
13893	Wells, Moses D	Seed-sowers, hand	Dec. 4, 1855	I.
12981	Welsh, Joseph	Looms	May 30, 1855	III.
13672	Welton, Joseph	Cattle, leading-clasp for	Oct. 9, 1855	I.
	Wenman & Ransom. (See Ransom & Wenman.)			
12224	Wentworth, Luther	Lathe for turning fancy handles, &c	Jan. 12, 1855	XIV.
12171	Werner, Cuno	Leather, compositions for dressing	Jan. 5, 1855	XVI.
13733	West, James	Compositions, roofing	Oct 30, 1855	IV.
13770	Westcott, Amos	Door-springs	Nov. 6, 1855	II
317	Westinghouse, George	Horse-power, endless chain	July 10, 1855	Reissue.
13605	Weston, Charles, and T. F., and J. W.	Leather-finishing machines	Sept. 25, 1855	XVI.
13555	Weston, Henry J	Shingle-machines, construction of beds for	Sept. 12, 1855	XIV.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
12418	Wetherill, Samuel	Zinc white, separating apparatus for	Feb. 20, 1855	IV.
13806	Wetherill, Samuel	Zinc white, processes for making	Nov. 13, 1855	IV.
12527	Wheatly, George W	Eaves-gutters of houses	Mar. 14, 1855	IX.
310	Wheeler, Alonzo, and Alexander F. Wheeler, administrator of Wm. C. Wheeler, deceased.	Horse-power, endless chain	May 22, 1855	Reissue.
	Wheeler, Alonzo, and Alexander F. Wheeler, administrator of Wm. C. Wheeler, deceased.	Horse-power, endless chain	July 3, 1855	Extension.
12367	Wheeler, Cyrenus, jr	Harvesters, grain and grass	Feb. 6, 1855	I.
13369	Wheeler, Norman W	Valves, steam, method of operating	July 31, 1855	VI.
722	Wheeler, R., and S. A. Bailey	Stoves, cooking	Aug. 28, 1855	Design.
13280	Wheeler, W. M	Water-wheels	July 17, 1855	XI.
	Wheeler & Wilson Manufacturing Company. (See Smith, E. Harry.)			
13020	Wheelock, Hiram	Gas-regulators	June 5, 1855	V.
14004	Wheelock, J. D	Sad iron heaters	Dec. 25, 1855	XVII.
	Whinfield, Henry. (See Jones, Wm. D.)			
	Whinfield, Henry. (See Jones, Wm D., assignor.)			
	Whinfield, H. (See Jillson & Whinfield.)			
12928	Whipple, Jonathan, jr	Block, nipper, self-acting	May 22, 1855	XII.
12978	Whipple, Milton D	Paper pulp, preparing wood for	May 30, 1855	III.
	Whipple, Squire	Bridges, iron truss, construction of	Mar. 26, 1855	Extension.
13021	Whipple, William C., and William C. Bowe	Melodeons	June 5, 1855	XVIII.
12706	White, C. N	Boring the earth, implement for	April 10, 1855	IX.
	White & Dickinson. (See Dickinson, J., and O. White.)			
13534	White, George W	Pen, fountain	Sept. 4, 1855	XVIII.
12929	White, Leroy S., and Lewis	Telegraphic key apparatus	May 22, 1855	VIII.
	White, McIntyre, & James. (See James, Daniel S., assignor.)			
12528	White, Rollin	Fire-arms, breech-loading	Mar. 14, 1855	XIX.
12529	White, Rollin	Fire-arms, breech-loading	Mar. 14, 1855	XIX.
12648	White, Rollin	Fire-arms, repeating	April 4, 1855	XIX.

12638	White, Rollin	Fire-arms, breech-loading	April 4, 1855	XIX.
12649	White, Rollin	Fire-arms, repeating	April 4, 1855	XIX.
13607	White, William	Bedsteads	Sept. 25, 1855	XVII.
13191	Whitehall, N	Ploughs	July 3, 1855	I.
304	Whiteley, Abner	Harvesters, grain and grass	April 4, 1855	Reissue.
12768	Whiteley, Abner	Harvesters and other machines, attaching wheels to	April 24, 1855	I.
12769	Whiteley, Abner	Harvesters	April 24, 1855	I.
12802	Whiteley, Abner	Shafts and pulleys, arranging, at an angle	May 1, 1855	XII.
13246	Whiteley, Abner	Harvesters, grain and grass	July 10, 1855	I.
12841	Whitney, Henry, jr	Inkstand	May 8, 1855	XVIII.
13022	Whiteside, Wm., and John Shinn	Looms	June 5, 1855	III.
12494	Whittaker, Wm. L	Collars, horse, machines for stuffing	Mar. 7, 1855	XVI.
13535	Whittemore, Amos	Spike-machine	Sept. 4, 1855	II.
	Whittemore & Co. (See Blanchard, A. J., assignor.)			
	Whorf, Sylvanus H. (See Rice, C., and S. H. Whorf.)			
	Wicks, Loren J. (See Simonton, Thos. C.)			
13807	Wicks, L. J	Straw-cutters	Nov. 13, 1855	I.
12883	Wicks, Robert	Furnace grate-bar	May 15, 1855	V.
13929	Wiessenborn, E	Chain-making machine	Dec. 11, 1855	II.
13558	Wilber, William	Grinding cotton and other seeds for their oils	Sept. 12, 1855	XIII.
13556	Wilber, William	Hullers, cotton-seed	Sept. 12, 1855	I.
13557	Wilber, William	Oils, vegetable, steam apparatus for extracting	Sept. 12, 1855	IV.
14005	Wilber, William	Presses, oil, hydraulic	Dec. 25, 1855	XII.
13734	Wilder, Aretus A	Clap-board machine	Oct. 30, 1855	XIV.
12336	Wilder, Salem	Sewing-machines, waxing thread on	Jan. 30, 1855	III.
13134	Wiler, Wm., and Lucien Moss	Gas lighter	June 26, 1855	V.
12646	Wilhelm, Charles and Anna C	Lamp-shades, protector for	April 4, 1855	V.
12804	Wilkinson, Jonathan	Carts, self-loading and unloading	May 1, 1855	X.
13283	Willard, Edward D	Gas-burning gridirons	July 17, 1855	V.
12651	Williams, C	Excavating-machine	April 4, 1855	IX.
13282	Williams, Edwin	Excavating-machine	July 17, 1855	IX.
12979	Williams, E. D	Vehicles	May 30, 1855	X.
12294	Williams, Isaac, and Isaac W. Bausman	Planters, cotton-seed	Jan. 23, 1855	I.
13341	Williams, John	Clocks, calendar	July 24, 1855	VIII.
12495	Williams, John	Engines, locomotive, arrangement of exhaust-pipes in	Mar. 7, 1855	VI.
12366	Williams, J. M	Butter-workers	Feb. 6, 1855	I.
12400	Williams, J. N	Cars, railroad, head-supporters for	Feb. 13, 1855	X.
	Williams, S. G. (See Palmer, Aaron.)			

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date	Class.
12569	Willis, Oscar	Water-wheel, centrifugal	Mar. 20, 1855	XI.
12496	Willis, W. W	Stumps, mode of extracting	Mar. 7, 1855	IX.
13192	Willison, Geo. B	Flour, cooling and drying	July 3, 1855	XIII.
12282	Willmarth, John T	Bolts, dies for making	Jan. 17, 1855	II
12735	Willmarth, John T	Dies for bolt-forging machines	April 18, 1855	II.
13444	Wilmot, S. R	Sawing-machine, portable steam	Aug. 14, 1855	XIV.
12342	Wilson, Andrew P	Shingle-machine	May 8, 1855	XIV.
12419	Wilson, C	Griddle	Feb. 20, 1855	XVII.
12980	Wilson, C, and Wm. Moore, jr	Mowing-machines	May 30, 1855	I.
13328	Wilson, C. A	Valves, oscillating, and gearing for pumping engines	July 28, 1855	VI.
13690	Wilson, Edwin	Carriages, extension reach for	Oct. 16, 1855	X
731	Wilson, J. H	Monuments, cast-iron	Sept. 18, 1855	Design.
13194	Wilson, Robert	Stoves	July 3, 1855	V.
13193	Wilson, Robert	Boilers, steam, apparatus for heating feed-water to	July 3, 1855	VI.
12977	Wilson, Wm. D	Corn-grinder and crusher	May 30, 1855	XIII.
13073	Wimley, John M., assignor to J. A. B. Shaw	Boots and shoes, attaching gutta percha soles to	June 13, 1855	XVI.
13576	Winder, Daniel K	Printing-press, card	Sept. 18, 1855	XVIII.
13671	Winder, Daniel K	Printing-press, card	Oct. 9, 1855	XVIII.
13689	Winder, Daniel K	Printing-press, card, inking apparatus for	Oct. 16, 1855	XVIII.
13445	Winegar, Caleb	Gates, device in opening and closing	Aug. 14, 1855	IX.
13446	Winegar, Caleb	Water-elevator	Aug. 14, 1855	XI.
12930	Winegar, Caleb	Gates, method of closing and opening	May 22, 1855	IX.
12175	Winsor, Joseph S	Weavers' harness, machines for making	Jan. 18, 1855	III.
13371	Wolf, William G	Desks, writing	July 31, 1855	XXII.
12843	Wolff, Francis A	Sawing a log by its own weight, method of	May 8, 1855	XIX.
12982	Wolle, Francis	Paper-bags, machine for making	May 30, 1855	XVIII.
12522	Wolter Christopher	Ordnance	Mar. 14, 1855	XIX
13284	Wood, Edward	Looms	July 17, 1855	III.
12299	Wood, Geo. F	Engines, oscillating	Jan. 23, 1855	VI.
	Wood & Elder. (See Elder, John A., and Ephraim Wood.)			
	Wood & Hill. (See Hill & Wood.)			

12570	Wood, Walter A	Harvesters, grain and grass	Mar. 20, 1855	I.
13808	Woodbury, Jas A	Planing-machines	Nov. 13, 1855	XIV
13554	Woodcock, O. S	Saws, reciprocating, method of operating	Sept. 12, 1855	XIV.
12497	Woodcock, Virgil	Desks, arrangement of, in school-rooms	Mar. 7, 1855	XXII.
12652	Woodruff, Enos	Gates, mechanism by which approaching vehicles open and close.	April 4, 1855	IX.
12844	Woodruff, G. B., and J. N. Palmer	Gas-regulators	May 8, 1855	V.
13195	Woodruff, Jerome B	Sewing-machines	July 3, 1855	III.
13242	Woodruff, Jerome B	Sewing-machines	July 10, 1855	III.
13711	Woodruff, Joseph	Steam-pressure regulators, elastic diaphragm	Oct. 23, 1855	VI.
	Woods, S. A., and S. S. Gray. (See Gray, Solomon S., assignor.)			
	Woodward, Henry. (See Chamberlain, D. H., assignor.)			
13472	Woodward, John	Yokes, horse	Aug. 21, 1855	I.
12889	Woodworth, Arad, 3d	Spinning, machinery for	May 15, 1855	III.
750	Woolman, E	Hinges, strap	Dec. 11, 1855	Design.
12805	Wootten, John E	Locomotives, arrangement of means for regulating the discharge of exhaust steam in.	May 1, 1855	VI.
13113	Worden, Alva	Stove-pipes, joints for	June 19, 1855	V.
13670	Worden, George W	Sawing-machines, gauge attachment for	Oct. 9, 1855	XIV.
13809	Wortendyke, C. R	Ice from rivers, &c., machinery for raising	Nov. 13, 1855	XXII.
13279	Worthen, Wm. E	Doors and windows, metallic blinds for	July 17, 1855	IX.
13380	Worthington, Henry R	Meter, water	July 24, 1855	XI.
13370	Worthington, Henry R	Pumps, steam, direct-acting hydraulic	July 31, 1855	XI.
	Worthley, M. (See Young, Alonzo E., assignor.)			
13394	Wrenn, R. C	Cotton-seed, machines for preparing, for planting	Dec. 4, 1855	I.
	Wright, Benjamin. (See Bean, John.)			
13868	Wright, Benjamin, and John Bean	Grain-separators	Oct. 16, 1855	I.
13930	Wright, C. D	Pumps, rotary	Dec. 11, 1855	XI.
12176	Wright, Lysander	Sewing-machine	Jan. 5, 1855	XIV.
12963	Wright, Wendell	Brakes, steam, mode of connecting pipes for	Jan. 17, 1855	X.
	Wurth, Frederick. (See Ballaugh, William.)			
12645	Wyckoff, Arcalons	Pumps, chain	April 4, 1855	XI.
13606	Wyckoff, A., and E. R. Morrison	Boring-machine	Sept. 25, 1855	XIV.
12931	Wygant, J. H	Spikes	May 22, 1855	II.
13694	Wynkoop, Francis G., assignor to Henry L. Edson.	Planters, seed	Oct. 16, 1855	I.
12932	Yale, Linus	Locks, bank	May 22, 1855	II.

Alphabetical List of Patentees—Continued.

No.	Name of patentee.	Invention or discovery.	Date.	Class.
13712	Yard, George H	Whiffletrees	Oct. 23, 1855	X.
	Yearsley, Pascal. (See Stenger, Philip.)			
12571	Yost, George W. N	Cultivator	Mar. 20, 1855	I.
13372	Yost, Samuel M	Washing-machines	July 31, 1855	XVII.
13736	Yothers, John W	Bedstead-fastenings	Oct. 30, 1855	XVII.
13473	Young, Alonzo E., assignor to himself and M. Worthley.	Door-knob	Aug. 21, 1855	II.
13243	Young, John, of C	Boring posts and pointing rails, machine for	July 10, 1855	XIV.
13833	Young, Louis	Measuring-wheels, revolving	Nov. 20, 1855	VIII.
12452	Young, Wm. L	Barrel heads, machine for cutting	Feb. 28, 1855	XIV.
12337	Youngs, Pinney	Sawing-machines	Jan. 30, 1855	XIV.
330	Youngs, Pinney	Sawing lumber	Oct. 2, 1855	Reissue.
12223	Yule, John L	Mills, flouring	Jan. 12, 1855	XIII.
12845	Zahn, William H., assignor to F. Renter	Cord, plaiting and twisting	May 8, 1855	III.
12611	Zane, William P	Cultivators	Mar. 29, 1855	I.
13023	Zeigler, G. W	Boot-crimping machines	June 25, 1855	XVI.
	Zoiner, P. W. (See Harris, C.)			
	Zoiner, P. W. (See Harris, C., and P. W. Zoiner, assignors to A. Bradley.)			
	Zoiner, P. W. (See Harris, C., and P. W. Zoiner.			

CLASSIFIED LIST OF PATENTS GRANTED DURING THE YEAR 1855, WITH THE NAMES OF PATENTEES, PLACES OF RESIDENCE, AND DATE OF PATENTS.

CLASS I.—AGRICULTURE, *including instruments and operations.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13672	Cattle, leading-clasp for	Joseph Welton	Waterbury, Conn	Oct. 9, 1855.
12127	Churns	Ezekiel Gore	Bennington, Vt	Jan. 2, 1855.
12306	Churns	J. W. C. Williams	Blanchester, Ohio	Feb. 6, 1855.
12370	Churns	Hazen Webster	Ogdensburg, N. Y.	Feb. 6, 1855.
12377	Churns	Edwin B. Clement	Barnet, Vt.	Feb. 13, 1855.
13133	Churns	Isaac M. Wade	Clinton, Mich	June 26, 1855.
13281	Churns	Moses D. Wells	Morgantown, Va	July 17, 1855.
13421	Churns	Jacob Boyers	Granville, Va	Aug. 14, 1855.
13638	Churns	John G. Dungan	Steubenville, Ohio	Oct. 9, 1855.
13686	Churns	Lewis P. Pease	Mount Carmel, Ill	Oct. 16, 1855.
12314	Clover-huller	Jonathan Hibbs	Tullytown, Pa	Jan. 30, 1855.
12372	Clover-hullers	James Allen	Trease's Store, Ohio	Feb. 13, 1855.
12462	Clover-seed, hulling and cleaning	Martin H. Mansfield	Ashland, Ohio	Feb. 27, 1855.
12454	Corn-shellers	Jeremiah P. Smith	Hummelstown, Pa	Feb. 27, 1855.
13122	Corn-shellers	A. A. C. N. Clow	Port Byron, N. Y	June 26, 1855.
13182	Corn, machine for shucking and shelling	John J. Rollow	Fredericksburg, Va	July 3, 1855.
13634	Corn-sheller	Charles Bishop	Norwalk, Ohio	Oct. 9, 1855.
13640	Corn-shellers	Stephen Elliott	Wayne county, Ia	Oct. 9, 1855.
13922	Corn-shellers	Jeremiah P. Smith	Hummelstown, Pa	Dec 11, 1855.
13912	Corn-shellers	James J. Johnston	Alleghany City, Pa	Dec. 11, 1855.
13997	Corn-shellers	James Robb	Lewistown, Pa	Dec. 25, 1855.
13436	Cotton-stalks, machine for gathering	Richard Ray	Louisport, Ky	Aug. 14, 1855.
13505	Cotton-stalks, standing, machines for cutting.	J. Bowerman	Detroit, Mich	Aug. 28, 1855.
13538	Cotton-stalks, standing, machines for cutting.	J. W. Bocage	Cypress Mills, Ark	Sept. 11, 1855.
13877	Cotton-pickers, hand	George A. Howe	Worcester county, Mass	Dec. 4, 1855.
13894	Cotton-seed, preparing for planting, machines for.	R. C. Menn	Covington, Ky	Dec. 4, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12163	Cultivators	John Imel	Liberty, Ia.	Jan. 2, 1855.
12332	Cultivators, teeth	Joseph Stockdale	Ypsilanti, Mich.	Jan. 30, 1855.
12428	Cultivators, hand	Jonathan A. Robinson	Poplin, N. H.	Feb. 20, 1855.
12478	Cultivators, hand	Nehemiah B. Chase and Chauncey W. Saunders.	Wilkinsonville, Mass.	Mar. 6, 1855.
12536	Cultivators	Samuel A. Knox, assignor to Ruggles, Nourse, Mason, & Co.	Worcester, Mass.	Mar. 13, 1855.
12571	Cultivators	George W. N. Yost	Port Gibson, Miss.	Mar. 20, 1855.
12589	Cultivators	Hervey D. Ganse	Freehold, N. J.	Mar. 27, 1855.
12609	Cultivators	R. P. Vanhorn	Jacksontown, Ohio	Mar. 27, 1855.
12611	Cultivators	William P. Zane	Woolwich, N. J.	Mar. 27, 1855.
12653	Cultivators	F. L. Smithson	Mecklenburg county, Va.	April 3, 1855.
12744	Cultivators	John Stryker	Six-mile Run, N. Y.	April 17, 1855.
	Drills, seed. (See Seeding)	James Selby	Lancaster, Ohio	June 19, 1855.
13062	Fans, wheat	Joseph Montgomery James Montgomery	Lancaster, Pa. Baltimore, Md.	June 12, 1855.
12453	Forks for gold-diggers	Lewis Teese & Son	San Francisco, Cal.	Feb. 27, 1855; antedated Nov. 27, 1854.
	Grain-cleaner. (See Class XIII.)			
	Grain-cleaning machines. (See Class XIII.)			
12973	Grain-drills	Chapin Street	Barre Centre, N. Y.	May 29, 1855.
	Grain, drying, apparatus for. (See Class V.)			
13143	Grain, grass, &c., machines for cutting	Charles Taylor	South Pittsburg, Pa.	June 26, 1855.
13532	Grain separators	J. Van Horne	Magnolia, Ill.	Sept. 4, 1855.
13644	Grain separators	Peter Geiser	Smithsburg, Md.	Oct. 9, 1855.
13688	Grain separators	Benj. Wright and John Bean	Hudson, Mich.	Oct. 16, 1855.
	Grain, threshers and cleaners of. (See Class XIII.)			
12415	Harrows	Daniel Haldeman	Morgantown, Va.	Feb. 20, 1855.
12659	Harrows	Charles Clareni, assignor to C. Clareni and George P. Field.	New York, N. Y.	April 3, 1855.
12667	Harrows, rotary	Lyman Brainard and Levi Newton	Attica, N. Y.	April 10, 1855.
13257	Harrows	William Gourlay	White Post, Va.	July 17, 1855.
12121	Harvesters, grain and grass	John Brown and Stephen S. Bartlett	Woonsocket, R. I.	Jan. 2, 1855.
12123	Harvesters, grain and grass	Marshall Burnett & Chas. Vander Woerd	Boston, Mass.	Jan. 2, 1855.
12215	Harvesters, grain	John E. Newcomb	Whitehall, N. Y.	Jan. 9, 1855.
12252	Harvesters, grain and grass	O. B. Judd	Little Falls, N. Y.	Jan. 16, 1855.
12323	Harvesters, grass, construction of the frame of.	Aaron Palmer	Brockport, N. Y.	Jan. 30, 1855.
12327	Harvester cutters	David Russell	Drowersburg, Ind.	Jan. 30, 1855.
12339	Harvesters, grain, delivering apparatus of.	Edwin A. Morrison, assignor to E. A. and R. J. Morrison.	Laurenceville, Va. Richmond, Va.	Jan. 30, 1855.
12363	Harvesters, grass	James H. Maydole and A. W. Morse	Eaton, N. Y.	Feb. 6, 1855.
12367	Harvesters, grain and grass	Cyrenus Wheeler, jr.	Venice, N. Y.	Feb. 6, 1856.
12393	Harvesters, grass	Robert J. Morrison, assignor to R. J. & E. A. Morrison.	Richmond, Va.	Feb. 13, 1855.
12463	Harvesters (mowing)	Fisk Russell	Boston, Mass.	Feb. 27, 1855.
12499	Harvesters, grain and grass	John H. Manny Henry Marcellus	Rockford, Ill. Amsterdam, N. Y.	Mar. 6, 1855.
12559	Harvesters (mowing)	Fisk Russell	Boston, Mass.	Mar. 20, 1855.
12570	Harvesters, grain and grass	Walter A. Wood	Hoosick Falls, N. Y.	Mar. 20, 1855.
12584	Harvesters, grain and grass	A. Dietz and J. G. Dunham	Raritan, N. Y.	Mar. 27, 1855; antedated Jan. 2, 1855.
12714	Harvesters, grain and grass	Jarvis Case	Springfield, Ohio	April 17, 1855.
12721	Harvesters, grain and grass	Eliakim B. Forbush	Buffalo, N. Y.	April 17, 1855.
12745	Harvesters, grain and grass	Philo Sylla	Elgin, Ill.	April 17, 1855.
12756	Harvesters, grain, platforms of	Searum Atkins	Chicago, Ill.	April 24, 1855.
12768	Harvesters and other machines, attaching wheels to.	Abner Whiteley	Springfield, Ohio	April 24, 1855.
12769	Harvesters	Abner Whiteley	Springfield, Ohio	April 24, 1855.
12824	Harvesters, grain	T. N. Lupton	Winchester, Va.	May 8, 1855.
12825	Harvesters, grain and grass	John H. Manny	Rockford, Ill.	May 8, 1855.
12888	Harvesters, grain	Benj. S. Nicholson, administrator of John T. Nicholson, deceased.	Davidsonville, Md.	May 15, 1855.
12907	Harvesters, grain	Jonathan Haines	Pekin, Ill.	May 22, 1855.
12963	Harvesters, grass	Francis Peabody	Salem, Mass.	May 29, 1855.
12980	Harvesters (mowing)	C. Wilson and Wm. Moore, jr.	Yardleyville, Pa.	May 29, 1855.
12999	Harvesters (reaping and mowing)	Andrew Dietz and John G. Dunham	Raritan, N. Y.	June 5, 1855.
13004	Harvesters, grain and grass	M. G. Hubbard	New York, N. Y.	June 5, 1855.
13102	Harvester rakes, &c., producing intermittent acceleration of motion in.	John Richardson	Buckeystown, Md.	June 19, 1856.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13147	Harvesters, attaching the raker's seat to	Stephen Hull	Poughkeepsie, N. Y.	June 26, 1855.
13149	Harvesters, cutters of	John H. Manny	Rockford, Ill.	June 26, 1855.
13150	Harvesters, guard-fingers of	John H. Manny	Rockford, Ill.	June 26, 1855.
13159	Harvester reels	Gardner A. Bruce	Mechanicsburgh, Ill.	July 3, 1855.
13160	Harvesters, grain and grass	Sylvester Colburn	Ansonia, Conn.	July 3, 1855.
13173	Harvesters, grain and grass	Wm. H. Hovey	Springfield, Mass.	July 3, 1855.
13176	Harvesters, attaching the connecting bar to the cutters of.	James and Wylie Little	Princetown, Ind.	July 3, 1855.
13181	Harvesters (mowing)	Samuel Rockafellow	Coatsville, Pa.	July 3, 1855.
13205	Harvesters, method of raising and lowering the cutters of.	Jonathan F. Barrett	North Granville, N. Y.	July 10, 1855.
13226	Harvesters	J. J. Hite, assignor to W. F. Pagett	White Post, Va.	July 10, 1855.
13246	Harvesters, grain and grass	Abner Whiteley	Springfield, Ohio.	July 10, 1855.
13285	Harvesters	David Watson	Petersburg, Va.	July 17, 1855.
13330	Harvesters, grain and grass	Jesse Urmy	Wilmington, Del.	July 24, 1855.
13433	Harvesters, cutting apparatus of	Robert J. Morrison	Richmond, Va.	Aug. 14, 1855.
13438	Harvesters	Fisk Russell	Boston, Mass.	Aug. 14, 1855.
13480	Harvesters	Charles Bradfield	Philadelphia, Pa.	Aug. 21, 1855.
13504	Harvesters from reapers to mowers, and *vice versa*, mechanism for changing.	Robert Beans	Johnsville, Bucks county, Pa.	Aug. 28, 1855.
13508	Harvesters, grain and grass	John Thompson	Clifton, N. Y.	Aug. 28, 1855
13512	Harvesters, reaping and mowing	Henry Waterman	Williamsburg, N. Y.	Aug. 28, 1855.
13517	Harvesters, mowing	Collins B. Brown	Alton, Ill.	Sept. 4, 1855.
13523	Harvesters, grass	Jonathan Haines	Pekin, Ill.	Sept. 4, 1855.
13524	Harvesters	A. E. Kruger	Norwalk, Conn.	Sept. 4, 1855.
13545	Harvesting machines	John E. Heath	Geneva, Ohio.	Sept. 11, 1855
13565	Harvesters, mowing	William Burgess	London, Eng.	Sept. 18, 1855. Patented in England, Aug. 16, 1854.
13828	Harvesting machines	John Reily	Hart Prairie, Wis.	Nov. 20, 1855.
13933	Harvester rakers	S. Haggard and George Bull, assignors to Bull, Haggard, & Newsteter.	Bloomington, Ill.	Dec. 11, 1855.
12269	Hay-making machine	George A. Brown	Middletown, R. I.	Jan. 23, 1855.

12728	Hay-making machine	Francis Peabody	Salem, Mass.	April 17, 1855.
13908	Hay, machines for raking and loading	John K Harris	Allensville, Ind.	Dec. 11, 1855
13460	Hemp-cutters	J. L. Hardeman	Arrow Rock, Mo.	Aug 21, 1855.
12374	Hop-frames	Thomas D Aylesworth	Frankfort, N. Y.	Feb. 13, 1855.
12610	Hulling cotton-seeds	Joseph Walker	Dover, Eng.	Mar. 27, 1855. English patent dated July 20, 1854.
12908	Hullers of buckwheat	Chase B Horton	Elmira, N. Y.	May 22, 1855.
13556	Hullers, cotton-seed	William Wilber	New Orleans, La.	Sept. 11, 1855.
13713	Hulling, rice, machines	Robert and John E. Anderson	Brooklyn, N. Y.	Oct. 30, 1855.
13992	Hulling-machines	Charles Miller	Carroll, Pa.	Dec. 25, 1855.
12508	Lime-spreaders	H. Ludington and S. R Lupton	Addison, Pa.	Mar. 13, 1855.
13480	Manure and oil, treating fish for	René Charles Demolon and George Alexander Chas. Thurneyssen.	Paris, France	Mar. 6, 1855. Patented in France, Jan. 13, 1851.
12152	Planters, seed	Alexander Anderson	Markham, York county, Canada.	Jan. 2, 1855.
12231	Planters, seed	Jarvis Case	Springfield, Ohio	Jan. 16, 1855.
12256	Planters, seed	Elijah Morgan	Morgantown, Va.	Jan. 16, 1855.
12260	Planters, seed	Stephen L. Stockstill and Peter H. Humes	Brandt, Ohio.	Jan. 16, 1855.
12294	Planters, cotton-seed	Isaac Williams and Isaac W. Bausman	Pittsburg, Pa.	Jan. 23, 1855.
12307	Planters, seed	John Blackwood	Lithopolis, Ohio.	Jan. 30, 1855.
12308	Planters, seed	Job Brown	Lawn Bridge, Ill.	Jan. 30, 1855.
12447	Planters, seed	Robert Romaine	Montreal, L. Canada, residing at Kelvedon, Eng.	Feb. 27, 1855.
12465	Planters, seed	Andrew J. Barnhart	Schoolcraft, Mich.	Feb. 27, 1855.
12554	Planters, seed	Ebenezer Morse	Walpole, N. H.	Mar. 20, 1855.
12557	Planters, seed	Daniel H. Phillips	Greenville, Ill.	Mar. 20, 1855.
12561	Planters, seed	Benjamin M. Snell	Hancock, Md.	Mar. 20, 1855.
12603	Planters, seed	Hiram Moore	Climax, Mich.	Mar. 27, 1855.
12608	Planters, seed	Myron Ward	Owego, N. Y.	Mar. 27, 1855.
12618	Planters seed	Chester B. and Benjamin S. Borden, and Aaron R McLean.	West Dresden, N. Y.	April 3, 1855.
12641	Planters, seed	Ives W. McGaffey	Syracuse, N. Y.	April 3, 1855.
12672	Planters, seed	Jason W. Corey	Crawfordsville, Ind.	April 10, 1855.
12783	Planters, corn	Presley Raines	London, Ohio.	May 1, 1855.
12811	Planters, seed	George W. Brown	Galesburg, Ill.	May 8, 1855.
12867	Planters, cotton-seed	A. H. Morsell	Marlen, Texas.	May 8, 1855.
12896	Planters, seed	Lewis W. Colver	Louisville, Ky.	May 22, 1855.
12924	Planters, seed	E. M. Stevens, and Joseph B. Crosby, and Joseph W. Pearson	Boston, Mass. / Winchester, Mass.	May 22, 1855.
12958	Planters, seed	Thomas S. Minniss	Meadville, Pa.	May 29, 1855.

Classified List of Patents issued—Continued

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12990	Planters, seed	Lucien A. Butts	Cuba, N. Y	June 5, 1855.
12991	Planters, seed	Charles H. Dana	West Lebanon, N. H	June 5, 1855.
13077	Planters, corn	Uriah Beebe	Oakland, Mich	June 19, 1855.
13151	Planters, corn, to be operated by hand	Oren Stoddard	Busti, N. Y	June 26, 1855.
13185	Planters, corn	William Stenson	West Greenville, Pa	July 3, 1855.
13326	Planters, seed	P. Seymour	Bloomfield, N. Y	July 24, 1855.
13387	Planters, corn	R. W. Fenwick and R. Boeklen	Brooklyn, N. Y	Aug. 7, 1855.
13401	Planters, seed	S. G. Randall and J. H. Jones	Rockton, Ill	Aug. 7, 1855.
13419	Planters, corn	A. J. Barnhart	Schoolcraft, Mich	Aug. 14, 1855.
13551	Planters, seed	F. Plummer and G. B. Rollins	Manchester, Ind	Sept. 11, 1855.
13683	Planters, seed	E. McCormick	Connellsville, Pa	Oct. 16, 1855.
13694	Planters, seed	Francis G. Wynkoop, assignor to Henry L. Edson.	Corning, N. Y	Oct. 16, 1855.
13706	Planters, seed	Daniel B Neal	Mount Gilead, Ohio	Oct. 23, 1855.
13794	Planters, corn	Thomas R. Markillie	Winchester, Ill	Nov. 13, 1855.
13820	Planters, hand seed	D. W. Hughes	New London, Mo	Nov. 20, 1855.
14002	Planters, hand seed	Ancil Stickney	Concord, N. H	Dec. 25, 1855.
12241	Ploughs	Arnton Smith	Scottville, Ill	Jan. 16, 1855.
12310	Ploughs	Alfred Doe	Concord, N. H	Jan. 30, 1855.
12381	Ploughs	George Esterly	Heart Prairie, Wis	Feb. 13, 1855.
12387	Ploughs, rotary	John W. Haggard and George Bull	Bloomington, Ill	Feb. 13, 1855.
12398	Ploughs	Ira Reynolds	Republic, Ohio	Feb. 13, 1855.
12466	Ploughs, spade	David Russell	Brewersburg, Ind	Feb. 27, 1855.
12627	Ploughs	Thomas J. Hall	Tawakana Hills, Texas	April 3, 1855.
12650	Ploughs	Noah Warlick	Lafayette, Ala	April 3, 1855.
12791	Ploughs, gang	Thomas J. Hall	Tawakana Hills, Texas	May 1, 1855.
12838	Ploughs	E. C Tavenner and O. Nesmith	Hamilton, Va	May 8, 1855.
13082	Ploughs	L. G Evans	Spring Hill, Ala	June 19, 1855.
13191	Ploughs	N. Whitehall	Attica, Ind	July 3, 1855.
13228	Ploughs, attaching cast point to steel mould boards of.	A and S. Peacock	Cincinnati, Ohio	July 10, 1855.
13493	Ploughs	John L. Gill	Columbus, Ohio	Aug. 28, 1855.

13653	Ploughs	Harrison Norton	Farmington, Me	Oct. 9, 1855.
13865	Plough mould-boards, making	T. A. Chandler	Rockford, Ill	Dec. 4, 1855.
13822	Potato-digger	A. A. Marcellus	New York, N. Y	Nov. 20, 1855.
12109	Rakes	Emile Sirret	Buffalo, N. Y	Jan. 2, 1855.
12396	Rakes, garden	S. N. and W. F. Stillman	Leonardsville, N. Y	Feb. 13, 1855.
12547	Rakes and elevators	Alexander H. Gaston and Joseph Smith	Near Sunbury, Ohio	Mar. 20, 1855.
13596	Rakes for reaping-machines	Thomas N. Lupton	Winchester, Va	Sept. 25, 1855.
12632	Rakes and hay elevators	William J. Keeney and James R. Tarbox.	Florence, Ind	April 3, 1855.
12750	Rakes	Henry Chatfield, assignor to Henry Chatfield and T. L. Snyder.	Waterbury, Conn	April 17, 1855.
13490	Rakes, harvester	Oliver C. Green	Belleville, Ill	Aug. 28, 1855.
13033	Scythes to snaths, fastening	William P. Greenleaf	Washington, N. H	June 12, 1855.
13496	Scythe fastening	Benjamin F. Joslyn	Worcester, Mass	Aug. 28, 1855.
13697	Scythe fastenings	Cyrus Clapp	Montague, Mass	Oct. 23, 1855.
13105	Seeding (seed-drill)	James Selby	Lancaster, Ohio	June 19, 1855.
13135	Seeding-machines	Moses D. Wells	Morgantown, Va	June 26, 1855.
13373	Seeding-machines	Lucien N. Bigelow	Cuba, N. Y	July 31, 1855.
13530	Seeding-machines	C. and G. Stephenson	Plainfield, Mass	Sept. 4, 1855.
13664	Seeding-machines	H. R. Smith	Massena, N. Y	Oct. 9, 1855.
13781	Seeding-machines	E. D. Curtis	Mount Morris, N. Y	Nov. 13, 1855.
13893	Seed-sowers, hand	Moses D. Wells	Morgantown, Pa	Dec. 4, 1855.
13986	Seeding-machines	Reuben Hurd	Spring Hill, Ill	Dec. 25, 1855.
12760	Shearing sheep, implement for	Palmer Lancaster	Burr Oak, Mich	April 24, 1855.
12341	Smut-machines	John Bean and Benjamin Wright	Hudson, Mich	Feb. 6, 1855.
12254	Straw-cutters	John A. Pitts	Buffalo, N. Y	Jan. 16, 1855.
12331	Straw-cutters	George L. Squire	Chicopee Falls, Mass	Jan. 30, 1855.
12407	Straw-cutters	James H. Bennett	Bennington, Vt	Feb. 20, 1855.
12683	Straw-cutters	Walter Lackey	Worcester, Mass	April 10, 1855.
12694	Straw-cutters	Ira Rose	Akron, Ohio	April 10, 1855.
12696	Straw-cutters	David Russell	Drewersburgh, Ind	April 10, 1855.
12699	Straw-cutters	Thos. C. Simonton and Loren J. Wicks	Paterson, N. J	April 10, 1855.
12974	Straw-cutters	Francis Fitzpatrick	Cincinnati, Ohio	May 29, 1855.
13137	Straw-cutters	Henry Peckham	King's Ferry, N. Y	June 26, 1855.
13215	Straw-cutters	Lyman Clinton	North Haven, Conn	July 10, 1855.
13385	Straw-cutters	Dewett C. Cumings	Fulton, N. Y	Aug. 7, 1855.
13509	Straw-cutters	John A. Thompson	Cayuga, N. Y	Aug 28, 1855.
13718	Straw-cutters	Luther B. Fisher	Cold Water, Mich	Oct. 30, 1855.
13807	Straw-cutters	L. J. Wicks	Paterson, N. J	Nov. 13, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13849	Winnowing machines, mode of hanging the screens of.	John A. Krake	Alden, N. Y.	Nov. 27, 1855.
12158	Yokes, ox	Levi Dederick	Albany, N. Y.	Jan. 2, 1855.
12925	Yokes, ox	John Tucker	Norway, N. Y.	May 22, 1855.
13472	Yokes, horse	John Woodward	Wilmot Flat, N. H.	Aug. 21, 1855.

Class II.—Metallurgy, *and manufacture of metals, and instruments therefor.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12237	Amalgamator and gold-washer	John S. Addison	New York, N. Y.	Jan. 16, 1855.
13645	Amalgamator	Samuel Gardiner, jr.	New York, N. Y.	Oct. 9, 1855.
13879	Amalgamators	Edward N. Kent	New York, N. Y.	Dec. 4, 1855.
12484	Auger-handle, fastening	Guy H. Hubbard	Shelburne Falls, Mass.	Mar. 6, 1855.
13025	Beams or girders, wrought iron	Anthony Pollak	Philadelphia, Pa.	June 5, 1855.
13599	Beams, corrugated	Richard Montgomery	New York, N. Y.	Sept. 25, 1855.
12289	Bits, centre, fastening	Abel W. Streeter	Shelburne Falls, Mass.	Jan. 23, 1855.
12262	Bolts, dies for making	John T. Willmarth	Northbridge, Mass.	Jan. 16, 1855.
12815	Bolts, machines for making	Robert Crichton	Buchanan, Pa.	May 8, 1855.
13241	Bolts, machines for making	William E. Ward	Port Chester, N. Y.	July 10, 1855.
13117	Boring cylinders, machines for	Marvin S. Otis, assignor to Chas. Rumley.	Rochester, N. Y.	June 19, 1855.
13780	Boring implements, making	Ransom Cook.	Shelburne Falls, Mass.	Nov. 13, 1855.
13218	Buckles	Sheldon S. Hartshorn	Orange, Conn.	July 10, 1855.
13907	Buckles	Sheldon S. Hartshorn	Orange, Conn.	Dec. 11, 1855.
13695	Casting tea-pot spouts and handles	Theodore Ackerman, assignor to H. H. Homan, W. Muhle, and J. Ackerman.	Cincinnati, Ohio	Oct. 16, 1855.
13948	Casting bells, moulds for	Eber Jones	Troy, N. Y.	Dec. 18, 1855.

12439	Chain-links, machines for making	Ammi M. George	Nashua, N. H.	Feb. 27, 1855.
13029	Chain-making machines	E. Wiessenborn	New York, N. Y.	Dec. 11, 1855.
12311	Dies for cop-tube machines	James Eaton	Townsend Harbor, Mass.	Jan. 30, 1855.
12669	Dies and stocks for ornamenting metal tubes, arrangement of.	S. M. Cate and E. Jordon	Waterbury, Conn.	April 10, 1855.
12735	Dies for bolt-forging machines	John T. Willmarth	Northbridge, Mass.	April 17, 1855.
12265	Door-knobs	William Leighton, assignor to New England Glass Company.	Cambridge, Mass.	Jan. 16, 1855.
12320	Door-latches, locking-spindle	William H. McNamee	Philadelphia, Pa.	Jan. 30, 1855.
12675	Door fasteners, portable	Benjamin R. Eames.	South Newry, Me.	April 10, 1855.
13473	Door-knob	Alonzo E. Young, assignor to himself and M. Worthley.	Dorchester, Mass.	Aug. 21, 1855.
13770	Door-springs	Amos Westcott	Syracuse, N. Y.	Nov. 6, 1855.
13383	Drills, machine	James Conner and Thomas Newby	Richmond, Ind.	Aug. 7, 1855.
13766	Drilling and boring machine	Samuel W. Shryock	Hopkinsville, Ky.	Nov. 6, 1855.
13845	Drilling and screw-cutting machine	Joel P. Heacock	Marlboro', Ohio.	Nov. 27, 1855.
13310	Files, machines for cutting	Horace Hotchkiss	Waterbury, Conn.	July 24, 1855.
12594	Fireproof safes	Richard G. Holmes and Wm. H. Butler.	New York, N. Y.	Mar. 27, 1855.
12133	Flanges on wrought-iron beams, machines for forming.	Julius H. Kroehl	New York, N. Y.	Jan. 2, 1855.
13514	Flasks for moulding bath-tubs	John Demarest, assignor to The J. L. Mott Iron Works.	Mott Haven, N. Y.	Aug. 28, 1855.
12282	Folding machines, metal	Daniel Newton	Southington, Conn	Jan. 23, 1855.
12135	Forging car-wheels, machines for	Wesly M. Lee	New York, N. Y.	Jan. 2, 1855.
12961	Forging machines	Silas S. Putnam	Boston, Mass.	May 29, 1855.
13053	Forging, heating wrought-iron wheels for.	William R. Thomson.	Cleveland, Ohio	June 12, 1855.
13434	Forging-machine	Daniel Noyes	Abington, Mass.	Aug. 14, 1855.
	Goldwasher and amalgamator. (See Amalgamator.)	John S. Addison	New York, N. Y.	Jan. 16, 1855.
12770	Hammers, forge	John Comstock, assignor to Peter Naylor	New London, Conn. New York, N. Y.	April 24, 1855.
13179	Hammers, trip	Milo Peck	New Haven, Conn	July 3, 1855.
13608	Hammers, trip	Peter L. Weimer	Reading, Pa.	Sept. 25, 1855.
12443	Hinges, butt, machines for making	Charles Miller	New York, N. Y.	Feb. 27, 1855.
12853	Hinges, spring, double-acting.	Henry E. Canfield	New York, N. Y.	May 15, 1855.
13085	Hinges, &c., springs for	Arasmus French	Waterbury, Conn.	June 19, 1855.
13321	Hinges	Joseph Plegar	Birmingham, Pa.	July 24, 1855.
13355	Iron, machines for compressing puddlers' balls and other masses of.	Solon S. Jackman	Lock Haven, Pa.	July 31, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Iron, processes for smelting. (See Class IV.)			
12227	Kettles, machines for forming, from metal disk.	Lyman C. Camp, assignor to Phelps, Dodge, & Co	Berlin, Conn / New York, N. Y.	Jan. 9, 1855.
12186	Locks, pad	Thomas Slaight	Newark, N. J.	Jan. 2, 1855.
12240	Locks, latch, door	John C. Kline	Pittsburg, Pa	Jan. 16, 1855.
12403	Locks, bank	Frederick Denzler	New York, N. Y.	Feb. 20, 1855.
12476	Locks, door, guards for	William Ballauf and Frederick Wurth	Cincinnati, Ohio	Mar. 6, 1855.
12526	Locks, door	William Warwick	Birmingham, Pa	Mar. 13, 1855.
12647	Lock, bank	C Gustav Mueller	Charleston, S. C	April 3, 1855.
12784	Locks, door, alarm attachment for	John Schneider	Rochester, N. Y.	May 1, 1855.
12932	Locks, bank	Linus Yale	Newport, N. Y.	May 22, 1855.
12957	Locks, door	William Maurer	New York, N. Y.	May 29, 1855.
13037	Locks, door	John C. Kline	Pittsburg, Pa	June 12, 1855.
13052	Locks, door	Joseph C. Silvy	New Orleans, La	June 12, 1855.
13163	Locking-latches for doors	Edmund Field	Greenwich, Conn	July 3, 1855.
13722	Locks	R. G Holmes and William H. Butler	New York, N. Y.	Oct. 30, 1855.
13753	Locks	D W. G. Humphrey	Gray, Me	Nov. 6, 1855.
13814	Locks	H. A. Bleckman	Ronsdorf, Prussia	Nov. 20, 1855.
13880	Locks	Edward Kershaw	Boston, Mass	Dec. 4, 1855.
13884	Locks	J. H. Pomeroy	Bloomington, Ill	Dec. 4, 1855.
13911	Locks for freight cars	Henry C. Jones	Newark, N. J.	Dec. 11, 1855.
13968	Locks	Thomas Bowles, assignor to R. M Patrick	New York, N. Y.	Dec. 18, 1855.
12708	Locomotive-drivers, lathes for turning	J. M. Stone, assignor to Manchester Locomotive Works.	Manchester, N. H	April 10, 1855.
12117	Metals, machine for boring, planing, and slotting.	Norman Aylesworth	Rochester, N. Y	Jan. 2, 1855.
12228	Metal tubes, manufacturing	William Beasley, assignor to J. & J. W. Brett / C. W. Tupper / William Beasley	Westminster / London / Smethwick — England	Jan. 9, 1855.
12268	Metal, sheet, rollers for corrugating	Solomon G Booth	New York, N. Y.	Jan. 23, 1855.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13295	Metal, sheet, machines for cutting	Cephas Applebee	Lyndon, Vt	July 24, 1855.
12503	Metals, machines for turning, boring, and slotting.	Alanson Brown	Rochester, N. Y.	Mar. 13, 1855.
12712	Metal, machines for punching	Marshall Burnett and Charles Vander Woerd.	Boston, Mass	April 17, 1855.
12723	Metal, machines for punching	De Grasse, Fowler, and Geo. Fowler	Wallingford, Conn	April 17, 1855.
12739	Metal tubes, arrangement of rollers for making.	Martin R. Griswold	Watertown, Conn	April 17, 1855.
12767	Metal, machines for planing	James H. Thompson	Paterson, N. J	April 24, 1855.
12799	Metals, machines for burnishing	Jeremiah Stever	Bristol, Conn	May 1, 1855.
12971	Metal, sheet, pipes, machines for helically creasing.	Alfred B. Seymour	Claverach, N. Y.	May 29, 1855.
13046	Metal, sheet, folding machines	Orson W. Stow	Plantsville, Conn	June 12, 1855.
13355	Metal tubes, machines for forming	Edwin Ells	Ansonia, Conn	July 17, 1855.
13625	Moulding, circular, and under-cut work	William Sellers and James Walker	Cincinnati, Ohio	Oct. 2, 1855.
13118	Nuts, making	Isaac H. Steer, assignor to Henry Carter	Winchester, Va / Pittsburg, Pa	June 19, 1855; antedated Dec. 19, 1854.
12194	Nuts and washers, machines for making	Robert Brayton	Buffalo, N. Y.	Jan. 9, 1855.
13252	Nut-machines	Richard H. Cole	St. Louis, Mo	July 17, 1855.
13720	Nut-machine	Robert Griffiths	Alleghany City, Pa	Oct. 30, 1855.
	Ore, franklinite, methods of working. (See Class IV.)			
12191	Ores, machine for crushing and pulverizing.	Arnold Buffum	Perth Amboy, N. J.	Jan. 9, 1855.
12576	Ore-separators	Reuben Shaler	Madison, Conn	Mar. 20, 1855.
13136	Ore, machines for cleaning	Bearnard O'Bryan	Marietta, Pa	June 26, 1855.
13892	Ore, (quartz-crushing machine.)	Richard Vose	New York, N. Y.	Dec. 4, 1855.
13961	Ore, galena, or lead, treating	Jul. E. Schwabe	New York, N. Y.	Dec. 18, 1855.
12975	Pin-sticking machines	J. B. Terry	Hartford, Conn	May 29, 1855.
13553	Pins, sticking, machines for crimping paper for.	J. B. Terry	Hartford, Conn	Sept. 11, 1855.
13785	Pins, separating	J. Fowler	Waterbury, Conn	Nov. 13, 1855.
13892	Quartz-crushing machines. (See Ores.)	Richard Vose	New York, N. Y.	Dec. 4, 1855.
13175	Rivets, machines for making	Frederick W. Hoffman and C. W. G. Fordan.	New York, N. Y.	July 3, 1855.
12837	Rolling railroad rails, machine for	Andrew J. Suffern	Suffern, N. Y.	May 8, 1855.
12500	Sash-fastener	William E. Arnold	Rochester, N. Y.	Mar. 13, 1855.
12710	Sash-fasteners	William E. Arnold	Rochester, N. Y.	April 17, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13491	Sash-fastener	Asahel Gilbert, jr	Lowell, Mass	Aug. 28, 1855.
13656	Sash-fastener	William Patton	Towanda, Pa	Oct. 9, 1855.
13177	Screw-fastenings	John Loudon and Otto Ahlstrom	New York, N. Y	July 3, 1855.
13767	Screw-blanks, arranging and feeding	Elliot Savage	East Berlin, Conn	Nov. 6, 1855.
	Screw-cutting, drilling, and, machine (See Drilling.)			
	Screws, rain-staff, for ship carpenters. (See Class VII.)			
	Sifting, apparatus for (See Class XXII.)			
12931	Spikes	J. H. Wygant	Hackensack, N. J	May 22, 1855.
13535	Spike-machine	Amos Whittemore	Cambridgeport, Mass	Sept. 4, 1855.
3945	Spike-machines	A. M. George	New York, N. Y	Dec. 18, 1855.
	Steel, compositions for working. (See Class IV.)			
13841	Striker, blacksmiths'	Dennis S. Blue	Fort Seneca, Ohio	Nov. 27, 1855.
12219	Tin cans, apparatus for soldering	William J. Stevenson	New York, N. Y	Jan 9, 1855.
13392	Tires upon wheels, mode of securing	John L Irwin	Franklin, Ala	Aug. 7, 1855.
	Trip-hammers. (See Hammer)	Milo Peck	New Haven, Conn	July 3, 1855.
13256	Vises, adjustable	John Fraser, assignor to Logan, Vail, & Co.	New York, N. Y	July 17, 1855.
13489	Vise	R. W. & D. Davis	Yellow Springs, Ohio	Aug. 28, 1855.
13681	Vises	Jasper Johnson	Genesee, N. Y	Oct. 16, 1855.
12275	Window-blinds, means for holding	Henry A. Frost	Worcester, Mass	Jan. 23, 1855.
13570	Wire, cutting	William Grover	Holyoke, Mass	Sept. 18, 1855.
13651	Wire dish-covers, machine for making	William Lincoln	Oakham, Mass	Oct 9, 1855.
12198	Wrenches, ratchet	Charles G. Everitt	Brooklyn, N. Y	Jan. 9, 1855.
12410	Wrenches, screw	Samuel H. Noble	Westfield, Mass	Feb. 20, 1855.
12510	Wrenches, screw	John Hyde	New York, N. Y	Mar. 13, 1855.
12590	Wrenches, screw	L. D. Gilman	Troy, N. Y	Mar. 27, 1855.
12935	Wrenches, screw	Francis S. Coburn, assignor to Ruggles, Nourse, Mason, & Co	Ipswich, Mass / Worcester, Mass	May 22, 1855.
13120	Wrench	Charles B. Bristol	Naugatuck, Conn	June 26, 1855.
13221	Wrenches, slide	Benjamin F. Joslyn	Worcester, Mass	July 10, 1855.
13388	Wrench	Alden Graham	Roxbury, Mass	Aug. 7, 1855.
13456	Wrench	John D. Dale	Philadelphia, Pa	Aug. 21, 1855.
13597	Wrench	H. J. Behrens	New York, N. Y	Sept. 25, 1855.
13617	Wrenches, screw	Joseph Hyde	New York, N. Y	Oct. 2, 1855.

Class III.—Manufactures of fibrous and textile substances, *including machines for preparing fibres of wool, cotton, silk, fur, paper, &c.*

No.	Inventions or discoveries	Patentees.	Residence.	Date of patent.
13391	Braiding-machines	Liveras Hull	Charlestown, Mass	Aug. 7, 1855.
13719	Braiding, machinery for	Liveras Hull	Charlestown, Mass	Oct. 30, 1855.
12469	Carding-machines	Horatio N. Gambrill and Singleton F. Burgee.	Woodbury Mills, Md	Feb. 27, 1855; English patent, Aug. 22, 1854.
13395	Carpets, manufacturing	John G. McNair	West Farms, N. Y	Aug. 7, 1855.
13702	Carpets, finishing	Samuel Fay	Lowell, Mass	Oct. 23, 1855.
13018	Cloth, felt, manufacture of ornamental	O. B. Tomlinson	Athens, Pa	June 5, 1855.
13543	Cloth, folding and measuring, machinery for.	Jos. D. Elliot	Leicester, Mass	Sept. 11, 1855.
13888	Cloth stretching rollers	Nathan Simmons	Providence, R I	Dec. 4, 1855.
13900	Cloth, folding and measuring, machinery for.	James Baxendale	Providence, R. I	Dec. 11, 1855.
12668	Cord, lines twist or, machinery for winding up.	Boardman Byron and George C. Sweet	Norwich, Conn	April 10, 1855.
12845	Cord, platting and twisting	William H. Zahn, assignor to F. Reuter	New York, N. Y	May 8, 1855.
12920	Cordage-machinery	Henry Pearce	Cincinnati, Ohio	May 22, 1855.
13564	Cotton, machinery for cleaning	Samuel W. Brown	Lowell, Mass	Sept. 18, 1855.
13862	Fabrics, pile, cutting	Erastus B. Bigelow	Boston, Mass	Dec. 4, 1855.
13970	Fabrics, woven	John Healey, assignor to James Bishop	Bolton, England	Dec. 18, 1855; English patent, Nov. 17, 1846.
12343	Felt goods, seamless, manufacturing	John H. Bloodgood	New York, N. Y	Feb. 6, 1855.
12863	Fibrous materials, condensers for	William H. Howard	Philadelphia, Pa	May 15, 1855.
13578	Fibrous materials, machinery for picking	Richard Kitson	Lowell, Mass	Sept. 18, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13650	Fibrous and textile substances, apparatus for washing and bleaching.	J. A. Jillson and H. Whinfield	Poughkeepsie, N. Y.	Oct. 9, 1855.
13636	Fibre, vegetable, preparing	Jean Blanc	New Orleans, La.	Oct. 9, 1855.
13280	Flocks, machines for preparing	L. W. Boynton	Worcester, Mass.	Aug. 7, 1855.
13134	Gins, cotton	Asa P. Keith	Bridgewater, Mass.	Jan. 9, 1855.
13336	Gins, cotton	Henry Clark	Newport, Florida	Feb. 13, 1855.
13635	Gins, cotton	J. B. Mell	Riesboro', Ga.	April 3, 1855.
13604	Gins, cotton	Leonard Campbell, assignor to L. Campbell and Thos. W. Brown.	Columbus, Miss	May 22, 1855.
13131	Gins, cotton	R. A. L. McCurdy	Pleasant Hill, La.	June 26, 1855.
13441	Gins, cotton	John Simpson	Lewisville S. C.	Aug. 14, 1855.
13484	Gin, cotton, saws	A. D. Brown, assignor to Margaret L. Brown	Columbus, Ga. / Opelika, Ala	Aug. 28, 1855.
13641	Gins, cotton	H. H. Fults	Lexington, Miss.	Oct. 9, 1855.
13615	Gins, cotton	L. S. Chichester	New York, N. Y.	Nov. 20, 1855.
13609	Gin, opening and feeding to the, machinery for.	Major B. Clarke	Newman, Ga.	Dec. 4, 1855.
13081	Hair, whipping, machinery for	Isaac Davis	Mechanicsburgh, Ohio	Dec. 25, 1855.
12321	Hat-bodies, machinery for felting	S. S. Middlebrook, J. B. Blakeslee, and C. F. Blakeslee.	Newton, Conn.	Jan. 30, 1855.
12373	Hats and bonnets, pressing	S. E. Pettee	Foxborough, Mass.	Feb. 6, 1855.
12356	Hat-bodies, machinery for felting	William Fuzzard	Newark, N. J.	Feb. 13, 1855.
13005	Hats, process of manufacturing	Lansing E. Hopkins	Brooklyn, N. Y.	June 5, 1855.
13013	Hats, manufacture of	Andrew Rankin	Newark, N. J.	June 5, 1855.
13304	Hat-bodies, machines for sizing	Phineas Emmons	New York, N. Y.	July 24, 1855.
13613	Hat-bodies, preparing materials for	P. Arneson, J. Pederson, and H. Rees	New York, N. Y.	Oct. 2, 1855.
13614	Hat-bodies, machinery for manufacturing	P. Arneson, J. Pederson, and H. Rees	New York, N. Y.	Oct. 2, 1855.
13063	Hat-bodies, felting	Isaac Scarles	Newark, N. J.	Dec. 18, 1855.
13609	Hat-bodies, felting	William W. Cumberland	Newark, N. J.	Oct. 23, 1855.
	Hemming and cording, guides for. (See Sewing-machines.)	Henry B. Odiorne	Philadelphia, Pa.	May 8, 1855.
12466	Hemp-breaker	D. W. Hughes	New London, Mo	Feb. 27, 1855.

12472	Hemp, Sisal, machines for cleaning and stripping seed from broom-corn.	Geo. D. Allen	Key West, Fla.	Mar. 6, 1855.	
12896	Knitting-machines, stop-motion of	Robert Cushman	Pawtucket, R. I.	May 22, 1855.	
12933	Knitting-machines	J. B. Aiken, assignor to J. B. & H. Aiken.	Franklin, N. H.	May 22, 1855.	
13165	Knitting-machines	Thomas Fowler	Cohoes, N. Y.	July 3, 1855.	
13289	Knitting-machines	John Pepper, assignor to "The Franklin Mills."	Franklin, N. H.	July 17, 1855.	
13561	Knitting machines	W. and J. B. Aiken, assignors to Herrick and Jonas B. Aiken.	Franklin, N. H.	Sept. 11, 1855.	
13586	Knitting-machines	C. Tompkins, and Jno. Johnson	Troy, N. Y.	Sept. 18, 1855.	
13621	Knitting-machines	Joseph Powell	Waterbury, Conn.	Oct. 2, 1855.	
13693	Knitting-machines	John H. Doolittle, assignor to "American Hosiery Company."	Waterbury, Conn.	Oct. 16, 1855.	
13740	Knitting-machines	A. French	Waterbury, Conn.	Nov. 6, 1855.	
13811	Knitting-machines	Timothy Bailey	Ballston Spa, N. Y.	Nov. 20, 1855.	
12771	Lawns, machine for dressing	R. L. Hawes, assignor to Robert Rennie.	Worcester, Mass.	April 24, 1855.	
12130	Looms	Abram Brigham	Manchester, N. H.	Jan. 2, 1855.	
12225	Looms	Joseph Welsh	Philadelphia, Pa.	Jan. 9, 1855.	
12229	Looms	William Tongue, assignor to Wm. Tongue and James Buckley	Philadelphia, Pa. / Sadsburyville, Pa.	Jan. 9, 1855.	
12236	Looms, temples for	John H. Allen	Biddeford, Me.	Jan. 16, 1855.	
12274	Looms	James Eccles	Philadelphia, Pa.	Jan. 23, 1855.	
12293	Looms	George Copeland	Lewiston, Me	Jan. 23, 1855.	
12457	Looms	W. V. Gee, assignor to the Atwater and Bristol Manufacturing Company.	New Haven, Conn	Feb. 27, 1855.	
12563	Looms	Lewis Van Riper	Spring Valley, N. Y.	Mar. 20, 1855.	
12593	Looms	David S. Harris	Coventry, R. I.	Mar. 27, 1855.	
12596	Looms	William S. Irish	Middlebury, Ohio	Mar. 27, 1855.	
12630	Looms	Barton H. Jenks	Bridesburgh, Pa.	April 3, 1855; Jan. 8, 1855.	antedated
12762	Looms	J. G Melville and Wm. Brayshaw	Wetheredsville, Md.	April 24, 1855.	
12780	Looms, shuttles for	Laroy Litchfield	Southbridge, Mass.	May 1, 1855.	
12781	Looms, shuttles for	Ezra P. Marble	New Worcester, Mass.	May 1, 1855.	
12879	Looms, temples for	Jeremiah C. Tilton	Sanbornton Bridge, N. H.	May 15, 1855.	
12941	Looms, shuttle motion of	John Avery	Lowell, Mass.	May 29, 1855.	
12970	Looms	Daniel W. Snell	Woonsocket, R. I.	May 29, 1855.	
12981	Looms	Joseph Welsh	Philadelphia, Pa.	May 29, 1855.	
13022	Looms	Wm. Whiteside and John Shinn	Philadelphia, Pa.	June 5, 1855.	
13152	Looms, harness for, machines for making.	Jacob Senneff	Philadelphia, Pa.	June 26, 1855.	

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13186	Looms	Samuel J. Thomas	Lawrence, Mass	July 3, 1855.
13187	Looms	Samuel J. Thomas	Lawrence, Mass	July 3, 1855.
13217	Looms	Rufus M. Dill	Holyoke, Mass	July 10, 1855.
13284	Looms	Edward Wood	Philadelphia, Pa	July 17, 1855.
13322	Looms, shuttle-guides for	H. T. Robbins	Lowell, Mass	July 24, 1855.
13382	Looms	John Broadbent	Oak Grove, Ky	Aug. 7, 1855.
13413	Looms, temples for	James Smith, assignor to Smith & Botterill	Laurel, Md	Aug. 7, 1855.
13571	Looms for weaving suspender webbing	William V. Gee	New Haven, Conn	Sept. 18, 1855.
13724	Looms	James O. Leach	Ballston Spa, N. Y	Oct. 30, 1855.
13848	Looms, bag	L. B. Jillson and G. Sparhawk	Lewiston, Me	Nov. 27, 1855.
13936	Looms for weaving pile fabrics	E. B. Bigelow	Boston, Mass	Dec. 18, 1855.
14000	Looms for weaving wire	George W. Smith	Maunch-Chunk, Pa	Dec. 25, 1855.
13752	Mules, self-acting	John Harris	Lawrence, Mass	Nov. 6, 1855.
12283	Paper-stock, machines for washing	Horace W. Peaslee	Malden Bridge, N. Y	Jan. 23, 1855; English patent dated Sept. 20, 1854.
	Paper from resinous barks, preparation of. (See Class IV.)			
12442	Paper-making, rolls and driers for	Obadiah Marland	Boston, Mass	Feb. 27, 1855.
	Paper-pulp, manufacture of. (See Class IV.)			
12978	Paper-pulp, preparing wood for	Milton D. Whipple	Charlestown, Mass	May 29, 1855.
13153	Paper, sand, cutting-machines	William Adamson	Philadelphia, Pa	July 3, 1855.
13412	Paper-pulp, machinery for making	Louis Koch, assignor to P. B. Sweeney and M. Lacour.	New York, N. Y	Aug. 7, 1855.
13229	Rope and cordage-machines	Samuel Pearson, jr., and Wm. H. Gardner	Roxbury, Mass	July 10, 1855.
13309	Rope, machinery for making	John Harris	North Hoosick, N. Y	July 24, 1855.
12138	Roving, regulating the size of	Samuel Pearson, jr., and Wm. H. Gardner	Roxbury, Mass	Jan. 2, 1855.
12581	Roving, woollen, preparing	Augustus E. Bigelow	Chicopee, Mass	Mar. 27, 1855.
13029	Seine-needles, machinery for filling	H. M. Glines, assignor to John M. and S. F. Stanton.	Manchester, N. H	Oct. 2, 1855.
12146	Sewing-machines	Daniel T. Ward	Newark, N. J	Jan. 2, 1855.
12233	Sewing-machines	Jotham S. Conant, assignor to A. B. Ely	New York, N. Y Boston, Mass	Jan. 16, 1855.

12247	Sewing-machines	H. B. Smith	Lowell, Mass	Jan. 16, 1855
12322	Sewing-machines	John B. Nichols	Lynn, Mass	Jan. 30, 1855.
12336	Sewing-machines, waxing thread on	Salem Wilder	Lynn, Mass	Jan. 30, 1855.
12364	Sewing-machines	Isaac M. Singer	New York, N. Y	Feb. 6, 1855.
12389	Sewing-machines	George H. and Benjamin H. Horn	Brooklyn, N. Y	Feb. 13, 1855.
12402	Sewing-machines	Edwin A. Forbush	Ashland, Mass	Feb. 20, 1855.
12557	Sewing-machines	T. J. W. Robertson, assignor to Robertson and A. E. Beach.	New York, N. Y	Mar. 20, 1855.
12734	Sewing-machines	E. Harry Smith, assignor to Wheeler & Wilson Manufacturing Co.	New York, N. Y Watertown, Conn	April 17, 1855.
12573	Sewing-machines	George W. Stedman	Vienna, N. J	Mar. 20, 1855.
12798	Sewing-machines	George W. Stedman	Vienna, N. J	May 1, 1855.
12826	Sewing-machines, guides for hemming and cording.	Henry B. Odiorne	Philadelphia, Pa	May 8, 1855.
12856	Sewing-machines	John Chilcott and James Scrimgeour	Brooklyn, N. Y	May 15, 1855.
12858	Sewing-machines, cording, guide for	Henry W. Dickinson	Hartford, Conn	May 15, 1855.
12902	Sewing-machines	Charles A. Durgin	New York, N. Y	May 22, 1855.
12923	Sewing-machines	T. J. W. Robertson	New York, N. Y	May 22, 1855.
12939	Sewing-machines	Jos. Bond, jr.	Philadelphia, Pa	May 22, 1855.
12969	Sewing-machines	Isaac M. Singer	New York, N. Y	May 29, 1855.
12984	Sewing-machines	Addison Capron, assignor to A. Capron J. S. Dennis, and H. M. Richards	Attleboro', Mass Somerville, Mass Attleboro', Mass	May 29, 1855.
13064	Sewing-machines	T. J. W. Robertson	New York, N. Y	June 12, 1855.
13065	Sewing-machines	Isaac M. Singer	New York, N. Y	June 12, 1855.
13178	Sewing-machines	Jean Pierre Molliere	Lyons, France	July 3, 1855. French patent dated May 30, 1854.
13195	Sewing-machines	Jerome B. Woodruff	Washington, D. C	July 3, 1855.
13201	Sewing-machines	Geo. W. Stedman	Vienna, N. J	July 3, 1855.
13242	Sewing-machines	Jerome B. Woodruff	Washington, D. C	July 10, 1855.
13275	Sewing-machines, guides for	Frederick R. Robinson	Worcester, Mass	July 17, 1855.
13353	Sewing-machines	James Harrison, jr	Milwaukie, Wis	July 31, 1855.
13362	Sewing-machines	Isaac M. Singer	New York, N. Y	July 31, 1855.
13499	Sewing-machine cases	F. A. Ross and Wm. H. Marshall	New York, N. Y	Aug. 28, 1855.
13616	Sewing-machines	James Harrison, jr	Milwaukie, Wis	Oct. 2, 1855.
13630	Sewing-machines	C. J. Copperthwaite	Philadelphia, Pa	Oct. 2, 1855.
13661	Sewing-machines	Isaac M. Singer	New York, N. Y	Oct. 9, 1855.
13662	Sewing-machines	Isaac M. Singer	New York, N. Y	Oct. 9, 1855.
13687	Sewing-machines	Isaac M. Singer	New York, N. Y	Oct. 16, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13727	Sewing-machines	L. W. Langdon	Rochester, N. Y.	Oct. 30, 1855.
13768	Sewing-machines	Isaac M. Singer	New York, N. Y.	Nov. 6, 1855.
13856	Sewing-machines	George W. Stedman	Vienna, N. J.	Nov. 27, 1855.
13966	Sewing-machines	Isaac M. Singer	New York, N. Y.	Dec. 18, 1855.
12532	Spinning wool, machinery for	F. S. Stoddard	Litchfield, Conn.	Mar. 13, 1855.
12582	Spinning wool	Augustus E. Bigelow	Chicopee, Mass	Mar. 27, 1855.
12889	Spinning, machinery for	Arad Woodworth, 3d	Boston, Mass	May 15, 1855.
13024	Spinning, ring, frames	William Darker, jr., assignor to J. B. Thompson.	West Philadelphia, Pa	June 5, 1855.
13726	Spinning, frames, ring and traveller	Henry Luther	Charleston, S. C.	Oct. 30, 1855.
12467	Thread, covering, with wool or silk	Joseph Haslam, by his heirs, John Haslam and James Haslam	New York, N. Y. / Searsdale, N. Y.	Feb. 27, 1855.
12885	Thread, sewing, dressing	John M. Heck, assignor to Henry Perry.	Plymouth, Conn.	May 15, 1855.
13267	Thread, sewing, trebling a single strand, &c.	Harold Kelsea	North Branch, in town of Antrim, N. H.	July 17, 1855.
13562	Thread, a single, machinery for trebling	Anson A. Swift, assignor to himself and Samuel L. Hill.	Florence, Mass	Sept. 11, 1855.
13795	Throstle-frames, giving tension to the endless band of.	Joseph Morse	Woonsocket, R. I.	Nov. 13, 1855.
13550	Warps, machinery for sizing and dressing.	John A. Elder and / Ephraim Wood	Westbrook, Maine / Winthrop, Maine	July 31, 1855.
12175	Weavers' harness, machines for making	Joseph S. Winsor	Providence, R. I	Jan. 2, 1855.
13290	Wool, machinery for preparing for combing.	A. Reinhardt, assignor to / N. Schlumberger & Co	Citizen of France, residing in United States. / France.	July 17, 1855.
13870	Wool-combing machines	Peter Fairbairn and John Hargrave	Leeds, England	Dec. 4, 1855. English patent dated Nov. 6, 1852.
	Wool, process for treating. (See Class IV.)			
	Yarns and cloth, machine for printing. (See Class XVIII.)			

CLASS IV.—CHEMICAL PROCESSES, MANUFACTURES, AND COMPOUNDS, *including medicines, dyeing, color-making, distilling, soap and candle making, mortars, cements, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12988	Amalgamating the precious metals	Leander R. Streeter, assignor to L. R. Streeter and Ira Leonard.	Lowell, Mass	May 29, 1855.
12160	Beer, fermenting tuns for	Adolph Hammer	Philadelphia, Pa	Jan. 2, 1855.
12535	Benzole vapor apparatus	Charles Cunningham, assignor to John C. Pedrick.	Nashua, N. H	Mar. 13, 1855.
12709	Bleaching apparatus	Charles T. Appleton	Roxbury, Mass	April 17, 1855; English patent dated Aug. 30, 1853.
13008	Bleaching rags, apparatus for	Harrison Loring	Boston, Mass	June 5, 1855.
13928	Bleaching ivory, devices for	Wm. W. Welling	Brooklyn, N. Y.	Dec. 11, 1855.
13633	Borax, manufacture of, from native borate of lime.	T. Bell and H. Scholefield	South Shields, England	Oct. 9, 1555.
12193	Candle-mould machines	Lewis C. Ashley	Troy, N. Y.	Jan. 9, 1855.
12495	Candles, machines for making	John Stainthorp	Buffalo, N. Y.	Mar. 6, 1855.
13334	Candle-mould apparatus	Willis Humiston	Troy, N. Y.	July 24, 1855.
13973	Candle-mould apparatus	Lewis C. Ashley	Troy, N. Y.	Dec. 25, 1855.
12153	Cans, preserve, self-sealing	Robert Arthur	Washington, D. C.	Jan. 2, 1855.
	Composition for filling in fire-proof safes. (See Class V.)			
	Composition for kindling fires. (See Class V.)			
12151	Compositions for unhairing hides	Andrew H. Ward, jr., assignor to A. H. Ward, jr. and Kirk Boott.	Boston, Mass	Jan. 2, 1855.
	Compounds, fluid, burning. (See Class V.)			
12212	Compounds, hard-rubber, reworking	Charles Morey	Citizen of the United States, residing in Paris.	Jan. 9, 1855.
	Compounds, tanning. (See Class XVI.)			
12368	Compositions for bleaching and stuffing leather.	L. W. Fiske	Louisville, Ky	Feb. 6, 1855.
	Compositions for dressing leather. (See Class XVI.)			
12519	Compositions, fire-extinguishing	Edward F. Overdeer	Chattanooga, Tenn	Mar. 13, 1855.

Classified List of Patents issued— Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13420	Compositions for treating rubber and gutta percha.	Francis Bashnagel	New York, N. Y.	Aug. 14, 1855.
13733	Compositions, roofing	James West	Syracuse, N. Y.	Oct. 30, 1855.
12812	Distillation, preparing turpentine for	Alexander C. Blount	Mount Pleasant, Ala.	May 8, 1855.
13358	Distilling coal with hydrogen gas	Stephen Meredith	Meadville, Pa.	July 31, 1855.
	Enamelling, treating leather for. (See Class XVI.)			
12516	Evaporating apparatus	James McCracken	Bloomfield, N. J.	Mar. 13, 1855.
	Fibre, vegetable, preparing. (See Class III.)			
12329	Franklinite ore, methods of working	Thaddeus Selleck	Greenwich, Conn.	Jan. 30, 1855.
12498	Gas, illuminating, apparatus for purifying.	Dexter H. Chamberlain, assignor to Henry Woodward.	West Roxbury, Mass.	Mar. 6, 1855.
12711	Gas retorts, construction of	Henry P. M. Birkinbine	Philadelphia, Pa.	April 17, 1855.
13754	Gas-holders	Stephen Hill and W. J. Wood	Rochester, N. Y.	Nov. 6, 1855.
12304	Glue, clarifying	William Adamson	Philadelphia, Pa.	Jan. 30, 1855.
	Gutta-percha boats, making. (See Class VII.)			
12204	Hop-extracting apparatus	Adolph Hammer	Philadelphia, Pa.	Jan. 9, 1855.
12144	India-rubber cloth, processes of making	Henry G. Tyer and John Helm	New Brunswick, N. J.	Jan. 2, 1855.
12334	India-rubber cloth, processes for making.	Henry G. Tyer and John Helm	New Brunswick, N. J.	Jan. 30, 1855.
	India-rubber soles, attaching metallic heels to. (See Class XVI.)			
12738	India-rubber springs	William F. Converse	Harrison, Ohio	April 17, 1855.
12963	India-rubber, devulcanizing	Sigismund Beer, assignor to Lewis Feuchtwanger and Sigismund Beer.	New York, N. Y.	May 29, 1855.
	India-rubber, machines for cutting boot and shoe uppers, soles, &c., from sheets of. (See Class XVI.)			
12616	Lead, white, manufacture of, by precipitation.	Richard Baker	Newark, N. J.	April 3, 1855.

13632	Lime, acid, sulphite of, manufacture of.	P. L. Bernard and Jos. Albrecht	New Orleans, La.	Oct. 9, 1855.
	Lubricator. (See Class XII.)			
	Lubricator for steam-engines. (See Class XII.)			
	Lubricator for steam machinery. (See Class XII.)			
	Lubricator, self-feeding, atmospheric. (See Class XII.)			
	Lubricator, velocitrot. (See Class XII.)			
	Lubricators, automatic, for railroad car axles. (See Class XII.)			
	Lubricating axles, plugs for. (See Class X.)			
12716	Lubricating compounds	Nathan Dresser	Rochester, N. Y.	April 17, 1855.
12918	Lubricating compounds	Jacob Marshall	Reading, Pa.	May 22, 1855.
12964	Lubricating compounds	E. Freeman Prentiss	Philadelphia, Pa.	May 29, 1855.
13211	Lubricating compounds	Eleazur Brown, jr.	Niagara, N. Y.	July 10, 1855.
12205	Mash-machines	Adolph Hammer	Philadelphia, Pa.	Jan. 9, 1855.
	Match-machines. (See Class XIV.)			
12614	Oils, factitious	Henry W. Adams	New York, N. Y.	April 3, 1855.
13486	Oil, wool, preparations of	Thomas Barrows	Dedham, Mass.	Oct. 28, 1855.
	Oils, grinding cotton and other seeds for their. (See Class XIII.)			
13557	Oils, vegetable, steam apparatus for extracting.	William Wilber	New Orleans, La.	Sept. 11, 1855.
	Oil and manure, treating fish for. (See Class I.)			
13708	Oil, preparing cotton-seed for extracting.	Oscar Reichenbach	Norristown, Pa.	Oct. 23, 1855.
	Oil, rosin-lamp. (See Class V.)			
12361	Paper-pulp, manufacture of	Henry Glynn	A subject of Great Britain, now residing in Baltimore, Md.	Feb. 6, 1855.
12414	Paper from resinous barks, preparation of.	Chas. C. Hall	Portland, Me.	Feb. 20, 1855.
	Paste-board, stone, manufacture of. (See Class XV.)			
13325	Potash and soda, preparing	George Thompson	East Tarentum, Pa.	July 24, 1855.
	Processes for calico printing. (See Class XVIII.)			
12139	Processes for extracting tannin from leather.	Obadiah Rich	Cambridgeport, Mass.	Jan. 2, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12142	Processes for making soap	Richard A. Tilghman	Philadelphia, Pa	Jan. 2, 1855.
12585	Processes for refining jewellers' scraps	Levi B. Darling	Providence, R. I	Mar. 27, 1855.
12612	Processes for making kerosene	Abraham Gesner, assignor to the "Asphalte Mining and Kerosene Gas Co.," assignors to A. Gesner, assignor to "North American Kerosene Gas-light Company."	New York, N. Y	Mar. 27, 1855.
12777	Processes for purifying and cleansing wheat.	Charles Campbell	San Francisco, Cal	May 1, 1855.
12834	Processes for preparing liquids for aiding digestion.	Josiah J. Sherman	Albany, N. Y	May 8, 1855; antedated March 13, 1885.
12948	Processes for treating auriferous and argentiferous sulphurets.	Homer Holland	Westfield, Mass	May 29, 1855.
13206	Processes for treating wool	Thomas Barrows	Dedham, Mass	July 10, 1855.
13316	Processes for smelting iron	Samuel Macferran	Philadelphia, Pa	July 24, 1855.
13317	Processes for hulling cotton-seed	D. W. Messer	Boston, Mass	July 24, 1855.
	Processes for making bread. (See Class XVII.)			
	Processes for making japanned leather. (See Class XVI.)			
	Processes for curing meat. (See Class XVII.)			
	Processes, tanning (See Class XVI.)			
13987	Salt, apparatus for making	John P. Hale	Kanawha, Va	Dec. 25, 1855.
12819	Silica, apparatus for dissolving	Benjamin Hardinge	New York, N. Y	May 8, 1855.
12840	Silvering looking-glasses	Joel Webster	Brooklyn, N. Y	May 8, 1855.
13367	Soap-cutting machines	Anton Van Haagen	Cincinnati, Ohio	July 31, 1855.
13368	Soap-cutting machines	A. Van Haagen	Cincinnati, Ohio	July 31, 1855.
12485	Soda-water apparatus	Marcus F. Hyde	Burlington, N. J	Mar. 6, 1855.
12489	Soda fountains, combination of an air chamber, water-cooler, and force-pump in.	Newton D. Robins	Edinburgh, Ind	Mar. 6, 1855.
13057	Soda-water generator	William Gee	New York, N. Y	June 12, 1855.
12846	Starch, apparatus for manufacturing	Frederick V. Duryea, assignor to Oswego River Starch Co.	Oswego, N. Y	May 8, 1855.
13340	Starch making	Henry Colgate	Jersey City, N. J	July 24, 1855.
12852	Stills, rosin	Francis Bowman	Somerville, Mass	May 15, 1855.
12719	Sugar, processes for making	Conrad W. Finzel	Bristol, England	April 17, 1855. English patent dated May 7, 1853.
13203	Sugar, apparatus for draining	John Aspinall	London, England	July 10, 1855.
13740	Sugar-filterers	Charles E. Bertrand	New York, N. Y.	Oct. 30, 1855.
12369	Tanneries, working liming vats in	L. W. Fiske	Louisville, Ky	Feb. 6, 1855.
13010	Vapor, hydrocarbon, apparatus	Samuel T. McDougall	Brooklyn, N. Y	June 5, 1855.
13657	Vinegar rooms, and white lead corroding chambers, mutual arrangement of.	Robert Rowland	St. Louis, Mo	Oct. 9, 1855.
	Washing and bleaching, fibrous and textile substances, apparatus for. (See Class III.)			
12333	Zinc white, construction of furnaces for	Jonathan G. Trotter	Newark, N. J	Jan. 30, 1855.
12418	Zinc white, separating, apparatus for	Samuel Witherill	Bethlehem, Pa	Feb. 20, 1855.
12613	Zinc white, manufacture of	Smith Gardner, assignor to American White Zinc Co., assignors to Charles T. Pierson, assignor to Edw. Kellogg.	New York, N. Y	Mar. 27, 1855.
13416	Zinc white, making	John E. Burrows	Newark, N. J	Aug. 14, 1855.
13431	Zinc white, making	Samuel T. Jones	New York, N. Y	Aug. 14, 1855.
13806	Zinc white, processes for making	Samuel Wetherill	Newark, N. J	Nov. 13, 1855.

CLASS V.—CALORIFICS, *comprising lamps, fire-places, stoves, grates, furnaces for heating buildings, cooking apparatus, preparation of fuel, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12409	Burners, fluid	Yarnall Bailey	West Chester, Pa	Feb 20, 1855.
12936	Burning fluids	Abraham Gesner, assignor to "The Asphalte Mining and Kerosene Gas Company," assignors to Abraham Gesner, assignor to "North American Kerosene Gas-Light Company."	New York, N. Y	May 22, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12987	Burning-fluid compounds	Abraham Gesner, assignor to "The Asphalte Mining and Kerosene Gas Company," assignors to Abraham Gesner, assignor to "North American Kerosene Gas-Light Company."	New York, N. Y	May 29, 1855.
13450	Candlesticks	C. W. Blakeslee	Northfield, Conn	Aug. 21, 1855.
13452	Cans, sealing	Wm. Burnet	Cincinnati, Ohio	Aug. 21, 1855.
13060	Cartridges, fire-extinguishing, applying	Wm. Mt. Storm	New York, N. Y.	Oct. 9, 1855.
12404	Chimney-safes	George B. Clarke	Leonardville, N. Y	Feb. 20, 1855.
13520	Chimney-stack or cap	Mortimer M. Camp	New Haven, Conn	Sept. 4, 1855.
13620	Chimney-stack	Benjamin F. Miller	New York, N. Y	Oct. 2, 1855.
13772	Chimney-cap	John W. Davies	Richmond, Va	Nov. 6, 1855.
12486	Coal-screen	George Martz	Pottsville, Pa	Mar. 6, 1855.
13083	Coal-screen	James P. Fennell	Philadelphia, Pa	June 19, 1855.
13699	Coal-sifters	John B. Creemer	Philadelphia, Pa	Oct. 23, 1855.
13831	Coal-sifters	Gerard Sickels	Brooklyn, N. Y	Nov. 20, 1855.
	Cooking-apparatus, flues and dampers of, arrangement of. (See Stoves.)			
12167	Dryers, fruit	Russell S. Morse	East Dixfield, Me	Jan. 2, 1855.
	Drying, cooling and, flour. (See Class XIII.)			
12922	Drying grain, apparatus for	Thomas F. Rowland, James Stevens, and William H. Mason.	Brooklyn, N. Y	May 22, 1855.
13832	Evaporating pans, &c., method of inserting tubes in.	George H. Thomas	Kingston, Mass	Nov. 20, 1855.
13100	Fan-blower	D. & J. R. Pollock	Lancaster, Pa	June 19, 1855.
13260	Fan-blower	J. C. Gartley and Jacob Fox	Philadelphia, Pa	July 17, 1855.
13346	Fan-blower	Simon Barnhart	Chillicothe, Ohio	July 31, 1855.
13859	Feet-warmers	Nathaniel Waterman	Boston, Mass	Nov. 27, 1855.
13871	Feet-warmers	H. Forncrook	Elbridge, N. Y	Dec. 4, 1855.
12773	Fire-engine	John R. Adams	Port Jervis, N. Y	May 1, 1855.

12491	Fire-place	Jno. W. Smith and Jno. S. Gallaher, jr	Washington City, D. C	Mar. 6, 1855.
	Fire-wood, &c., machine for sawing. (See Class XIV.)			
	Fire-wood, machine for splitting. (See Class XIV.)			
13758	Fires, composition for kindling	B. O. Reilly	New York, N. Y	Nov. 6, 1855.
12159	Fuel, composition for	St. John O. Doris	Philadelphia, Pa	Jan. 2, 1855.
12847	Fuel, artificial	Thomas Hooker and Wm. D. Beaumont, assignors to A. A. Dray, N. M. Harris, E. C. Lenwyne, J. R. Jennings, G. G. Kirk, and L. A. Kirk.	New Orleans, La	May 8, 1855.
13056	Fuel, artificial	Wm. D. Beaumont	Mobile, Ala	June 12, 1855.
12277	Furnaces, hot-air	Michael Greenebaum	Chicago, Ill	Jan. 23, 1855.
12286	Furnaces, apparatus for supplying with pulverized material.	Eloy Schmitz	New York, N. Y	Jan. 23, 1855.
12305	Furnace, hot-air	Abel H. Bartlett	King's Bridge, N. Y	Jan. 30, 1855.
12448	Furnace, hot-air	George S. G. Spence	Boston, Mass	Feb. 27, 1855.
12425	Furnaces, air heater	William Sage	Durham, Conn	Feb. 20, 1855.
12533	Furnaces, air-heating	James H. Sutton	Honesdale, Pa	Mar. 13, 1855.
12546	Furnaces, feeding fuel to	Howard Delano	Syracuse, N. Y	Mar. 20, 1855.
12602	Furnaces, charcoal	John McNeill	New York, N. Y	Mar. 27, 1855.
12678	Furnaces for burning wet fuel	Moses Thompson	Henrico county, Va	April 10, 1855.
12749	Furnaces for locomotives	O. W. Bayley, assignor to the Manchester Locomotive Works.	Manchester N. H	April 17, 1855.
12800	Furnaces for heating wrought-iron wheels for forging.	William R. Thomson	Cleveland, Ohio	May 1, 1855.
12807	Furnace for burning bagasse	Elizabeth A. Stillman, administratrix of Alfred Stillman, deceased.	New York, N. Y	May 1, 1855.
12875	Furnace, hot-air	S. J. Russell	Chicago, Ill	May 15, 1855.
12883	Furnace grate-bar	Robert Wicks	New York, N. Y	May 15, 1855.
12901	Furnace, warm-air	M. B. Dyott	Philadelphia, Pa	May 22, 1855.
12967	Furnaces, grate-bars for	Jacob C. Schlough	Easton, Pa	May 29, 1855.
13015	Furnace for warming buildings	George S. G. Spence	Boston, Mass	June 5, 1855.
13031	Furnaces, supplying with hot air	Calvin Fletcher	Cincinnati, Ohio	June 12, 1855.
13092	Furnace, hot-air	John L. Kite	Philadelphia, Pa	June 19, 1855.
	Furnace, steam-boiler. (See Class VI.)			
13332	Furnaces for treating zinc ores	Samuel T. Jones	New York, N. Y	July 24, 1855.
	Furnaces for zinc whites, construction of. (See Class IV.)			

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13374	Furnaces, hot-air	Samuel N. Briggs	Providence, R. I	July 31, 1855.
13432	Furnaces for heating buildings	Joseph Leeds	Philadelphia, Pa	Aug. 14, 1855.
13439	Furnaces for heating buildings	Samuel B. Sexton	Baltimore, Md	Aug. 14, 1855.
13526	Furnaces, heating, consuming escape-steam as an adjunct in.	Thomas Maskell	Franklin, La	Sept. 4, 1855.
13535	Furnaces, hot-air, apparatus to prevent an over-supply of coal to the fire-box of.	Lewis M. Leeds	Germantown, Pa	Sept. 4, 1855.
13873	Furnaces, bagasse	Samuel H. Gilman	New Orleans, La	Dec. 4, 1855.
13887	Furnaces, self-regulating, hot-blast for	Charles Schinz	Camden, N. J	Dec. 4, 1855.
12267	Gas-heater	William F. Shaw	Boston, Mass	Jan. 23, 1855.
	Gas-holders. (See Class IV.)			
	Gas, illuminating, apparatus for purifying. (See Class IV.)			
12515	Gas-burners, valves for	Andrew Mayer	Philadelphia, Pa	Mar. 13, 1855.
12717	Gas-generator, putting a, in a parlor stove	Solomon B. Ellithorp	Elmira, N. Y	April 17, 1855.
13130	Gas-burners	Charles H. Johnson	Boston, Mass	June 26, 1855.
13134	Gas-lighter	William Wiler and Lucien Moss	Philadelphia, Pa	June 26, 1855.
13233	Gas-burning gridirons	Edward D. Willard	Washington, D. C	July 17, 1855.
13739	Gas-brackets	John R. Hunter, assignor to S. R. Blair	Baltimore, Md	Oct. 30, 1855.
13789	Gas-burners, Argand	Charles H. Johnson	Boston, Mass	Nov. 13, 1855.
13904	Gas apparatus	Jno. S. Gallaher, jr., and Jno. W. Smith	Washington, D. C	Dec. 11, 1855.
12509	Gas-regulators	J. W. Hoard	Providence, R. I	Mar. 13, 1855.
12692	Gas-regulator	Samuel P. Parham	Trenton, N. J	April 10, 1855.
12844	Gas-regulators	G. B. Woodruff and J. N. Palmer	New Haven, Conn	May 8, 1855.
12943	Gas-regulators	Samuel W. Brown	Lowell, Mass	May 29, 1855.
13020	Gas-regulators	Hiram Wheelock	Boston, Mass	June 5, 1855.
13210	Gas-regulators	Samuel W. Brown	Lowell, Mass	July 10, 1855.
13377	Gas-regulators	Samuel W. Brown	Lowell, Mass	Aug. 7, 1855.
13437	Gas-regulators	Stephen P. Ruggles	Boston, Mass	Aug. 14, 1855.
13700	Gas-regulators	Julius C. Dickey	Saratoga Springs, N. Y	Oct. 23, 1855.
12597	Grate-bar	Jos. H. Kirk and Wm. H. Elliot	Plattsburg, N. Y	Mar. 27, 1855.
13669	Grate-bars, interlocking	Samuel Vanayckel	Jersey City, N. J	Oct. 9, 1855.

14007	Grates, revolving	Charles Evans, assignor to C. Evans and G. K. Goodwin.	Charlestown, Mass	Dec. 25, 1855.
	Heater, air. (See Furnaces)	William Sage	Durham, Conn	Feb. 20, 1855.
12239	Lamp-shades	Michael B. Dyott	Philadelphia, Pa	Jan. 16, 1855.
12394	Lamp-extinguishers	Josiah H. Noyes	Abington, Mass	Feb. 13, 1855.
12520	Lamps	F. C Rider	Providence, R. I	Mar. 13, 1855.
12550	Lamps	Elbridge Harris	Boston, Mass	Mar. 20, 1855.
12646	Lamp-shades, protector for	Chas. and Anna C. Wilhelm	Philadelphia, Pa	April 3, 1855.
12814	Lamps for burning-fluid	Dexter H. Chamberlain	West Roxbury, Mass	May 8, 1555.
13170	Lamp, lard	Jas. D. Hays	Mt. Morris, Ill	July 3, 1855.
13259	Lamp, rosin-oil	Francis Blake	Needham, Mass	July 17, 1855.
13537	Lamp-case, locomotive	Salmon Bidwell	Rochester, N. Y	Sept. 4, 1855.
13674	Lamps, Argand	John G. Webb	Brooklyn, N. Y	Oct. 9, 1855.
13675	Lamps, lard	J. S. Brown, assignor to Jos. Kent	Washington, D. C	Oct. 9, 1855.
13723	Lamps	J. Stuber and T. Hardin	Utica, N. Y	Oct. 30, 1855.
13729	Lamps for burning volatile liquids	E. N. Horsford and J. R. Nichols	Haverhill, Mass	Oct. 30, 1855.
13860	Lamps, fluid	William Bennett, assignor to "The Union India-rubber Lamp Company."	Brooklyn, N. Y	Nov. 27, 1855.
13910	Lamps, extinguishers to, mode of attaching	F. A. Jewett	Abington, Mass	Dec. 11, 1855.
13972	Lamp-extinguishers	E. Richmond, assignor to Ira Noyes	Abington, Mass	Dec. 18, 1855.
12280	Lanterns, (entry-lights)	Charles W. Felt	Salem, Mass	Jan. 9, 1855.
12291	Lanterns	Lewis Hoover	Jersey City, N. J	Jan. 23, 1855.
12324	Lantern-frames	Elijah F. Parker	Proctorsville, Vt	Jan. 30, 1855.
13250	Lanterns	C. H. Butterfield	South Lancaster, Mass	July 17, 1855.
13286	Lanterns	Charles Waters	Brooklyn, N. Y	July 17, 1855.
13539	Lantern-guards	C. H. Butterfield	South Lancaster, Mass	Sept. 11, 1855.
13577	Lanterns for locomotives	James H. Kelly	Rochester, N. Y	Sept. 18, 1855; antedated June 20, 1855.
14006	Lantern, guards for	C. H. Butterfield, assignor to Amory Houghton	Nashua, N. H. / Boston, Mass	Dec. 25, 1855.
12209	Ovens, coke	Guillaume Lambert	Mons, Province of Hainaut, Belgium.	Jan. 9, 1855.
13375	Ovens	John P. Hayes	Philadelphia, Pa	July 31, 1855.
13855	Ovens for baking bread and other aliments	Jean Louis Rolland	Paris, France	Nov. 27, 1855; French patent dated June 30, 1851.
13717	Ranges, cooking, and air-heaters	Julius Fink	Philadelphia, Pa	Oct. 30, 1855.
13802	Refrigerators	D. W. C. Sandford	Cincinnati, Ohio	Nov. 13, 1855.
12882	Safes, fire-proof, composition for filling in	David Weiser	Milwaukie, Wis	May 15, 1855.
13639	Steam, heating buildings by, apparatus for	Charles Davenport	Watertown, Mass	Oct. 9, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13654	Steam-heating apparatus, radiators of	A. S. Pelton	Clinton, Conn	Oct. 9, 1855.
13842	Steam-heating apparatus	Pliny E. Chase	Philadelphia, Pa	Nov. 27, 1855.
12382	Stove, magazine, smoke-consuming	James Easterly	Albany, N. Y	Feb. 13, 1855.
	Stove, parlor, putting a gas-generator in a. (See Class VI.)			
12434	Stoves, gas cooking	James B. Blake	Worcester, Mass	Feb. 27, 1855.
12474	Stoves, cook	J. J. Anderson	Beaver, Pa	Mar. 6, 1855.
12639	Stove-pipe tube	Thomas Moore	Fair Haven, Vt	April 3, 1855.
13728	Stoves	William Mootry	New York, N. Y	Oct. 30, 1855.
12741	Stoves, gas cooking	Andrew Mayer	Philadelphia, Pa	April 17, 1855.
12758	Stoves, &c	J. Johnson and J. E. Crane	Lowell, Mass	April 24, 1855.
12913	Stove, cook, air-heating	Charles B. Loveless	Boston, Mass	May 22, 1855.
13113	Stove-pipes, joints for	Alva Worden	Ypsilanti, Mich	June 19, 1855.
13194	Stoves	Robert Wilson	Columbus City, Iowa	July 3, 1855.
13314	Stoves, parlor	Francis Kenney	Springfield, Mass	July 24, 1855.
13589	Stoves, cooking	John Van	St. Louis, Mo	Sept. 18, 1855.
13686	Stoves (arrangement of flues and dampers of cooking apparatus.)	John A. Elder and Wm. J. Thorn	Westbrook, Me. / Holliston, Mass	Dec. 4, 1855.
13971	Stoves, cooking	Joseph B. Lancaster, administrator of John K. Lancaster, deceased.	Tampa, Fla	Dec. 18, 1855.
12306	Ventilator, car	B. F. Babbitt	New York, N. Y	Jan. 30, 1855.
12534	Ventilators, apparatus for operating	Isaac P. Trimble	Livingston, N. Y	Mar. 13, 1855.
12541	Ventilation, self, method of, for railroad cars.	V. P. Corbett	Corbettsville, N. Y	Mar. 20, 1855.
12818	Ventilators, railroad car	D. H. Fox and John Fink	Reading, Pa	May 8, 1855.
12827	Ventilating railroad cars	William Pauli	Alexandria, Va	May 8, 1855.
12851	Ventilating and cooling apparatus	Job R. Barry	Philadelphia, Pa	May 15, 1855.
12992	Ventilator, ship	Ernest Bahr	Rochester, N. Y	June 5, 1855.
13204	Ventilating railroad cars	Charles Atwood	Birmingham, Conn	July 10, 1855.
13542	Ventilation, self-regulating valve for	John Clark	Cambridge township, Pa	Sept. 11, 1855.
13725	Ventilating railroad cars, method of	W. L. B. Lewis	Philadelphia, Pa	Oct. 30, 1855.
13732	Ventilating railroad cars	J. K. Taylor	Binghamton, N. Y	Oct. 30, 1855.

CLASS VI.—STEAM AND GAS ENGINES, *including boilers and furnaces therefor, and parts thereof.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12261	Boilers, steam, arrangement of filtering apparatus to prevent incrustation in.	Gustavus Weissenborn	New York, N. Y	Jan. 16, 1855.
12360	Boilers, steam	Thomas Champion	Washington, D. C	Feb. 6, 1855.
12385	Boiler, steam, chimneys	Asahel Fairchild	Ashland, Ohio	Feb. 13, 1855.
12654	Boilers, steam, arrangement of means for freeing from sediment.	Hiram Strait	Covington, Ky	April 3, 1855.
12665	Boilers, steam	Horace Boardman	Plattsburgh, N. Y	April 10, 1855.
12673	Boilers, locomotive	Josiah J. Dutcher	New Haven, Conn	April 10, 1855.
12835	Boilers, steam, apparatus for regulating supply of water to.	Thomas J. Sloan	New York, N. Y	May 8, 1855.
12893	Boilers, steam	Thomas G. Boone	Brooklyn, N. Y	May 22, 1855.
12993	Boilers, steam, feeding water to	Thomas Champion	Washington, D. C	June 5, 1855.
13111	Boilers, steam	Charles F. Thomas	Taunton, Mass	June 19, 1855.
13146	Boiler, steam, furnace	Thomas Champion	Washington, D. C	June 26, 1855.
13168	Boilers, steam	Jacob Harshman	Dayton, Ohio	July 3, 1855.
13193	Boilers, steam, apparatus for heating feed-water to.	Robert Wilson	Columbus City, Iowa	July 3, 1855.
13223	Boilers, steam	James Murphy	New York, N. Y	July 10, 1855.
13298	Boilers, steam, feeding water to, by auxiliary engines.	William Ball	Chicopee, Mass	July 24, 1855.
13363	Boilers, steam, water-gauges for	Paul Stillman	New York, N. Y	July 31, 1855.
13425	Boilers, steam	J. J. Dutcher	New Haven, Conn	Aug. 14, 1855.
13488	Boilers, steam, method of facilitating the removal of incrustation from.	Frederick P. Dimpfel	Philadelphia, Pa	Aug. 28, 1855.
13567	Boilers, steam, feed-water apparatus of	Joel Densmore	Blooming Valley, Pa	Sept. 18, 1855.
13583	Boilers, steam, safety apparatus for	John M. Reeder	Nashville, Tenn	Sept. 18, 1855.
13619	Boilers, steam	Charles Moore	Trenton, N. J	Oct. 2, 1855.
13761	Boilers, steam	H. N. Pettengill	Rockford, Ill	Nov. 6, 1855.
13903	Boilers, steam, water-gauges for	Josephus Echols	Columbia, Ga	Dec. 11, 1855.
13983	Boiler, steam, furnaces	Henry F. and Louis Gosin	——, La	Dec. 25, 1855.
13209	Engines, air and steam	Francis B. Blanchard	Waterville, Me	July 10, 1855.
13348	Engines, air	John Ericsson	New York, N. Y	July 31, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12715	Engines, explosive gas	Alfred Drake	Philadelphia, Pa	April 17, 1855.
13598	Engines, gas, method of actuating	William Mt. Storm	New York, N. Y	Sept. 25, 1855.
12216	Engines, oscillating	John A. Reed	New York, N. Y	Jan. 9, 1855.
12239	Engines, oscillating	George F. Wood	Ulysses, N. Y	Jan. 23, 1855.
12726	Engines, rotary	Abraham Masson	Philadelphia, Pa.	April 17. 1855.
12746	Engines, rotary	John J. Thomas	Manayunk, Pa	April 17, 1855.
13107	Engines, rotary	Sylvester Stevens	Boston, Mass	June 19, 1855.
13550	Engines, rotary	Christian E. Offhaus	Newark, N. J.	Sept. 11, 1855.
13763	Engines, steam, rotary	E. Matteson W. M. and H. Parris	Dayton, N. Y Dorset, Vt	Nov. 6, 1855.
13786	Engines, rotary	John H. Hathaway	Millbury, Mass	Nov. 13, 1855.
12179	Engines, steam, arrangement in double piston.	Warren S. Burgess	Norristown, Pa	Jan. 2, 1855.
12187	Engines, steam, crank connexion in double piston.	John Smith	Cincinnati, Ohio	Jan. 2, 1855.
12619	Engines, steam, condensers for	Louis Bollman	New York, N. Y.	April 3, 1855.
12947	Engines, vapor	W. W. Hubbell and D. Matthew	Philadelphia, Pa.	May 29, 1855.
13019	Engine, steam, regulators	Henry Webster	Beetown, Wis.	June 5, 1855.
13202	Engine, marine, steam-governors	Thomas Silver	Philadelphia, Pa.	July 3, 1855.
13415	Engines, &c., steam, governors for	John and Evan Arthur	New Brunswick, N. J.	Aug. 14, 1855.
13646	Engines, boring, portable	Thomas Goodrum	Providence, R. I.	Oct. 9, 1855.
13721	Engines, steam, surface condensers for	Peter Hogg	New York, N. Y.	Oct. 30, 1855.
13748	Engines, two-beam, with parallel shafts, arrangement of.	Thomas Doyle	New York, N. Y.	Nov. 6, 1855.
13917	Engines, steam, packing pistons for,	Joel W. Pettis	Hilladale, Mich	Dec. 11, 1855.
13934	Engines, steam, variable cut-off gear for.	W. W. Wade, assignor to himself and Chas. Burnham.	Springfield, Mass	Dec. 11, 1855.
	Engines, locomotive, arrangement of exhaust pipes in. (See Locomotives.)	John Williams	Dunkirk, N. Y.	Mar. 6, 1855.
	Engines, locomotive, apparatus for heating feed-water to. (See Locomotives.)	David Matthew	Philadelphia, Pa.	July 17, 1855
	Engines, locomotive, variable exhaust of. (See Locomotives.)			
13468	Gauges, pressure	John Matthews, jr	New York, N. Y.	Aug. 21, 1855.
	Governors, combination of speed and resistance. (See Class IX.)			
12495	Locomotives, arrangement of exhaust-pipes in.	John Williams	Dunkirk, N. Y.	Mar. 6, 1855.
13238	Locomotives, means for increasing draughts in.	Charles F. Thomas	Taunton, Mass	July 10, 1855.
	Locomotive lamp-case. (See Class V.)			
13270	Locomotives, apparatus for heating feed-water to.	David Matthew	Philadelphia, Pa.	July 17, 1855.
13648	Locomotives, variable exhaust of	Samuel L. Hay	Reading, Mass	Oct. 9, 1855.
13805	Locomotives, arrangement of means for regulating the discharge of exhaust steam in.	John E. Wootten	Philadelphia, Pa.	May 1, 1855.
12939	Locomotives, exhaust pipes of, nozzle for.	W. E. Cooper	Dunkirk, N. Y.	Dec. 18, 1855.
13145	Packing for stuffing-boxes, &c	Joseph H. Tuck	Citizen of U. S., residing at Pall-Mall, England.	June 26, 1855.
	Packing pistons for steam-engines. (See "Engines," Class VI.)			
12889	Spark-arrester	Gilbert Richards	Cummington, Mass	May 8, 1855.
12905	Spark-arresters	David Matthew	Philadelphia, Pa.	May 15, 1855.
12915	Spark-arresters	David Matthew	Philadelphia, Pa.	May 22, 1855.
13210	Spark-arresters	Daniel Deshon, 2d	Whitestown, N. Y.	July 10, 1855.
	Steam-apparatus for extracting vegetable oils. (See Class IV.)			
	Steam boilers. (See Boilers)	Thomas Champion	Washington, D. C	Feb. 6, 1855.
12355	Steam-generators	Wm Mt. Storm	New York, N. Y	Feb. 6, 1855.
12682	Steam-generators	Alexander B. Latta	Cincinnati, Ohio	April 10, 1855.
13563	Steam gauge-cocks	Albert Bisbee	Chelsea, Mass	Sept. 18, 1855.
13629	Steam, economizing	George M. Longacre	New Orleans, La	Oct. 9, 1855.
13711	Steam-pressure regulators, elastic diaphragm.	Joseph Woodruff	Rahway, N. J	Oct. 23, 1855.
12903	Valves, slide, operating, in direct-action engines.	George W. Hubbard and William E. Conant	Brooklyn, N. Y Greenpoint, N. Y	Jan. 9, 1855.
12907	Valve, slide, and exhaust passages, arrangement of, in steam-engines.	Wm. C. Hicks	Hartford, Conn	Jan. 9, 1855.
12399	Valves, steam	John Tremper	Philadelphia, Pa.	Feb. 13, 1855.
12507	Valves, cut-off, for steam-engines	Noble T. Greene	Bridgeport, Conn	Mar. 13, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12564	Valve-gearing for steam-engines	H. Uhry and H. A. Luttgens	Paterson, N. J	Mar. 20, 1855.
12592	Valves, operating, in direct-acting steam-engines.	Wm. H. Guild and Wm. F. Garrison	Brooklyn, N. Y	Mar. 27, 1855.
12624	Valves for steam engines	Thomas Goodrum	Providence, R. I	April 3, 1855.
12729	Valve, cut-off, gear	John B. Schenck	Ansonia, Conn	April 17, 1855.
12873	Valves, steam-engine	John A. Reed	New York, N. Y	May 15, 1855.
12904	Valve-gear for oscillating engines	M. D. Du Bois	Newburg, N. Y	May 22, 1855.
12966	Valves, cut-off	David Stoddart	Cincinnati, Ohio	May 29, 1855.
13128	Valve, balance	Chas. S. Harris	Holyoke, Mass	June 26, 1855.
13276	Valves, steam-engine, cross-head attachment for working.	Jno. B. Stoot and Alexr. Ferguson	Troy, N. Y	July 17, 1855.
13328	Valves, oscillating, and gearing for pumping engines.	C. A. Wilson	Newport, Ky	July 24, 1855.
13359	Valves, cut-off, for steam-engines	Frederick Perry	Newark, N. J	July 31, 1855.
13369	Valves, steam, method of operating	Norman W. Wheeler	Cincinnati, Ohio	July 31, 1855; antedated March 1, 1855.
13498	Valve, regulating, for steam-engines	E. G. Russell	Ravenna, Ohio	Aug. 28, 1855.
13527	Valves for regulating steam-engines	Philip W. McKenzie	Jersey City, N. J	Sept. 4, 1855.
13637	Valves, cut-off, for oscillating engines	Henry E. Canfield	New York, N. Y	Oct. 9, 1855.
13889	Valve, regulator, and governors' stem, means of connexion between.	John Tremper	Philadelphia, Pa	Dec. 4, 1855.
13923	Valves, slide, for steam-engines	E. D. Leavitt, jr	Lowell, Mass	Dec. 11, 1855.

CLASS VII.—NAVIGATION AND MARITIME IMPLEMENTS, *comprising all vessels for conveyance on water, their construction, rigging, and propulsion, diving-dresses, life-preservers, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12435	Anchor-tripper	Samuel R. Bryant	New York, N. Y	Feb. 27, 1855.
12622	Anchors	Richard V. De Guinon	Brooklyn, N. Y	April 3, 1855.
13847	Anchor-stoppers, cat-head	Peter H. Jackson	New York, N. Y	Nov. 27, 1855.
13991	Blocks, hoisting	William H. Merrill	Taunton, Mass	Dec. 25, 1855.
	Boats, life, fording. (See Life-boats.)			
12380	Boats, wharf	Henry T. Dexter	Zanesville, Ohio	Feb. 13, 1855.
13315	Boats, gutta pe cha, making	Edwin B. Larcher	Baltimore, Md	July 24, 1855.
13510	Boat, collapsible	Nathan Thompson, jr	Williamsburgh, N. Y	Aug. 28, 1855; English patent dated Feb. 23, 1855.
	Boat, life, sofa. (See Life-boats.)			
12703	Cabin chairs	William Thomas	Hingham, Mass	April 10, 1855.
12325	Cable-stoppers	Jesse Reed	Marshfield, Mass	Jan. 30, 1855.
13593	Cables, chain, pressure-stoppers for	James Emerson	Worcester, Mass	Sept. 25, 1855.
13760	Chain-locker pipes	Charles Perley	New York, N. Y	Nov. 6, 1855.
12143	Life-preserving rafts	Farnham Z. Tucker	Brooklyn, N. Y	Jan. 2, 1855.
12220	Life-preserving seats	Nathan Thompson, jr	Williamsburgh, N. Y	Jan. 9, 1855; English patent dated Oct. 1, 1854.
12375	Life-boats	Hiram Berdan	New York, N. Y	Feb. 13, 1855.
12405	Life-saving rafts	George Blanchard	Washington, D. C	Feb. 20, 1855.
12450	Life-preserver, bed-boat, or	Joseph Stevenson	Philadelphia, Pa	Feb. 27, 1855.
12473	Life-boats	John Allen	New York, N. Y	Mar. 6, 1855.
12537	Life-boats, folding	Edward L. Berthon	Farnham, England	Mar. 20, 1855; English patent dated June 12, 1851.
12743	Life-preserving doors	J. T. Pheatt	Toledo, Ohio	April 17, 1855.
13184	Life-boats, fording	C. Locher	New York, N. Y	Jan. 2, 1855.
13546	Life-preserving beds for ships	George K. Hooper	Boston, Mass	Sept. 11, 1855.
13771	Life-boats, sofa	Peter Van Zile, Searles M. Griffin, and J. W. S. Dey.	New York, N. Y	Nov. 6, 1855.
13994	Log and sounding-line, combined	Adolphe Pecoule	Marseilles, France	Dec. 25, 1855.
12296	Paddle-wheels	John U. Wallis	Danville, N. Y	Jan. 23, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12460	Paddle-wheels, method of arranging and operating submerged horizontal.	Peter Lear	Boston, Mass	Feb. 27, 1855.
12621	Paddle-wheel, adjustable	Levi M. Dehart	Reading, Pa	April 3, 1855.
12940	Paddle-wheels	Frederick W. Capen	Newtown, Mass	Dec. 18, 1855.
13058	Paddle wheels, buckets of	Augustus M. Glover	Waterborough, S. C	June 12, 1855.
13190	Paddle-wheels	John Upham Wallis	Danville, N. Y	July 3, 1855.
13988	Paddle-wheels	Benjamin Hill	Rochester, N. Y	Dec. 25, 1855.
12190	Propeller	Charles De Berque	Dowgate Hill, England	Jan. 9, 1855; English patent dated April 6, 1854.
12446	Propellers	Franklin Peale	Philadelphia, Pa	Feb. 27, 1855.
12752	Propellers	William D. Jones, assignor to Henry Whinfield	Poughkeepsie, N. Y	April 17, 1855.
12923	Propeller	Henry Link	Little Falls, N. Y	May 8, 1855.
12955	Propellers, buoyant	William Lanadell	Memphis, Tenn	May 29, 1855.
13041	Propellers	Joseph H. Penny and Thomas B. Rogers.	New York, N. Y	June 12, 1855; English patent dated June 14, 1853.
13078	Propeller, railway, reciprocating	Henry Boynton	Hinesburgh, Vt	June 19, 1855.
13336	Propellers	Augustin Duboce	Brooklyn, N. Y	July 24, 1855.
13394	Propelling vessels by the direct action of steam on the water.	Wm. J. McIntire	New York, N. Y	Aug. 7, 1855.
12119	Ships, constructing vessels	Wm. Ballard	New York, N. Y	Jan. 2, 1855.
12359	Ships and other vessels, constructing	V. P. Corbett	Corbettsville, N. Y	Feb. 6, 1855.
12445	Ships, constructing vessels	Z. Pangborn	Algonac, Mich	Feb. 27, 1855.
13278	Ships, iron, constructing	Otis Tufts	Boston, Mass	July 17, 1855; English patent dated April 2, 1845.
13231	Ships and other vessels, vibrating stop-water for.	Stephen Saunders	Kingston, R. I	July 10, 1855.
	Ships' capstans. (See Ships' winches.)			
13968	Sails, top, reefing	W. Shibles, assignor to W. Shibles and Edward O'Brien.	Thomaston, Me	May 29, 1855.
12316	Ship carpenters, rain-staff screws for	John Hobbs	Hallowell, Me	Jan. 30, 1855.
	Ship-pumps. (See Class XI.)			
	Ship-ventilator. (See Class V.)			
12620	Ships' riding bitts	Thomas Brown	London, England	April 3, 1855.
13601	Ships' rudders	John S. Robbins	San Francisco, Cal	Sept. 25, 1856.
	Ships' spars, &c., automatic machine for turning. (See Class XIV.)			
12390	Ships' standing rigging	Fred. Howes	Yarmouth Port, Mass	Feb. 13, 1855.
13518	Ships' topmasts, supporting	Thomas Batty	Brooklyn, N. Y	Sept. 4, 1855.
13861	Ships' yards, suspending	Thomas Batty	Brooklyn, N. Y	Dec. 4, 1855.
12778	Ships' windlass	James Emerson	Worcester, Mass	April 17, 1855.
13262	Ships' winches	John B. Holmes, assignor to John R. Pratt.	New York, N Y	July 17, 1855.
13393	Ships' winches	Peter H Jackson	New York, N. Y	Aug. 7, 1855.
13506	Ships' windlasses	James Emerson	Worcester, Mass	Aug. 28, 1855.
13612	Ships' windlasses	John B. Holmes, assignor to John R. Pratt and John B. Holmes.	New York, N. Y	Sept. 25, 1855.
12140	Signal flags	Henry J. Rogers	Baltimore, Md	Jan. 2, 1855.
12250	Steering apparatus	Abijah R. Tewkesbury	Boston, Mass	Jan. 16, 1855.
12498	Steering apparatus	Jesse Reed	Marshfield, Mass	Mar. 6, 1855.
	Tidal alarm apparatus. (See Class XI.)			
12909	Tree-nail machine	J. W. Hoagland	Jersey City, N. J	May 22, 1855.
13463	Vessels, apparatus for, to indicate their locality when they sink, and to supply a means of raising them.	Joseph Hyde	New York, N. Y	Aug. 21, 1855.
	Vessels, constructing. (See Ships.)			
	Vessels, construction of. (See Ships.)			
12436	Vessels, sunken, mode of raising	Henry V. Corbett	Buffalo, N. Y	Feb. 27, 1855.
12458	Vessels, method of pumping water out of.	Alexander Kirkwood	Elder's Ferry, Miss	Feb. 27, 1855.
12506	Vessels, sailing, hoop-jacks for	Elmer Foster	Fairton, N. J	Mar. 13, 1855.
13006	Vessels, steam and other, floating cabins for.	William R. Jackson	Baltimore, Md	June 5, 1855.
13030	Vessels, sunken, buoys for raising	Elisha Fitzgerald	New York, N. Y	June 12, 1855.
	Wrecking pumps, rotary. (See Class XI.)			

CLASS VIII.—MATHEMATICAL, PHILOSOPHICAL, AND OPTICAL INSTRUMENTS, *including clocks, chronometers, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13800	Adding numbers, machines for	Nathaniel S. Saxton	Riverhead, N. Y	Nov. 13, 1855.
13623	Clock escapement	E. K. Reynolds	New York, N. Y	Oct. 2, 1855.
13341	Clocks, calendar	John Williams	Hartford, Conn	July 24, 1855.
13993	Dividers, proportional	H. M. Parkhurst	Perth Amboy, N. J	Dec. 25, 1855.
	Eye, instruments for modifying focal length of the. (See Class XX.)			
12855	Galvanic batteries, connecting-clamps for the plates of.	Charles T. Chester	New York, N. Y	May 15, 1855.
13560	Horometers	Amos Abbott	Manchester, N. H	Sept. 11, 1855; English patent dated Sept. 20, 1854.
13584	Latitude and longitude, instrument for determining.	John Stinson	Danville, N. J	Sept. 18, 1855.
12384	Levels, spirit	Hampton W. Evans	Philadelphia, Pa	Feb. 13, 1855.
13062	Lightning-rods, attachments for	Robert D. Dwyer	Richmond, Va	July 3, 1855.
13833	Measuring-wheels, revolving	Louis Young	New York, N. Y	Nov. 20, 1855.
13603	Optical instruments	Robert B. Tolles	Canastota, N. Y	Sept. 25, 1855.
13451	Pendulum, conical, application of the, to time-keepers.	John C. Briggs	Concord, N. H	Aug. 21, 1855.
12196	Pendulums, torsion, for time pieces	Aaron D. Crane	Newark, N. J	Jan. 9, 1855.
13615	Reflector, corrugated	Bernard Goetz	Philadelphia, Pa	Oct. 2, 1855.
12929	Telegraphic key apparatus	Leroy S. White and Lewis White	Chicopee, Mass. / Hartford, Conn	May 22, 1855.
13389	Telegraph wires, apparatus for discharging atmospheric electricity from.	John N. Gamewell	Camden, S. C	Aug. 7, 1855; English patent dated Sept. 15, 1854.
13519	Telegraphic tide-gauges	Alexander Boyd	Lumberland, N Y	Sept. 4, 1855.
13665	Telegraphs	W. A. Peaslee	Indianapolis, Ind	Oct. 9, 1855.
12121	Time-keepers, compensation balances for.	Charles W. Hawkes and George P. Reed	Boston, Mass. / Waltham, Mass	Jan. 2, 1855.
13977	Time-indicators	George Byington	Rochester, N. Y	Dec. 25, 1855.

CLASS IX.—CIVIL ENGINEERING AND ARCHITECTURE, *comprising works on rail and common roads, bridges, canals, wharves, docks, rivers, weirs, dams, and other internal improvements, buildings, roofs, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12145	Blinds, sheet-iron	William E. Ward	Port Chester, N. Y	Jan. 2, 1855.
12281	Blinds (rolling iron shutters)	Charles Mettam	New York, N. Y	Jan. 23, 1855.
12292	Blinds, iron window	Henry Blakely	New York, N. Y	Jan. 23, 1855.
12695	Blinds, Venetian window	Chas. Rose	Allentown, Pa	April 10, 1855.
12872	Blinds, (window-shutters)	George W. Chipps	Philadelphia, Pa	May 15, 1855.
13140	Blinds, window, adjuster of	Alfred A. Starr	New York, N. Y	June 26, 1855.
13141	Blinds, window, doors, &c	L. Stevens and S. B. Ellithorp	Elmira, N. Y	June 26, 1855.
13251	Blinds, window	W. H. Bixler	Easton, Pa	July 17, 1855.
13300	Blind, window	Frank Chase	South Sutton, N. H	July 24, 1855.
13398	Blinds to windows, mode of adjusting	C. E. Parker and J. Sanger	Boston, Mass. / Watertown, Mass.	Aug. 7, 1855.
13500	Blinds or shutters for stores	David Rohan	Cincinnati, Ohio	Aug. 28, 1855.
13890	Blind-fastener	Daniel E. True	Lake Village, N. H	Dec. 4, 1855.
13980	Blinds, (window-shades)	Thomas Danforth	Roxbury, Mass	Dec. 25, 1855.
12303	Boring wells, implements for	J. J. W. Adams	Sharptown, Ind	Jan. 30, 1855.
12663	Boring artesian wells, drills for	John Andrews	Winchester, Mass	April 10, 1855.
12688	Boring wells, machinery for	John F. Manahan	Lowell, Mass.	April 10, 1855.
12706	Boring the earth, implement for	C. N. White	Concord, N. C	April 10, 1855.
12523	Bridge, ferry safety	Henry Lawrence	New York, N. Y.	Mar. 13, 1855.
12952	Bridges, swing	John N. King	Hulberton, N. Y	May 29, 1855.
13258	Bridges, draw, railroad	J. R. & W. P. Gamble	Philadelphia, Pa	July 17, 1855.
13461	Bridges	H. L. Hervey and R. E. Osborn	Springfield, Ohio	Aug. 21, 1855.
12161	Buildings, iron, fire-proof	Emanuel Harmon	Washington, D. C	Jan. 2, 1855.
13379	Buildings, (iron houses)	D. D. Badger	New York, N. Y	Aug. 7, 1855.
12633	Cars, coal, apparatus for hoisting and dumping.	George Martz	Pottsville, Pa	April 3, 1855.
12642	Ceiling, floor, fire-proof	Frederick A. Peterson	New York, N. Y	April 3, 1855.
12131	Chair, railroad, machines	James B. Harris	Cincinnati, Ohio	Jan. 2, 1855.
13313	Chairs, railway, machines for making	James Kelren, assignor to himself and George Banks.	Canton, Mass	July 24, 1855.
12623	Coal-holes, safety-port for	Samuel W. Frost	Boston Mass	April 3, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12637	Coal-hole covers	F. H. Moore	Boston, Mass	April 3, 1855.
	Ditching-machine. (See Excavating machine.)			
12388	Doors, weather-strips for	Alonzo Hitchcock	Chicago, Ill	Feb. 13, 1855.
13090	Doors	Orris C. Hill	Malone, N. Y	June 19, 1855.
13121	Doors, weather-strips for	Martin Croke	New York, N. Y	June 26, 1855.
13279	Doors and windows, metallic blinds for	William E. Worthen	New York, N. Y	July 17, 1855.
12201	Dredging-machines	D. S. Howard	Lyonsdale, N. Y	Jan. 9, 1855.
12720	Dredging-machines	Charles H. Fondé	Mobile, Ala	April 17, 1855.
12527	Eaves-gutters of houses	George W. Wheatly	Harrodsburg, Ky	Mar. 13, 1855.
12234	Excavators	Samuel W. Soule	Oswego, N. Y	July 10, 1855.
12514	Excavating-machine, (ditching-machine)	Robert C. Mauck	Harrisonburg, Va	Mar. 13, 1855.
12651	Excavating-machine	C. Williams	Jackson, Tenn	April 3, 1855.
12919	Excavating, submarine, machines	Jason C. Osgood	Troy, N. Y	May 22, 1855.
13282	Excavating-machine	Edwin Williams	Covington, Ky	July 17, 1855.
13680	Excavators	Benjamin Hancock	Troy, N Y	Oct. 16, 1855.
12921	Fences	J B. Reyman	Dubuque, Iowa	May 22, 1855.
13844	Fences	H. H. Dennis	Steam Mill, Pa	Nov. 27, 1855.
12701	Friction-rollers, adjustable	Thomas and John Sweeney	Birmingham, Pa	April 10, 1855.
	Gate, automatic, for railroad crossings. (See Railroad.)			
12652	Gates, mechanism by which approaching vehicles open and close.	Enos Woodruff	Elizabethtown, N. J	April 3, 1855.
12790	Gates, farm	Cornelius L. Harsen, and Moses R. Brailey	Norwalk, Ohio	May 1, 1855.
12914	Gates, farm	Henry B. Lum	Sandusky, Ohio	May 22, 1855.
12930	Gates, method of closing and opening	Caleb Winegar	Union Springs, N. Y	May 22, 1855.
13109	Gate, circular, self-operating	William Thompson	Nashville, Tenn	June 19, 1855.
13445	Gates, device in opening and closing	Caleb Winegar	Union Springs, N. Y	Aug. 14, 1855.
13658	Gate, farm	S. A. Skinner	Derby, Vt	Oct. 9, 1855.
13673	Gates, farm, method of operating	Jno. K. Weber	Seneca Falls, N. Y	Oct. 9, 1855.
13624	Hatchways, opening and closing, apparatus for.	Henry Sizer and Elisha Stone	Lowell, Mass	Oct. 2, 1855.

	Houses, iron. (See Buildings.)			
12126	Pavements, constructing	Jean François Lemoulnier	New York, N. Y	Jan. 2, 1855.
12172	Pavements, cast-iron	Chapman, Warner	New York, N. Y	Jan. 2, 1855.
12755	Pavements, cast-iron	George Neilson, assignor to himself and Nehemiah Hunt.	Boston, Mass	April 17, 1855.
12130	Pile-driving, atmospheric, apparatus for	Alexander Holstrom	New York, N. Y	Jan. 2, 1855.
12789	Piles, machine for sawing off, under water	James Fleming	Portsmouth, Va	May 1, 1855.
12300	Rails, hand, for stairs	John M. Bull	Sidney, Ohio	Jan. 23, 1855.
13956	Railroad-crossings, automatic gate for	George B. Pullinger	Philadelphia, Pa	Dec. 18, 1855.
13235	Railroad drawbridge signals	Sophia B. Spafford and Geo. Alexander, administratrix and administrator of Simeon L. Spafford.	Philadelphia, Pa	July 10, 1855.
13378	Railroad signals	Jacob Busser	Philadelphia, Pa	Aug. 7, 1855.
12505	Railroad rails, excluding dirt from	C. M. Eakin	West Philadelphia, Pa	Mar. 13, 1855.
12704	Railways, wooden splice-piece for	J. R. Trimble	Baltimore, Md	April 10, 1855; antedated Oct. 10, 1854.
13051	Railroads, guard-rails of, to be used with pronged cow-catchers.	H. D. Searles	Rockford, Ill	June 12, 1855.
12352	Roads, machine for repairing	Alpheus Kimball	Fitchburg, Mass	Feb. 6, 1855.
13052	Roofs, plank, for buildings	Samuel Taylor	Petersham, Mass	June 12, 1855.
	Roofing compositions. (See Class IV.)			
13906	Roofing, tile	G. Graessle	Hamilton, Ohio	Dec. 11, 1855.
12786	Sash, window, supporter	David Russell	Drewersburg, Ind	May 1, 1855.
12828	Sashes, window	Lyman E. Payne	Yazoo City, Miss	May 8, 1855.
12833	Sash-supporters	Chas. R. Rode	New York, N. Y	May 8, 1855.
12854	Sash, window, fixtures	Handell S. Chaplin	Glover, Vt	May 15, 1855.
13032	Sashes, window	William S. Ford	New York, N. Y	June 12, 1855.
13124	Sashes, window, mode of hanging	Daniel N. Dunzack	Salem, Mass	June 26, 1855.
13435	Sashes, window, mode of hanging	Lyman E. Payne	Yazoo City, Miss	Aug. 14, 1855.
13764	Sashes, window, mode of hanging	J. W. Ross	Zanesville, Ohio	Nov. 6, 1855.
13774	Sashes, window, hanging	Michael Bomberger	Hummelstown, Pa	Nov. 13, 1855.
13863	Sashes, window, mode of hanging	E. W. Bullard	Hardwick, Mass	Dec. 4, 1855.
12168	Scaffolds, elevating	F. Rudolph	New York, N. Y	Jan. 2, 1855.
13086	Scaffolds	A. C. Funston	West Philadelphia, Pa	June 19, 1855.
13810	Scrapers, road	Reuben W. Oliver, assignor to R. W. Oliver and H. Hoyt.	Aurora, N. Y	Nov. 13, 1855.
12994	Sewers, arrangement of drains for	P. J. Coogan	Charleston, S. C	June 5, 1855.
	Shutters, iron, rolling. (See Blinds.)			
	Shutters or blinds for stores. (See Blinds.)			

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Stalls for horses. (See Class XXII.)			
12354	Street-sweeping machine	Robert A. Smith and John Hartman, jr.	Philadelphia, Pa	Feb. 6, 1855.
13830	Street-sweeping machine	M. W. St. John and J. Brown	Leonardsville, N. Y	Nov. 20, 1855.
12496	Stumps, mode of extracting	W. W. Willis	Orange, Mass	Mar. 6, 1855.
12525	Stump-machines	Edward Vaughn	Alliance, Ohio	Mar. 13, 1855.
13088	Stump-machine	Stephen Gorton and Francis Morris	Crawford county, Pa	June 19, 1855.
13059	Tile-machines	Gottleib Graessle	Rossville, Ohio	June 12, 1855.
12595	Vault cover, illuminating	Thaddeus Hyatt	New York, N. Y	Mar. 27, 1855.
13352	Vault covers	James Harrison, jr.	Milwaukie, Wis	July 31, 1855.
13513	Vault lights	W. P. Walter and J. Green, assignors to W. P. Walter.	Philadelphia, Pa	Aug. 28, 1855.
12676	Walls, concrete, framing for building	Salathiel Ellis	New York, N. Y	April 10, 1855.
13000	Washboards to walls, mode of securing	Thomas Estlack	Philadelphia, Pa	June 5, 1855.
	Wells, artesian, drills for. (See Boring.)			
13114	Wells, artesian, joints of pipes for	Jesse Norris Bolles, assignor to H. J. Ockershausen.	Philadelphia, Pa	June 19, 1855.
	Window-blinds, iron. (See Blinds.)			
	Window-shades. (See Blinds.)			
	Window-shutters. (See Blinds.)			

CLASS X.—LAND CONVEYANCE, *comprising carriages, cars, and other vehicles used on roads, and parts thereof.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Axles, mode of attaching hubs to. (See Hubs.)			
12238	Axles, plugs for lubricating	Alfred C. Garratt	Hanover, Mass	Jan. 16, 1855.
12347	Axle-box rollers	George W. Geisendorff and Jacob C. Geisendorff	Marion county, Ind / Cincinnati, Ohio	Feb. 6, 1855.
13327	Axles, washers for	Alfred E Smith	Bronxville, N Y	July 24, 1855.
12166	Brakes, car, steam, railroad	Henry Miller	New York, N. Y	Jan. 2, 1855.
12245	Brake-blocks for railroad cars	Lucius Paige	Cavendish, Vt	Jan. 16, 1855.
12263	Brakes, steam, mode of connecting pipes for.	Wendell Wright	New York, N. Y	Jan. 16, 1855.
12539	Brake, wagon	J. E. Blodgett	Hannibal, N. Y	Mar. 20, 1855.
12552	Brakes, railroad-car	Gideon Hotchkiss	Windsor, N Y	Mar. 20, 1855.
12685	Brakes, car, graduating the tension of	William Loughridge	Weverton, Md	April 10, 1855.
13038	Brakes, self-acting car, arrangement of bumpers for.	James J. McComb	New Orleans, La	June 12, 1855.
13108	Brake, self-acting, for vehicles	Peter Ten Eyck	New York, N. Y	June 19, 1855.
13139	Brake, railroad car	Elisha E. Rice	Hallowell, Me	June 26, 1855.
13440	Brake, railroad-car	Gustavus A. Somerby and Chas. W. Fogg	Waltham, Mass	Aug. 14, 1855.
13978	Brake, steam, double-acting	Robert L. Currey	Philadelphia, Pa	Dec. 25, 1855.
12490	Car, railroad coupling	Edward Rice	Canandaigua, N. Y	Mar. 6, 1855.
12680	Car, railroad, coupling	James H. Jones	Scio, N. Y	April 10, 1855.
13264	Car, railroad, coupling	Aaron G. Heckrotte	New York, N. Y	July 17, 1855.
13274	Car, railroad, coupling	John Ryan	Wilmington, Del	July 17, 1855.
13809	Car, railroad, coupling	Joseph T. England	Baltimore, Md	Dec. 4, 1855.
12644	Car, railroad, seats	Alpheus D. Smith	Meredith, N. Y	April 3, 1855.
13079	Car, railroad, seats	John H. Cocke	Bremo, Va	June 19, 1855.
13464	Car, railroad, seats	Ebenezer Jeffers	Dorchester, Mass	Aug. 21, 1855.
13471	Car, railroad, seats	Albert M. Smith	Rochester, N. Y	Aug. 21, 1855.
	Car, ventilator. (See Class V.)			
12371	Cars, mechanism for retaining, upon the track.	George P. Ketcham	Bedford, Ind	Feb. 6, 1855.
12400	Cars, railroad, head-supporters for	J. N. Williams	Dubuque, Iowa	Feb. 13, 1855.
12684	Cars, railroad, spiral wheel for replacing upon the track.	Robert F. R. Lewis	Annapolis, Md	April 10, 1855.
12772	Cars, railroad, ticket-register for	William Apperley.	Louisville, Ky.	May 1, 1855.
	Cars, railroad, ventilating. (See Class V.)			
13080	Cars, railroad, apparatus for replacing, upon the track.	S. Park Coon	Milwaukie, Wis	June 19, 1855.
13364	Cars, railway, excluding dust from	Elam C. Salisbury	New York, N. Y	July 31, 1855.
13417	Cars, apparatus for replacing	Fortune L. Bailey	Freeport, Ind	Aug. 14, 1855.
13528	Cars, earth, mode of operating and dumping.	Richard Ray	Louisport, Ky	Sept. 4, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Cars, freight, locks for. (See Class II.)			
13529	Cars, dumping, operating	Richard Ray	Louisport, Ky	Sept. 4, 1855.
13676	Cars, railroad, dust-deflector for windows of.	James M. Cook	Taunton, Mass	Oct. 16, 1855.
13705	Cars, railroad, safety attachment in front of.	Charles Mahon	Washington, D. C.	Oct. 23, 1855.
13779	Cars, railroad, devices for partially excluding dust from.	V P. Corbett	New York, N. Y.	Nov. 13, 1855.
	Cars, railroad, method of self-ventilation for. (See Class V.)			
12154	Carriages, journal boxes for	S. B. Batchelor	Lowville, N. Y	Jan. 2, 1855.
12218	Carriage cramp	Samuel T. Sanford	Fall River, Mass	Jan. 9, 1855.
12272	Carriages	George R. Comstock	Manheim, N. Y	Jan. 23, 1855.
12273	Carriage-seats	George R. Comstock	Manheim, N. Y	Jan. 23, 1855.
12320	Carriage-wheels	John Skelly	Brooklyn, N. Y	Jan. 30, 1855.
12430	Carriage-windows	John T. Ogden, assignor to J. T. Ogden and Thos. Goddard.	Boston, Mass	Feb. 20, 1855.
12751	Carriages, folding tops for	William G. Fogleson, assignor to Fogleson & Anderson.	Xenia, Ohio	April 17, 1855.
12869	Carriages, joint-bodied	A. H. Niles	Georgetown, N. Y	Mar. 15, 1855.
12979	Carriages, vehicles	E. D. Williams	Wilmington, Del	May 29, 1855.
13171	Carriage-tops, apparatus for setting bows of.	E. & M. Hayes	Wheeling, Va	July 3, 1855.
13311	Carriages	Moses G. Hubbard	New York, N. Y	July 24, 1855.
13428	Carriages, extension vehicle	Benjamin W. Gay	New London, N. H	Aug. 14, 1855.
13487	Carriages	John L. Cisco	Xenia, Ohio	Aug. 28, 1855.
13604	Carriages, hold-back for	Alonzo Webster	Montpelier, Vt	Sept. 25, 1855.
13690	Carriages, extension-reach for	Edwin Wilson	Prattsburg, N. Y	Oct. 16, 1855.
13797	Carriage-bodies, mode of hanging	Ansel W. Dorter	Little Falls, N. Y	Nov. 13, 1855.
13821	Carriages, mode of attaching tops to seats of.	Lyman Jacobs and E. C. Landon	Castile, N. Y	Nov. 20, 1855.
12504	Carts, self-loading	Ze. Butt	Lincolnton, N. C	Mar. 13, 1855.
12562	Carts, self-loading	John A. Sprague and Bernard O'Connor	Dayton, Ohio	Mar. 20, 1855.
12804	Carts, self-loading and unloading	Jonathan Wilkinson	Hopewell Cotton Works, Pa	May 1, 1855.
12455	Hubs, &c, mandrel for holding carriage	Niram Hawley	Rome, N. Y	Feb. 27, 1855.
12871	Hubs, mode of attaching axles to	John M. Perkins	New York, N. Y	May 15, 1855.
12946	Hub and axle, fastening	John Henderson	Horseheads, N. Y	May 29, 1855.
13307	Hubs, machine for boring and mortising	Chauncey H. Guard, assignor to J. A. Scrogge and C. H. Guard.	Brownsville, N. Y	July 24, 1855.
13919	Hubs, carriage	Shepherd W. Reed	Berkshire, N Y	Dec. 11, 1855.
13962	Hubs, attaching to axles	E. S. Scripture	Green Point, N. Y	Dec. 18, 1855.
12788	Journal-boxes, alloys for	Thomas Firth	Cincinnati, Ohio	May 1, 1855.
13427	Journal-boxes, alloys for	Joseph Garratt, sr	Indianapolis, Ind	Aug. 14, 1855.
13465	Journal-box alloy	Benjamin F. Lawton	Troy, N. Y	Aug. 21, 1855.
13466	Journal-box alloys	Benjamin F. Lawton, M. D	Troy, N. Y	Aug. 21, 1855.
12591	Journal-boxes, packing	Warner Groat	Troy, N Y	Mar. 27, 1855.
13454	Journal, glass, box	Edw. Campbell	Columbus, Ohio	Aug. 21, 1855.
13778	Shafts to axles, attaching	Thos. Chope	Detroit, Mich	Nov. 13, 1855.
13804	Shafts to axles, mode of securing	Alfred E. Smith	Bronxville, N. Y	Nov. 13, 1855.
12513	Sleighs	William H. Guiwits	Rodgersville, N. Y	Mar. 13, 1855.
12850	Sleighs	D. S. Barber and A. & D. Thompson	Pittsfield, Vt	May 15, 1855.
	Springs, India rubber. (See Class IV.)			
12406	Springs, metallic	Levi Bissell	New York, N. Y	Feb. 20, 1855; antedated Aug. 20, 1854.
12475	Springs on wagons, arrangement of the	Harmon W. Ballard	Burlington, Vt	Mar. 6, 1855.
12764	Springs, carriage	Thomas Murgatroyd, jr	Smithville, Canada West	April 24, 1855; Canadian patent dated July 21, 1854.
12849	Springs, circular, metallic plate	John W. Adams	New York, N. Y	May 15, 1855.
12880	Springs, carriage	M. G. Hubbard	New York, N. Y	May 15, 1855.
12910	Springs for carriages	M. G. Hubbard	New York, N. Y	May 22, 1855.
13248	Springs, pneumatic	James F. Heyward, assignor to the Delaware Air-spring Manufacturing Company.	Wilmington, Del	July 10, 1855; English patent dated Jan. 26, 1855.
13552	Springs, railroad car, conical plate	J. J. Speed, jr., and J. A. Bailey	Detroit, Mich	Sept. 11, 1855.
13905	Springs, railroad car	P. G. Gardiner	New York, N. Y	Dec. 12, 1855.
13775	Tire, &c., upsetting	Hiram Abbott	Wakeman, Ohio	Nov. 13, 1855.
13405	Tongue iron, self-adjusting	Wm. J. Temple	Princeton, Mass	Aug. 7, 1855.
12252	Truck, hand	Parley Hutchins	Norwich, Mass	Jan. 16, 1855.
12358	Trucks, locomotive	John Cochrane	Baltimore, Md	Feb. 6, 1855.
	Vehicle, extension. (See Carriages.)			
	Vehicles. (See Carriages.)			

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13323	Wagons	J. Thornton Russell	Wheeling, Va	July 24, 1855.
13503	Wagons	James Parsons	Dublin, Ind	Aug. 28, 1855.
13872	Wagons, military	Joseph Francis	New York, N. Y	Dec. 4, 1855.
12317	Wheels, carriage	W. Race and B. Holly	Seneca Falls, N. Y	Jan. 30, 1855.
12572	Wheels, axles, and friction rollers, arrangement of.	George A. Prentiss	Cheshire county, N. H	Mar. 20, 1855.
12897	Wheels, carriage	D. W. Clark and S. H. Gray	Bridgeport, Conn	May 22, 1855.
	Wheels, heating wrought iron, for forging. (See Class II.)			
13012	Wheels, wagon	Sylvanus Perkins	Pittsburg, Pa	June 5, 1855.
13585	Wheels, car, cooling cast-iron	John M. Sigourney	Watertown, N. Y	Sept. 18, 1855.
	Wheels, car, machines for forging. (See Class II.)			
12911	Whiffletrees	Isaac Krebs	Winchester, Va	May 22, 1855.
13976	Whiffletrees	Harvey and Alonzo Webster	Montpelier, Vt	May 29, 1855.
13418	Whiffletrees	O. C. and O. J. Barnes	Pittsfield, Vt	Aug. 14, 1855.
13712	Whiffletrees	George H. Yard	Trenton, N. J	Oct. 23, 1855.
13744	Whiffletrees	George C. Barney	Brookline, Mass	Nov. 6, 1855.
13297	Whiffletree	Archibald Bailey and Daniel L. Allard	Blue Rock, Ohio	July 24, 1855.

CLASS XI.—HYDRAULICS AND PNEUMATICS, *including water-wheels, windmills, and other implements operated on by air or water, or employed in the raising and delivery of fluids.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12165	Blasts, &c., machine for blowing	P. W. Mackenzie	Jersey City, N. J	Jan. 2, 1855.
12743	Blast-furnaces, method of treating air for.	Thomas W. Bakewell	Cincinnati, Ohio	Nov. 6, 1855.
12195	Cock, stop	David N B. Coffin, jr	Lynn, Mass	Jan. 9, 1855.

13457	Cocks, stop, basin	Henry Eling	New York, N. Y.	Aug. 21, 1855.
12284	Engines, fire	Albert W. Roberts	Hartford, Conn	Jan. 23, 1855.
12441	Engine, fire	Amos Nudd	Exeter, N. H	Feb. 27, 1855.
12686	Engine, stationary hydro-pneumatic, for extinguishing fire.	William Loughridge	Weverton, Md	April 10, 1855.
12912	Engines, steam fire, carriage for	A. B. Latta	Cincinnati, Ohio	May 22, 1855.
	Engines, air. (See Class VI.)			
	Engines, air and steam. (See Class VI.)			
12817	Faucet	William Fowler	New York, N. Y.	May 8, 1855.
12830	Faucet, balance-gate	Ezra Ripley	Troy, N. Y	May 8, 1855.
12950	Faucet, fluid	Joseph Holleley	Brooklyn, N. Y	May 29, 1855.
13047	Faucet	Edward A. Sterry	Norwich, Conn	June 12, 1855.
13424	Faucet, ventilating	Charles Cleveland	Ashfield, Mass	Aug. 14, 1855.
13677	Faucet	Albert Fuller	Boston, Mass	Oct. 16, 1855.
13776	Faucets, weighing attachment for	Job Brown	Lawn Ridge, Ill	Nov. 13, 1855.
13836	Faucet, filtering	Louis Finger, assignor to L. Finger and L. Schell.	Boston, Mass	Nov. 20, 1855.
13026	Filter	Thomas C. Clarke	Camden, N. J	June 12, 1855.
13027	Filter, hydrant	Thomas C. Clarke	Camden, N. J	June 12, 1855.
13054	Filter, portable floating	Nathaniel Waterman	Boston, Mass	June 12, 1855.
13070	Filtering, metallic medium for	Orson C. Phelps, assignor to O. C. Phelps and John Holton.	Boston, Mass	June 12, 1855.
13628	Filter, thermo-udoric	Gustavus Weissenborn, assignor to Epes W. Sargent.	New York, N. Y	Oct. 2, 1855; English patent dated Nov. 17, 1854.
12421	Gate, self-regulating water	George N. Todd	Dundaff, Pa	Feb. 20, 1855.
13219	Gate, water, balance	E. N. Moore and J. H. Hanyan	Lenox, Pa	July 24, 1855.
	Governors, combination of speed and resistance. (See Class IX.)			
12625	Hose-coupling	Smith Groom	Troy, N. Y	April 3, 1855.
12831	Hose-pipes, nozzle for	Albert W. Roberts	Hartford, Conn	May 8, 1855.
12937	Hose-couplings	L. E. Hicks, assignor to himself and Geo. N. Davis.	Boston, Mass	May 22, 1855.
13112	Hose-couplings	Albert M. Waterhouse	New York, N. Y.	June 19, 1855.
	Hydraulic oil-presses. (See Class XII.)			
12549	Hydraulic rams, valve for	Thomas Hanson	New York, N. Y	Mar. 20, 1855.
13324	Hydro-dynamic friction joints	T. E. Sandgren	Wilmington, Del	July 24, 1855.
13303	Hydro-pneumatic machine for exhausting and sealing vessels.	W. H. Elliot	Plattsburgh, N. Y	July 24, 1855.
12232	Metre, water	John S. Barden	New Haven, Conn	Jan. 16, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date.
12887	Metre, fluid	John Taggart, assignor to J. Taggart and J. S Shaler.	Roxbury, Mass	May 15, 1855.
12934	Metre, water	John S. Barden, assignor to O. Snow and G. B. Farnum.	New Haven, Conn	May 22, 1855.
13198	Metre, water	J. Curtis and S. Hoard	Chicago, Ill	July 3, 1855.
13320	Metre, water	Henry R. Worthington	Brooklyn, N. Y	July 24, 1855.
13792	Metre, water	S. Krauser and C. Ritter	Reading, Pa	Nov. 13, 1855.
	Pneumatic springs. (See Class X.)			
12199	Pump, forcing	Gilbert B. Farnum	New York, N. Y	Jan. 9, 1855.
12296	Pumps, chain, buckets for	Edmund Morris	Burlington, N. J	Jan. 23, 1855.
12312	Pumps, force, double-acting	George Fowler	Northford, Conn	Jan. 30, 1855.
12326	Pump, force	Henry Rogers	Ferrisburgh, Vt	Jan. 30, 1855.
12342	Pump, force, double-acting	W. C. and J. S. Burnham	New York, N. Y	Feb. 6, 1855.
12350	Pumps, elliptical rotary	Birdsill Holly	Seneca Falls, N. Y	Feb. 6, 1855.
12413	Pump-valves	Gustavus Hammer	Cincinnati, Ohio	Feb. 20, 1855.
12517	Pumps, operating, by wind	Hiram Moore	Charleston, Ill	Mar. 13, 1855.
12542	Pumps, device for air-chamber of	John P. Cowin	Seneca Falls, N. Y	Mar. 20, 1855.
12544	Pump	Chas. G. Curtis	Springfield, Mass	Mar. 20, 1855.
13559	Pump, force, double-acting	Thos. J. De Yampert	Mobile, Ala	Sept. 11, 1855.
12566	Pumps	William T. Vose	Newtonville, Mass	Mar. 20, 1855.
12579	Pump, rotary	Abel Barker	Honesdale, Pa	Mar. 27, 1855.
12601	Pump, self-adjustable or anchoring	Thomas Ling	Shelby, Ohio	Mar. 27, 1855.
12617	Pumps, air, method of lubricating pistons of	Abel Barker	Honesdale, Pa	April 3, 1855.
12625	Pumps, steam, direct-acting hydraulic	Robert B. Gorsuch	New York, N. Y	April 3, 1855.
12631	Pump, double-acting	Benjamin F. Joslyn	Worcester, Mass	April 3, 1855.
12645	Pumps, chain	Arcalous Wyckoff	Columbus, Ohio	April 3, 1855.
12753	Pump, elastic tube	Porter & Bradley, assignors to Dennison & Bradley.	Brattleboro', Vt	April 17, 1855.
13007	Pump, double-acting	Edwin A. Jeffery	Corning, N. Y	June 5, 1855.
13179	Pumps, rotary	Thos. Crane	Fort Atkinson, Wis	Dec. 25, 1855.
13214	Pump-barrel, device to allow escape of waste-water from.	James E. Cronk	Poughkeepsie, N. Y	June 10, 1855.

13219	Pumps, ship	John J. Heard	Boston, Mass	July 10, 1855.
13233	Pumps, &c., self-regulating, water-packing for.	Joseph Smart	Philadelphia, Pa	July 10, 1855.
13254	Pumps, valves of, method of operating	Jacob Edson	Boston, Mass	July 17, 1855.
13273	Pump-rotary, wrecking	Oliver Palmer	Buffalo, N. Y	July 17, 1855.
13290	Pumps, &c., double-reciprocating split piston-rod for.	John A. Burnap	Albany, N. Y	July 24, 1855.
13370	Pumps, steam, direct-acting hydraulic	Henry R. Worthington	Brooklyn, N. Y	July 31, 1855.
13459	Pumps	S. H. Gray	Bridgeport, Conn	Aug. 21, 1855.
13622	Pumps, ship's	Samuel Pearn	New York, N. Y	Oct. 2, 1855.
13643	Pumps, vibrating	Elwood Garrette	Wilmington, Del	Oct. 9, 1855.
13816	Pumps, double-acting	D. W. Clark	Bridgeport, Conn	Nov. 20, 1855.
13881	Pumps	H. Lindsey	Ashville, N. C	Dec. 4, 1855.
13930	Pumps, rotary	C. D. Wright	Fort Atkinson, Wis	Dec. 11, 1855.
13967	Pumps, suckers for	Joseph Weis	Bordentown, N. J	Dec. 18, 1855.
	Pumping water out of vessels, method of. (See Class VII.)			
13590	Reservoirs, &c, apparatus for discharging.	Daniel Bedford	New York, N. Y	Sept. 25, 1855.
	Screw-fastenings. (See Class II.)			
13126	Tidal alarm-apparatus	M. R. Fletcher	Concord, N. H	June 26, 1855.
	Valve, balance. (See Class VI.)			
	Valves, oscillating, and gearing for pumping engines. (See Class VI.)			
13446	Water-elevator	Caleb Winegar	Union Springs, N. Y	Aug. 14, 1855.
	Water-gate, self-regulating. (See Gates.)			
	Water-metre. (See Metres.)			
12246	Water-wheels, current	Richard Deering, jr	Louisville, Ky	Feb. 6, 1855.
12420	Water-wheel	Thomas Tripp	Sandy Creek, N. Y	Feb. 20, 1855.
12569	Water-wheel, centrifugal	Oscar Willis	Dizardville, N. C	Mar. 20, 1855.
12606	Wheel, current	William S. Smith	Cedar Rapids, Iowa	Mar. 27, 1855.
12779	Wheel, eccentric, mode of applying, to water-power.	James B. Hurt	Black and White, Va	May 1, 1855.
12927	Water-wheels, curbs for	John Tyler	West Lebanon, N. H	May 22, 1855.
12949	Water-wheel	D. S. Howard	Lyonsdale, N. Y	May 29, 1855.
13172	Wheels, turbine, method of regulating the issue apertures and of suspending.	Birdsill Holly	Seneca Falls, N. Y	July 3, 1855.
13280	Water-wheel	W. M. Wheeler	Upton, Mass	July 17, 1855.
13287	Water-wheel, turbine	Henry Van DeWater	Troy, N. Y	July 17, 1855.
13366	Water-wheel, bucket for	C. C. Taylor	Delafield, Wis	July 31, 1855

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13458	Water-wheel, pressure	William Fields and Solomon Gerhard	Wilmington, Del	Aug. 21, 1855
13685	Water-wheel	Hiram Morris, Elijah K. Gorton, and Edward Saeger.	Crawford county, Pa	Oct. 16, 1855.
13793	Wheel, tide, self feathering adjusting	Richard L. Nelson	Ocala, Florida	Nov. 13, 1855.
13895	Water-wheels	John H. Gatiss, assignor to Abraham Edwards	Franklindale, Pa / Towanda, Pa	Dec. 4, 1855.
13918	Water-wheel, impact	Atchinson Queal	Plymouth, N. Y	Dec. 11, 1855.
	Wind-mill, mode of checking. (See Class XIII.)			
	Wind-mill, regulating. (See Class XIII.)			
12208	Wind-mill, self-regulating	Frank G. Johnson	Brooklyn, N. Y	Jan. 9, 1855.
13069	Wind-mill	Charles R. Webb	Philadelphia, Pa	June 12, 1855.
13156	Wind-mill, self-regulating	Addison P. Brown	Brattleboro', Vt	July 3, 1855.
13244	Wind-mill, self-regulating	John Elgar	Baltimore, Md	July 10, 1855.
13247	Wind-mill, self-regulating	Benj Frantz, assignor to John Phillips.	Waynesboro', Pa	July 10, 1855.
13268	Wind-mill	J. S. Morgan	Highland, Ill	July 17, 1855.
13288	Wind-mill, self-regulating	J. Dickinson and O. White	Richmond, Ind	July 17, 1855.
13969	Wind-wheels, arrangements and combinations of machinery for regulating velocity of.	Jeremiah Burnite, assignor to Burnite & Clark.	Puseyville, Pa	Dec. 18, 1855.

CLASS XII.—LEVER, SCREW, AND OTHER MECHANICAL POWER, *as applied to pressing, weighing, raising, and moving weights.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Balance for detecting spurious coin. (See Scales.)			
	Balances, platform. (See Scales)			
	Balances, spring. (See Scales.)			
12732	Bearings, compensation	Lewis Smith	Buffalo, N. Y	April 17, 1855
12928	Block, nipper, self-acting	Jonathan Whipple, jr	Milford, Mass	May 22, 1855
	Blocks, hoisting. (See Class VII.)			
13976	Cranes	B. J. Burnett	New York, N. Y	Dec. 25, 1855.
12288	Crowbar, compound	Isaac J. Cole	Piermont, N. Y	Jan. 23, 1855.
13269	Derricks	Edw. Mingay	Boston, Mass	July 17, 1855.
	Drippers, oil. (See Lubricators.)			
13813	Gear-wheels, cutting teeth of	G. W. Bigelow	New Haven, Conn	Nov. 20, 1855.
12280	Jacks, lifting	Samuel G. Jones	Fitzwatertown, Pa	Jan. 23, 1855.
12345	Jack, lifting, for moving rail-cars	Nelson B. Carpenter and John Powers	New York, N. Y	Feb. 6, 1855.
12464	Jacks, screw	Thomas C. Ball	Walpole, N. H	Feb. 27, 1855.
13783	Jacks, supporting	John Fouser	Philadelphia, Pa	Nov. 13, 1855.
13835	Jacks, lifting	Francis Drew, assignor to Drew & S. S. Gray.	South Boston, Mass	Nov. 20, 1855.
	Lubricating compounds (See Class IV.)			
12259	Lubricator for steam-engines	John Sutton	New York, N. Y	Jan. 16, 1855.
12290	Lubricator for steam-machinery	John Sutton	New York, N. Y	Jan. 23, 1855.
12803	Lubricator	Robert M. Wade	Wadesville, Va	May 1, 1855.
12859	Lubricator, velocitrot	George Dixon	Lafayette, Ind	May 15, 1855.
13406	Lubricator (oil-dripper)	James M. Thompson	Holyoke, Mass	Aug. 7, 1855.
13749	Lubricators, automatic, for railroad-car axles.	Michael Egan	Ogdensburg, N. Y	Nov. 6, 1855.
13769	Lubricators self-feeding, atmospheric	John Sutton	New York, N. Y	Nov. 6, 1855.
13397	Measuring and weighing grain, machine for	Charles A. Postley	Philadelphia, Pa	Aug. 7, 1855.
12615	Presses	James P. Arnold	Louisville, Ky	April 3, 1855.
12740	Press, hay	Pells Manny	Waddam's Grove, Ill	April 17, 1855.
13060	Press, self-acting cotton	Jonathan Grout	Hocking City, Ohio	June 12, 1855.
13061	Pressing tobacco in plugs	George King	Farmville, Va	June 12, 1855.
13191	Presses, cotton	Augustus M. Glover	Waterborough, S. C	July 3, 1855.
13337	Presses, cheese	George R. Comstock	Manheim, N. Y	July 24, 1855.
13126	Presses, cotton	H. H. Fultz	Lexington, Miss	Aug. 14, 1855.
13790	Presses, tobacco	R Kinsley	Lynchburg, Va	Nov. 13, 1855.
13826	Presses, cotton	W. F. and C. J. Provost	Selma, Ala	Nov. 20, 1855.
14005	Presses, hydraulic oil	William Wilber	New Orleans, La	Dec. 28, 1855.
12155	Purchases, suspended	William H. Brown	Erie, Pa	Jan. 2, 1855. English patent dated Oct. 2, 1854.
	Raising and transporting stones, machines for. (See Class XV.)			

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12246	Scales	John L. McPherson	New Vienna, Ohio	Jan. 16, 1855.
12249	Scales	Elisha P. Beckwith	New London, Conn	Jan. 16, 1855.
12698	Scales	David M. Smyth	New York, N. Y	April 10, 1855.
13232	Scales, counter	Frederick Scheurer	New York, N. Y	July 10, 1855.
13331	Scales, union, platform	Augustus Sanborn, assignor to C. and T. Fairbanks & Co.	Johnsbury, Vt	July 24, 1855.
13497	Scales, weighing	John L McPherson	New Vienna, Ohio	Aug. 28, 1855.
13540	Scales	John Allender	New London, Conn	Nov. 27, 1855.
12802	Shafts and pulleys, arranging at an angle	Abner Whiteley	Springfield, Ohio	May 1, 1855.
12147	Slides and ways, protecting, from dust	Edw. H. Foote	New York, N. Y	Jan. 2, 1855.
13075	Valve, cone, two-motion	Horatio Allen	New York, N. Y	June 19, 1855.
12214	Windlasses	Oldin Nichols	Lowell, Mass	Jan. 9, 1855.
13429	Windlasses	W. N. Gesner	Fair Haven, Conn	Aug. 14, 1855.
12778	Wool, fleeces of, machine for bundling	John How	Deer Creek, Mich	May 1, 1855.

Class XIII.—Grinding-mills and mill-gearing, *including grain-mills, mechanical movements, horse-powers, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13843	Belt couplings	Thomas H. Corbett	Brooklyn, N. Y	Nov. 27, 1855.
12349	Bolts, flour, wire-cloth	F. B. Hunt and E. Nordyke	Richmond, Ind	Feb. 6, 1855.
12422	Bolts, flour, feeding	Samuel Taggart	Indianapolis, Ind	Feb. 20, 1855.
13541	Connecting rods, &c., method of securing keys in,	George H. Coney	Boston, Mass	Sept. 11, 1855.
	Corn and cob-crusher. (See Mills)			
	Corn grinder and crusher. (See Mills)			
	Crushing and pulverizing ores, machine for. (See Class II.)			
	Crushing, quartz, machines. (See Class II.)			
	Flour bolt, wire-cloth. (See Bolts)			
13192	Flour, cooling and drying	George B. Willison	Elizabeth, Pa	July 3, 1855.
12378	Grain cleaners and threshers	George Daniels	Philadelphia, Pa	Feb. 13, 1855.
12512	Grain cleaner	George Leach	Owego, N. Y	Mar. 13, 1855.
12657	Grain cleaner	B. T. Trimmer	Parma, N. Y	April 3, 1855.
13103	Grain cleaners	Harrison D. Reynolds	Pendleton, Ind	June 19, 1855.
13927	Grain-cleaning machines	J. L. Boothe	Cuyahoga Falls, Ohio	Dec. 18, 1855.
	Grinding cotton and other seeds for their oils. (See Mills)			
12586	Governors, combination of speed and resistance.	William H. Elliot	Plattsburgh, N. Y	Mar. 27, 1855.
13415	Governors for steam-engines, &c	John and Evan Arthur	New Brunswick, N. J	Aug. 14, 1855.
13549	Hominy-machine	Jon'n Nesbitt, jr., and Thos. J. Coslay	Clear Spring, Md	Sept. 11, 1855.
12731	Horse-powers	John Simpson	Atlanta, Ga	April 17, 1855.
12782	Horse-powers	Clement Russell	Massillon, Ohio	May 1, 1855.
13167	Horse-power	H. H. Fultz	Lexington, Miss.	July 3, 1855.
13955	Horse-powers	Saml. Pelton	New Windsor, Md	Dec. 18, 1855.
13029	Mill-bushes	Geo. L. Dulaney	Mount Jackson, Va	June 12, 1855.
12431	Mill, paint	Chas. W. Brown, assignor to Geo. W. Banker and Geo. O. Carpenter.	Boston, Mass	Feb. 20, 1855.
12707	Mill, paint	David E. Paynter, assignor to Israel M. Bissell.	Philadelphia, Pa	April 10, 1855.
13161	Mill-step	Julius C. Dickey	Saratoga Springs, N. Y	July 3, 1855.
13954	Mill spindle steps	Isaac N. Parker	Lewiston, Maine	Dec. 18, 1855.
12408	Mill-stone dress for hulling rice	Chas. R Barnes	Owego, N. Y	Feb. 20, 1855.
13115	Mill-dress	George L. Dulaney, assignor to Reuben Allen.	Mount Jackson, Va	June 19, 1855.
13384	Mill-stones, method of hanging	Robert Cochran	Cincinnati, Ohio	Aug. 7, 1855.
13985	Mill-stones, mode of dressing, for scouring and hulling buckwheat, &c.	Bishop J. Harris	Auburn, Pa	Dec. 25, 1855.
12822	Mill, wind, mode of checking	A. Lempeke	Pleasant Mount, Pa	May 8, 1855.
12348	Mills, (corn and cob-crusher)	John S. Griffith	Huntingdon, Pa	Feb. 6, 1855.
12356	Mill, crushing and grinding	Joel Weigle	Swan Station, Pa	Feb. 6, 1855.
12977	Mills, (corn-grinder and crusher)	William D. Wilson	Richmond, Ind	May 29, 1855.
13476	Mills, corn and cob	Daniel S. James, assignor to himself, J. B. White, and J. W. McIntyre.	New Market, Va	Aug. 21, 1855.
13569	Mills, corn and cob	R. D. Granger	Philadelphia, Pa	Sept. 18, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13730	Mills, corn and cob	George Patten	Washington, D. C	Oct. 30, 1855.
14082	Mills, corn and cob	Thos. B. Stout	Keyport, N. J	Dec. 25, 1855.
12278	Mill for cutting and grinding vegetables	William H. Harn	Carlisle, Pa	Jan. 23, 1855.
12487	Mill for grinding and bolting sumac	Saml. W. Powell	Tuscarora Valley, Pa	Mar. 6, 1855.
12953	Mills, cider	Tobias J. Kindleberger	Springfield, Ohio	May 29, 1855.
13448	Mills for compressing and grinding grapes and other small fruit.	Z. Coleman Robbins, assignor to A. Martin	Washington, D. C. Norwich, Conn	Aug. 14, 1855.
13558	Mills, (grinding cotton and other seeds for their oil.)	William Wilber	New Orleans, La	Sept. 11, 1855.
13741	Mills, cider or wine	Samuel Krauser	Reading, Pa	Oct. 23, 1855.
13837	Mills for grinding coffee, &c	C. W. Van Vliet, assignor to Charles Parker.	Fishkill Landing, N. Y	Nov. 20, 1855.
13839	Mills for grinding apples	W. O. Hickok	Harrisburg, Pa	Nov. 20, 1855.
12181	Mills, grinding	Amory Felton	Troy, N. Y	Jan. 2, 1855.
12223	Mills, flouring	John L. Yule	New Orleans, La	Jan. 9, 1855.
12461	Mills, portable grain	Charles Leavitt	Quincy, Ill	Feb. 27, 1855.
12959	Mills, grain, shoe for	Henry Mellish	Walpole, N. H	May 29, 1855.
13610	Mills, flouring	D. S. Wagener	Pen Yan, N. Y	Sept. 25, 1855.
13996	Mills for grinding grain, &c	Ezra Ripley	Troy, N. Y	Dec. 25, 1855.
12870	Mills, wind, regulating	Francis Peabody	Salem, Mass	May 15, 1855.
13339	Shafts, wrought-iron	James Montgomery	Baltimore, Md	July 24, 1855.
12839	Smut-machines	Grant B. Turner	Cuyahoga Falls, Ohio	May 8, 1855.

CLASS XIV.—LUMBER, *including machines and tools for preparing and manufacturing, such as sawing, planing, mortising, shingle and stave, carpenters' and coopers' implements.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12318	Augers	R. Jennings	Deep River, Conn	Jan. 30, 1855.
12551	Augers, &c., ship	Isaac W. Hoagland	Jersey City, N. J	Mar. 20, 1855.
12575	Augers, attaching, to handles	Charles W. Cotton	Shelburne Falls, Mass	Mar. 20, 1855.
12583	Augers, machines for turning the lips of	Ransom Cook	Shelburne Falls, Mass	Mar. 27, 1855.
12868	Augers (bits, brace, securing in their sockets.)	Eben. W. Nichols	Worcester, Mass	May 15, 1855.
13261	Auger or bit, expanding	L. H. Gibbs	Washington, D. C	July 17, 1855.
13925	Auger-handles	G. H. Talbot	Boston, Mass	Dec. 11, 1855; English patent dated Aug. 25, 1855.
13943	Augers, adjustable, crank-brace for	John Gourlay	Ogdensburgh, N. Y	Dec. 18, 1855.
13998	Augers, (extension bit.)	John P. Rollins	Boston, Mass	Dec. 25, 1855.
12452	Barrel-heads, machine for cutting	Wm. L. Young	Muscatine, Iowa	Feb. 27, 1855.
12543	Barrel-heads, cutting	Archibald H. Crozier	Oswego, N. Y	Mar. 20, 1855.
13016	Bench-rest	Joseph D. Spiller	Concord, N. H	June 5, 1855.
13078	Bench-hook	A. Hotchkin	Schenevus, N. Y	Oct. 16, 1855.
	Bit, extension. (See Augers.)			
	Bits, brace, securing in their sockets. (See Augers.)			
	Boring-engines, portable. (See Class VI.)			
	Boring and mortising hubs, machine for. (See Class X.)			
12437	Boring-machines, adjusting cylinders in	William B. Emery	Albany, N. Y	Feb. 27, 1855.
12598	Boring hubs to receive boxes, tool for	Urias Kimble	Penfield, N. Y	Mar. 27, 1855.
12677	Boring hubs, tool for	H. C. Garvin and J. H. King	Hagerstown, Md	April 10, 1855.
12776	Boring and tenoning-machine, wheelwrights'.	Chauncey Cowdry, Orrin Tolls, & Chauncey E. Tolls.	Ithaca, N. Y	May 1, 1855.
12808	Boring fence-posts, machine for	James Temple, assignor to Israel Ward and James Temple.	Birmingham, Pa	May 1, 1855.
13158	Boring and turning wood, machine for	Adolph and Felix Brown	New York, N. Y	July 3, 1855.
13243	Boring posts and pointing rails, machine for.	John Young, of C	Middletown, Md	July 10, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13606	Boring-machine	A. Wyckoff and E. R. Morrison	Elmira, N. Y.	Sept. 25, 1855.
12149	Boxes, wooden, manufacturing	Louis Koch, assignor to Theodore Pincus.	New York, N. Y.	Jan. 2, 1855.
13921	Carving wood &c., machine for	J. M. Singer	New York, N. Y.	Dec. 11, 1855.
13102	Chisels, socket, handles for	L. T. Richardson	Worcester, Mass	June 19, 1855.
13734	Clap-board machine	Aretus A. Wilder	Detroit, Mich	Oct. 30, 1855.
13846	Coopers' tool	Joel P. Heacock	Marlboro', Ohio	Nov. 27, 1855.
13200	Cork-machine	John Power	Boston, Mass	July 3, 1855.
13714	Corks, machine for manufacturing	William R. Crocker	Norwich, Conn	Oct. 30, 1855.
13696	Cutters, method of securing to rotary discs.	Jonah Newton	New York, N. Y.	June 19, 1855.
13169	Cutting cavities, spherical, ellipsoidal, &c., machine for.	Isaac B. Hartwell	Woodstock, Vt	July 3, 1855.
12122	Dovetailing-machine	Thomas H. Burley	Cincinnati, Ohio	Jan. 2, 1855.
13522	Dovetailing-machine	John J. Haley	Philadelphia, Pa	Sept. 4, 1855.
13574	Dovetail key cutter	Amos P. Hughes	Philadelphia, Pa	Sept. 18, 1855.
13696	Dovetailing-machine	John Bell	Harlem, N. Y.	Oct. 23, 1855.
13180	Dressing conical tapering surfaces, machine for.	Paul Peckham	Petersham, Mass	July 3, 1855.
13568	Felling trees, machine for	Thomas Durden	Montgomery, Ala	Sept. 18, 1855.
12174	Forms, irregular, machine for cutting	Warren Wadleigh	Hill, N. H.	Jan. 2, 1855.
12192	Forms, irregular, machine for turning	William J. Casselman	Vernon, N. Y.	Jan. 9, 1855.
12884	Forms, irregular, machine for cutting	J. S. Barber, assignor to Robert J. Marcher	Boston, Mass. / Blooming Grove, N. Y.	May 15, 1855.
13076	Forms, irregular, machine for cutting	Avery Babbett	Auburn, N. Y.	June 19, 1855.
13386	Forms, irregular, cutter-heads for	Daniel Dunlap	Concord, N. H.	Aug. 7, 1855.
13511	Forms, irregular, machines for cutting	P. H. Wait	Barkersville, N. Y.	Aug. 28, 1855.
13897	Gimlet	C. C. Tolman, assignor to James Sargent and D. P. Foster.	Shelburne Falls, Mass.	Dec. 4, 1855.
12429	Hoops, machine for manufacturing	Jacob Pierson	Alexandria, Va.	Feb. 20, 1855.
13097	Hoops, wooden, machine for cutting locks and tapering ends of.	Royal Parce	Pitcher, N. Y.	June 19, 1855.
13746	Lath-machine	A. Blaikie and W. Clark	St. Clair, Mich.	Nov. 6, 1855.

12224	Lathe for turning fancy handles, &c.	Luther Wentworth	Burlington, Iowa	Jan. 9, 1855.
12423	Lathes, slide-rest for	William Stephens	Richmond, Ind	Feb. 20, 1855.
12662	Lathe	Warren Aldrich	Lowell, Mass	April 10, 1855.
12742	Lathes, slide-rest for	C. A. Noyes	Pittsfield, Mass	April 17, 1855.
12747	Lathes, slide-rest for	Chester Van Horn	Springfield, Mass	April 17, 1855.
12874	Lathe, slide	E. K. Root	Hartford, Conn	May 15, 1855.
13787	Lathe-chuck	Eli Horton	Windsor Locks, Conn	Nov. 13, 1855.
12580	Lumber-jointing machines, clamp and mouth-piece for.	Charles F. Bauersfeld	Cincinnati, Ohio	Mar. 27, 1855.
12861	Lumber, gauge for slitting	Francis P. Hart	Chandlersville, Pa.	May 15, 1855.
13342	Lumber from the log, machine for dressing.	Albert Walcott	Detroit, Mich.	July 24, 1855.
13142	Mandrel, guide, wheelwrights'	Joseph Sykes	Mercer, Pa.	June 26, 1855.
12276	Marquetry	Louis Francis Groebl	Philadelphia, Pa.	Jan 23, 1855.
12297	Match machines	Leopold and Joseph Thomas	Alleghany City, Pa.	Jan. 23, 1855.
12482	Mitre and other joints, machine for cutting.	F. A. Gleason	Rome, N. Y.	Mar. 6, 1855.
12796	Mitre-box	Matthew Spear	Bowdoinham, Me	May 1, 1855.
12862	Mitre and bevelling machine	Lorton Holliday	Rogersville, N. Y.	May 15, 1855.
12956	Mitre-machine	George W. La Baw	Jersey City, N. J.	May 29, 1855.
13127	Mitre and bevel-square, carpenters'	Jonas S. Halsted and Cornelius J. Ackerman.	New York, N. Y.	June 26, 1855.
12287	Mortising-machines, feeding	R. P. Benton	Rochester, N. Y.	Jan. 23, 1855.
12563	Mortising and tenoning machines	Elihu Street	Montville, Conn.	Mar. 20, 1855.
12691	Mortising blinds, machine for	Benjamin T. Norris	Lynn, Mass.	April 10, 1855.
13184	Mortises, method of cutting straight or curved.	Edward Q. Smith	Cincinnati, Ohio	July 3, 1855.
13271	Mortising window-blinds, machine for	Jas. A. Peabody	Lowell, Mass	July 17, 1855.
13594	Mortising-machines, method of regulating length of stroke in.	Ezra Gould	Newark, N. J.	Sept. 25, 1855.
13663	Mortising machine	Hezekiah B. Smith	Lowell, Mass	Oct. 9, 1855.
13759	Mortising-machine	Loomis E. Payne and Orris Pier	Stowe, Vt	Nov. 6, 1855.
12243	Moulding-machine	George M. Ramsey	New York, N. Y.	Jan. 16, 1855.
12248	Moulding machine	C. B. Morse	Rhinebeck, N. Y.	Jan. 16, 1855.
12916	Mouldings, tool for grooving	Robt. J. Marcher	Salisbury Mills, N. Y.	May 22, 1855.
12917	Mouldings, tool for grooving	Robt. J. Marcher	Salisbury Mills, N. Y.	May 22, 1855.
13602	Mouldings, ornamental, machine for cutting.	H. & Richard Schevenell	Athens, Ga.	Sept. 25, 1855.
12234	Plane, bench	William C. Hopper	Pittsburg, Pa.	Jan. 16, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12787	Plane stock, bench	Geo. E. Davis	Lowell, Mass	May 1, 1855.
13174	Plane-stock, and their mouth-pieces, method of hanging.	M. G. Hubbard	New York, N. Y.	July 3, 1855.
13381	Plane-scraper	Leonard Bailey	Winchester, Mass	Aug. 7, 1855.
13575	Plane-bit	Horace Harris	Gorham, N. Y.	Sept. 18, 1855.
13626	Plane, crozing, coopers'	Hiram and John C. Taylor	Cincinnati, Ohio	Oct. 2, 1855.
13745	Plane-iron, bench	H. A. Bleckman	Ronsdorf, Prussia	Nov. 6, 1855.
13757	Planes, rotary, cutter-head for	William Nixon	Adrian, Mich.	Nov. 6, 1855.
13957	Plane for finishing grooves in gutters, &c.	John P. Robinson	Mattewan, N. Y.	Dec. 18, 1855.
12162	Planing-machines, mode of hanging the knife in.	M. G. Hubbard	New York, N. Y.	Jan. 2, 1855.
12211	Planing and matching machine	C. B. Morse	Rhinebeck, N. Y.	Jan. 9, 1855.
12438	Planing-machines, method of adjusting stuff in	William B. Emery	Albany, N. Y.	Feb. 27, 1855.
12880	Planing-machines, devices for adjusting	Leonard Tilton	New York, N. Y.	May 15, 1855.
13345	Planing-machines, method of feeding planks to.	Nelson Barlow	Newark, N. J.	July 31, 1855.
13536	Planing-machines, universal dog for	Solomon S. Gray, assignor to S. S. Gray and S. A. Woods.	South Boston, Mass	Sept. 4, 1855.
13618	Planing machines, feed-motion for	S. C. and W. W. Hurlbut	Boonville, N. Y.	Oct. 2, 1855.
13808	Planing-machines	Jas. A. Woodbury	Winchester, Mass.	Nov. 13, 1855.
13947	Planing felloes, machine for	Wm. W. Johnson	Clifford, Pa	Dec. 18, 1855.
13237	Rails, stair	C. M. Swany	Richmond, Ind	July 10, 1855.
12891	Saddle-trees, wooden	George B. Ambler	Trumbull, Conn	May 22, 1855.
12797	Sash, &c., machine for clamping	Solomon P. Smith	Half Moon, N. Y.	May 1, 1855.
12126	Saws, circular, construction and mode of driving.	Thomas J. Flanders	Manchester, N. H.	Jan. 2, 1855.
12170	Saw, path-finding, method of hanging a	John A. Taplin	Fishkill, N. Y.	Jan. 2, 1855.
12176	Sawing-machine	Lysander Might	Newark, N. J.	Jan. 2, 1855.
12197	Saws, circular, arranging and driving	William B. Emery	Albany, N. Y.	Jan. 9, 1855; antedated Nov. 13, 1854.
12337	Sawing-machines	Pinney Youngs	Milwaukie, Wis.	Jan. 30, 1855.

12412	Saws, reciprocating, method of driving pairs of.	George P. Ketcham	Bedford, Ind	Feb. 20, 1855.
12493	Saw-plates, constructing and setting teeth therein.	Linus Stewart	Washington, D. C.	Mar. 6, 1855.
12664	Saw-teeth	Nelson Barlow	Newark, N. J.	April 10, 1855.
12679	Saws, guiding reciprocating	Chas. B. Hutchinson	Auburn, N. Y.	April 10, 1855.
12705	Saw, circular, spindles to yield, device allowing.	Hiram Wells	Florence, Mass	April 10, 1855.
12809	Sawing firewood, &c., machine for	E. A. Tubbs, assignor to E. A. Tubbs and H. J. Croxton.	Hampton, N. H.	May 1, 1855.
12821	Sawing or felling trees, machine for	Simon Ingersoll	Greenwich, Conn	May 8, 1855.
12843	Sawing a log by its own weight, method of.	Francis A Wolff	Ripley, Miss	May 8, 1855.
13028	Saw-mills, &c., feed-motion for	Charles M. Day	New York, N. Y.	June 12, 1855.
13040	Sawing-machine	Isaac M. Newcomb	Eden, Vt	June 12, 1855.
13043	Saw-mill dog	A. S. Rice and Guy Tozer	Barton, N. Y.	June 12, 1855.
13055	Sawing, curvilinear, machine	Shelden Warner	Enfield, Mass	June 12, 1855.
13227	Saw-sets	F. A. Parker	Shaftsbury, Vt.	July 10, 1855.
13251	Sawing, cross-cut, machine	Frederick Field.	Toledo, Ohio	July 31, 1855.
13277	Sawing down trees, machine for	Matthew Ludwig	Boston, Mass	July 17, 1855.
13305	Sawing-machine	Benjamin Fulghum	Richmond, Ind	July 24, 1855.
13357	Saw, circular, mandrel	F. H. Keeney	Newport, Ky	July 31, 1855.
13390	Saws, hand, gauge attachment for	A. F. Gray and J. C. Fincher	Thibodeaux, La	Aug. 7, 1855.
13399	Sawing lumber, machine for	B. E Parkhurst	Brunswick, Me	Aug. 7, 1855.
13422	Saws, straining, by atmospheric pressure.	A. Brown and A. Coffin, jr	Sabine City, Texas	Aug. 14, 1855.
13444	Sawing-machines, portable steam	S. R. Wilmot	New York, N. Y.	Aug. 14, 1855.
13531	Sawing hoops, machines for.	E. Strange and T. B. Smith	Taunton, Mass	Sept. 4, 1855.
13544	Saw-mill carriages	Robert T. Eastham	Blanchester, Ohio	Sept. 11, 1855.
13554	Saws, reciprocating, method of operating.	O. S. Woodcock	Connersville, Ind	Sept. 11, 1855.
13573	Sawing-mill	Dean S. Howard	Lyonsdale, N. Y.	Sept. 18, 1855.
13670	Sawing-machines, gauge attachment for	George W. Worden	Fayetteville, N. Y.	Oct. 9, 1855.
13715	Saw-mill dogs, device for gauging and setting.	Luther B. Fisher	Cold Water, Mich.	Oct. 30, 1855.
13719	Sawing ratan, machines for	Liveras Hull	Charlestown, Mass.	July 31, 1855.
13755	Saw-horse	Horace Lane	Windsor, Vt.	Nov. 6, 1855.
13916	Saws, mulley, method of hanging	J. N. Forrester.	Centreville, Va.	Oct. 30, 1855.
13932	Saws, circular, method of adjusting, obliquely to their shafts.	Amos D. Highfield, assignor to himself and Wm. H. Harrison.	Philadelphia, Pa.	Dec. 4, 1855.
13938	Saw-set	T. C. Bush.	New London, Conn.	Dec. 18, 1855.
13944	Saw-mills, automatic feed-motion for	H. C. Green	Clarence, Wis.	Dec. 18, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13054	Saw-set	J. Spaulding	Saratoga Springs, N. Y.	Dec. 18, 1855.
13082	Saws, method of hanging	Soranus Dunham	North Bridgewater, Mass.	Dec. 25, 1855.
13089	Saws, circular, method of hanging	W. W Hurlbut	Boonville, N Y	Dec. 25, 1855.
12137	Shingle machine	Adrian V. B Orr	Steeleville, Pa	Jan. 2, 1855.
12206	Shingle, rotary, machine	J W. Hatcher	Columbia, Tenn.	Jan. 9, 1855.
12606	Shingle-machine	Charles Leavitt	Quincy, Ill	Mar. 27, 1855.
12842	Shingle-machine	Andrew P. Wilson	Piqua, Ohio	May 8, 1855.
12848	Shingles or wedges, machine for sawing	John Taggart, assignor to himself and Nehemiah Hunt	Roxbury, Mass / Boston, Mass.	May 8, 1855.
13155	Shingles, &c, machine for riving	A. C. Billings and B. H. Ruggles	Palmer, Mass.	July 3, 1855.
13475	Shingles, machine for sawing	Charles Ketchum, assignor to Charles G. Judd and Andrew Oliver.	Pen Yan, N. Y.	Aug. 21, 1855.
13555	Shingle-machines, construction of beds for	Henry J. Weston	Buffalo, N. Y	Sept. 11, 1855.
13566	Shingle-bolt, method of feeding the, to knives.	Wm. J. Scott	Carthage, N. Y	Oct. 9, 1855.
13958	Shingle machine	J. Tiffany and M. Harris.	Painesville, Ohio	Dec. 18, 1855.
13084	Shovel-handles, machine for cutting the inside bold of.	G. Fetter and J. L. Pennock	Holmesburg, Pa.	June 19, 1855.
12424	Slivers, cutting wood into, machine for	S. R Smith and E. Cowles	Hadley, Mass	Feb. 20, 1855.
12459	Spoke-machine	Asa Landphere and S. Remington	Albion, Pa	Feb. 27, 1855.
13408	Spoke-machine	Wm. Van Anden	Poughkeepsie, N. Y	Aug. 7, 1855.
13731	Spoke and axe-helve machine	Owen Redmond	Rochester, N. Y.	Oct 30, 1855.
13882	Spoke-machines	Thomas R. Markillie	Winchester, Ill	Dec. 4, 1855.
12221	Stave-jointer	James W. Treadway	Crown Point, N. Y	Jan. 9, 1855.
12900	Stave machine	Daniel Drawbaugh	Eberly's Mills, Pa	May 22, 1855.
13035	Staves, machine for planing	M. T. Kennedy	Fallston, Pa.	June 12, 1855.
13036	Staves, jointing, machine for	M. T. Kennedy	Fallston, Pa.	June 12, 1855.
13045	Stave-machine	George H. Swan	Bridgeport, Conn	June 12, 1855.
13230	Stave-machine	William Robinson	Augusta, Ga.	July 10, 1855.
13631	Staves, gauging, measuring, &c., machine for	Larkin T. Atkins	Luray, Va	Oct. 9, 1855.
12416	Tenons, machines for cutting	Joel Hastings, Jas. Ramsay, and H. G. Chamberlain.	St. Johnsbury, Vt.	Feb. 20, 1855
12449	Tenoning-machine	William Steele	Wheeling, Va.	Feb. 27, 1855.
12864	Tenoning-tool, adjustable	Thomas J. Knapp	Philadelphia, Pa	May 18, 1855.
13049	Tenoning-machine	Christopher Sharps and Geo. E. Adriance	Hector, N. Y.	June 12, 1855.
13735	Tenons, double, machine for cutting	C. P. S. Wardwell	Lake Village, N. H	Oct. 30, 1855.
	Tenoning and boring-machine, wheelwrights'. (See Boring-machine.)			
12134	Tonguing and grooving, cutters for	Hazard Knowles	New York, N. Y.	Jan. 2, 1855.
12180	Turning elliptical cylinders, chuck for	P. S Cahoon and S. F. Ross	La Grange, Mo	Jan. 2, 1855.
13104	Turning excentrics, chuck for	John W. Russell	Springfield, Mass	June 19, 1855.
13208	Turning ship-spars, &c., automatic machine for.	William Blackburn	Jersey City, N. J	July 10, 1855.
13301	Turning cylinders of wood, &c., machine for.	Matthew F. Connell	Plainfield, N. J	July 24, 1855.
13899	Veneers, embossed, application of	Israel Amies	Philadelphia, Pa	Dec. 11, 1855.
13099	Ware, wooden, machine for manufacturing	David Pierce	Woodstock, Vt	June 19, 1855.
12857	Wood, machine for splitting	Jacob A. Conover	New York, N. Y.	May 15, 1855.
13485	Wood, fire, machine for splitting	William O. Bisbee	Camden, N. J.	Aug. 28, 1855.
13492	Wood-splitting machine, rotary	G. W. B. Gedney	New York, N. Y.	Aug. 28, 1855.

Class XV.—Stone and clay manufactures, *including machines for pottery, glass-making, brick-making, dressing and preparing stone, cements, and other building materials.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12264	Block, building	A. Foster and / E. A Messinger, adminis'x, and Wm. A. Spencer, adm'r of John A. Messinger, deceased, assignees to A. Foster	Portland, Wis. / Milwaukie, Wis.	Jan. 16, 1855.
	Bricks, burning (See Kilns.)			
12558	Bricks, manufacture of	L. E. Ransom	Havana, N. Y.	June 5, 1855.
12898	Brick-presses	John Chase, jr	Pequonock, Conn	Mar. 20, 1855.
12997	Brick-machines, soak pits of	W. H. Degges	Washington, D. C.	May 22, 1855.
12998	Brick-machine	W. H. Degges	Washington, D. C.	June 5, 1855.
13042	Bricks, cutting clay into	John Plumbe	San Francisco, Cal.	June 5, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13110	Brick-machine	Levi Till	Sandusky, Ohio	June 19, 1855.
13123	Brick and tile machines	Henry Clayton	Dorset Square, England	June 26, 1855; English patent dated Dec. 13, 1852
13129	Brick-machines	A. V. Hough	Green Castle, Ind	June 26, 1855.
13239	Brick-presses	Stephen Ustick	Philadelphia, Pa	July 10, 1855.
13502	Brick-machines	Levi Till	Sandusky, Ohio	Aug. 28, 1855.
13533	Brick-machines	Joseph Alex Victor	Montgomery county, Ky	Sept. 4, 1855.
13572	Brick-machines	G. W. B. Gedney	New York, N. Y	Sept. 18, 1855.
13747	Brick machines	Alex. H. Brown	Washington, D. C	Nov. 6, 1855
13017	Clay, machines for kneading	H. H. Thayer	Sandwich, Mass	June 5, 1855.
13221	Clay, machines for pulverizing	John O'Neil	Kingston, N. Y	July 10, 1855.
13245	Glass, plate, manufacturing, from cylinders.	William P. Walter	Philadelphia, Pa	July 10, 1855.
13411	Glass, plate, manufacture of	Philip Stenger, assignor to Pascal Yearsley	France Philadelphia, Pa	Aug. 7, 1855.
12820	Granite, &c., artificial, facing-beds for grinding.	Benjamin Hardinge	New York, N. Y	May 8, 1855.
12242	Kilns, lime	Samuel H. Robinson	Baltimore, Md	Jan. 16, 1855.
12521	Kilns, brick	Jesse Russell	Elkton, Ky	Mar. 13, 1855.
12991	Kilns (burning bricks)	Daniel and George M. Blocher	Cumberland, Md	June 5, 1855.
13194	Kilns, lime	Daniel Herr (Pequea)	Lancaster, Pa	Aug. 28, 1855.
12813	Marble and stone saws	John T. Bruen	New York, N. Y	May 8, 1855.
13074	Machines, stone-sawing	Joseph Adams	Fairhaven, Vt	June 19, 1855.
13540	Marble, machines for sawing	John Cochrane	Baltimore, Md	Sept. 11, 1855.
13591	Machines, stone-sawing	C. G. Beitel and Henry J. Brunner	Nazareth, Pa	Sept. 25, 1855.
13742	Marble, machines for sawing	Henry Burt	Newark, N. J	Nov. 6, 1855.
13762	Marble-sawing machine	R. G. Pine	Newark, N. J	Nov. 6, 1855.
13773	Marble sawing machine	George W. Bishup	Brooklyn, N. Y	Nov. 13, 1855.
13777	Marble-sawing machine	William C Chipman	Sandwich, Mass	Nov. 13, 1855.
13784	Marble-sawing machine	Luther B. Fisher	Cold Water, Mich	Nov. 13, 1855.
13788	Marble-sawing machine	George W. Hubbard	Middletown, Conn	Nov. 13, 1855.
13791	Marble-sawing machine	Wm. B. Kimball	Peterboro', N. H	Nov. 13, 1855.
13805	Marble-sawing machine	Charles T. Warren	Malden, Mass	Nov. 13, 1855.
13829	Marble-sawing machine	F. Noette and A. Schmidt	Brooklyn, N. Y	Nov. 20, 1855.
13860	Marble, tapering blocks of, machines for sawing out.	John A. Cole	Washington, D. C	Dec. 4, 1855.
13916	Marble, &c, machines for sawing in taper form.	George T. Pearsall	Appalachin, N. Y	Dec. 11, 1855.
13164	Sand, machines for washing	George Finley	Collins township, Pa	July 3, 1855.
12164	Slate, machines for cutting and trimming.	Asa Keyes	Brattleboro', Vt	Jan 2, 1855.
12270	Stone, instrument for cutting out	Henry J. Brunner	Nazareth, Pa	Jan. 23, 1855.
12531	Stone pasteboard, manufacture of	James Smith	Mendon, N. Y	Mar. 13, 1855.
12666	Stone, machine for raising and transporting.	Solomon E. Bolles	Rochester, Mass	April 10, 1855.
12766	Stone, machines for polishing	Louis S. Robbins	New York, N. Y	April 24, 1855.
13116	Stone, artificial, manufacture of	Thomas Hodgson, assignor to Robert L. Wright.	Brooklyn, N. Y	June 19, 1855; English patent dated May 9, 1854.
13343	Stone, dressing and carving, machinery for.	Elias A. Swan and DeWitt C. Smiley	Brooklyn, N. Y	July 24, 1855.
13596	Stone, channelling, machine for	John Taggart, assignor to himself and Vernon Brown.	Roxbury, Mass	Dec. 4, 1855.
13952	Stone-dressing machines	Oldin Nichols and A. M. George	Lowell, Mass	Dec. 18, 1855.
	Stone and marble saws. (See Marble-sawing machines.)			
	Stone-sawing machine. (See Marble-sawing machines.)			
	Stone-sawing, machines for. (See Marble-sawing machines.)			
	Tile-machines. (See Class IX.)			

Class XVI.—Leather, *including tanning and dressing, manufacture of boots, shoes, saddlery, harness, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent
12128	Boot and shoe soles, machines for cutting out.	Jesse W. Hatch and Henry Churchill	Rochester, N. Y	Jan. 2, 1855.
12607	Boots and shoes, manufacture of	Henry G. Tyer and John Helm	New Brunswick, N J	Mar. 27, 1855.
12670	Boot forms	John Chilcott and Robt. Snell	Brooklyn, N. Y	April 10, 1855.
12793	Boot and shoe stretchers	Warren Holden	Philadelphia, Pa	May 1, 1855.
12794	Boot-crimping machines	Hosea B. Horton	Northville, Mich	May 1, 1855.
12816	Boot-crimps	Thomas Daugherty	Erie, Pa	May 8, 1855.

Classifed List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12877	Boots and shoes, machine for polishing the soles of.	J. H., J. M., and H. Q. Thompson	Holderness, N. H	May 15, 1855.
12985	Boots and shoes, (pegging, hand, machines)	Alf Swingle, assignor to Elmer Townsend.	Boston, Mass	May 29, 1855.
13003	Boot and shoe counters, machine for skiving.	Luther Hill	Stoneham, Mass	June 5, 1855.
13023	Boot-crimping machines	G. W. Zeigler	Tiffin, Ohio	June 5, 1855.
13063	Boot and shoe soles, machines for cutting the edges of.	Jean Pierre Molliere	Lyons, France	June 12, 1855; French patent dated Jan. 5, 1855.
13072	Boot and shoe soles, machines for cutting out.	Caleb H. Griffin, assignor to C. H. Griffin and Geo. W. Otis.	Lynn, Mass	June 12, 1855.
13073	Boots and shoes, attaching gutta-percha soles to.	Jno. M. Wimley, assignor to J. A. B. Shaw.	Philadelphia, Pa	June 12, 1855.
13095	Boot and shoe soles and heels, machines for cutting leather into strips for.	Jean Pierre Molliere	Lyons, France	June 19, 1855; French patent dated July 22, 1853.
13101	Boot and shoe peg cutters	Henry E. Chapman	Albany, N. Y	Dec. 11, 1855.
13144	Boots and shoes, pegging, hand-machines for	Reuben H. Thompson	Buffalo, N. Y	June 26, 1855.
13272	Soles, attaching metallic heels to India-rubber.	S. T. Parmalee	New Brunswick, N. J	July 17, 1855.
13296	Boot and shoe uppers, soles, &c., machines for cutting, from sheets of India-rubber.	John and Evan Arthur	New Brunswick, N. J	July 24, 1855.
13796	Boot and shoe uppers, machines for cutting.	Jean Pierre Molliere	Lyons, France	Nov. 13, 1855; French patent dated Aug. 19, 1855.
13798	Shoes, lasting, and applying soles to	Charles Rice and	Boston, Mass	Nov. 13, 1855.
		Sylvanus H. Whorf	Roxbury, Mass	
13827	Boots and shoes, machine for preparing leather for the manufacture of.	Charles Rice and S. H. Whorf	Boston, Mass	Nov. 20, 1855.
13852	Boots, uppers of, mode of cutting the	John S. Lewis	Athol, Mass	Nov. 27, 1855.
13854	Boots and shoes, machines for rasping and dressing the heels and soles of.	Jean Pierre Molliere	Lyons, France	Nov. 27, 1855; French patent dated Jan. 5, 1855.
13867	Shoe-soles, &c, instrument for chamfering the edges of.	O. R Dinsmoor and L. J. Bartlett	Salisbury, N. H	Dec. 4, 1855.
13875	Boot and shoe soles, cutting out, machine for	Jesse W. Hatch	Rochester, N. Y	Dec. 4, 1855.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13886	Boot-trees	James H. Sampson	Grafton, Mass	Dec. 4, 1855.
13914	Boots and shoes, soles and heels of, machines for cutting out, pricking, and stamping the.	J. P. Molliere	Lyons, France	Dec. 11, 1855; French patent dated July 22, 1853.
13950	Boots and shoes, soles and heels of, machines for polishing and burnishing the edges of.	J. P. Molliere	Lyons, France	Dec. 18, 1855; French patent dated Jan. 5, 1855.
13951	Boots and shoes on lasts, "uppers" of, machines for mounting the.	J. P. Molliere	Lyons, France	Dec. 18, 1855; French patent dated Aug. 19, 1855.
13119	Bridle-winkers	Willlam and William F. Boyd	Watertown, Mass	June 26, 1855.
13306	Bridle-reins	Kingston Goddard	Philadelphia, Pa	July 24, 1856.
12397	Bridle-bits	Wm. D. Titus and Robert W. Fenwick	Brooklyn, N. Y	Feb. 13, 1855.
12494	Collars, horse, machines for stuffing	William L. Whittaker	Cumberland, Md	Mar. 6, 1855.
13087	Collars, horse, expanding block for	Robert R. Gray	Crawfordsville, Ind	June 19, 1855.
13132	Collar, horse, blocks	Peter Moodey	Indianapolis, Ind	June 26, 1855.
13189	Collar, horse, blocks	T. J. Van Benschoten	Poughkeepsie, N. Y	July 3, 1855.
13949	Collars, horse, machines for stuffing	S. B. McCorkle	Greenville, Tenn	Dec. 18, 1855.
13965	Collar, horse	Samuel Shattuc	Henrietta, Ohio	Dec. 18, 1855.
	Harness saddle-trees. (See Saddle-trees.)			
13858	Harnesses, metallic saddle-trees for	S. E. Tompkins	New York, N. Y	Nov. 27, 1855.
	Hides, unhairing, compositions for. (See Class IV.)			
12171	Leather, compositions for dressing	Cuno Werner	Philadelphia, Pa	Jan. 2, 1855.
12226	Leather, japanned, processes for making	Hiram L. Hall, assignor to James C. Stimpson.	Beverly, Mass	Jan. 9, 1855.
12392	Leather-splitting machines	M. H. Merriam and	Chelsea, Mass	Feb. 13, 1855.
		J. B. Crosby	Stoneham, Mass	
12444	Leather straps, machine for shaving	Charles Morris	New Haven, Conn	Feb. 27, 1855.
12806	Leather and morocco, machines for polishing.	Nathan Ames, assignor to	Saugus, Mass	May 1, 1855.
		Samuel Green	Lynn, Mass	
12878	Leather straps, machines for creasing the edges of.	W. M. Thornton	Pottsville, Pa	May 15, 1855.
13071	Leather, ruling, machine for	Joshua Turner, jr., assignor to A. Bennett and W. Covell.	Charlestown, Mass	June 12, 1855.
13407	Leather-splitting machines, bed-spring of.	John B. Jay	North Woburn, Mass	Aug. 7, 1855.
13605	Leather-finishing machine	Charles, and T. F., and J. W. Weston	Salem, Mass	Sep. 25, 1855.
13756	Leather, machines for splitting	J. A. Marden and	Newburyport, Mass	Nov. 20, 1855.
		H. A. Butters	Haverhill, Mass	
13819	Leather for enamelling, treating	Theodore P. Howell and N. F. Blanchard.	Newark, N. J	Nov. 20, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13220	Leather, cutting articles from, machines for.	Charles Rice and S. H. Whorf	Boston and Roxbury, Mass	Dec. 11, 1855.
	Leather, compositions for bleaching and stuffing. (See Class IV.)			
	Pegging, hand, machines. (See Boots and shoes.)			
12481	Saddle trees, harness	Julius C. Dickey	Saratoga Springs, N. Y	Nov. 27, 1855.
13213	Saddle-trees	Daniel Campbell	Washington, D C	July 10, 1855.
13264	Saddles, military	Daniel Campbell	Washington, D. C	Dec. 4, 1855.
13240	Stirrups, open	O. D. Vosmers	Mount Sterling, Ky	July 10, 1855.
	Tanneries, working liming vats in. (See Class IV.)			
	Tannin from leather, processes for extracting. (See Class IV.)			
12148	Tanning processes	Rufus Keeler, assignor to Lewis C. England	Rochester, N. Y. New York, N. Y.	Jan. 2, 1855.
13403	Tanning apparatus	George W. Smith	Nanticoke, N. Y	Aug. 7, 1855.
13443	Tanning compounds	Otis B. Wattles	Waddington, N. Y	Aug. 14, 1855.
	Trunks, attaching castors to. (See Class XXII.)			

CLASS XVII.—HOUSEHOLD FURNITURE, MACHINES AND IMPLEMENTS FOR DOMESTIC PURPOSES, *including washing machines, bread and cracker machines, feather-dressing, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12689	Apples, paring, machine for	Samuel N. Maxum	Shelburne Falls, Mass	April 10, 1855.
13891	Apples, paring and slicing, machines for	Levi Van Hoesen	New Haven, Conn	Dec. 4, 1855.
12656	Bedsteads, folding	William Stoddard	Hingham, Mass	April 3, 1855.
12693	Bedstead fastenings	Joseph Rodefer	Cincinnati, Ohio	April 10, 1855.
12905	Bedstead rails, machine for cutting screws on.	Henry Gross	Tiffen, Ohio	May 22, 1855.
12940	Bedsteads, invalid	Thomas Arnold, assignor to Wm. and J. S. Arnold & Co	Mobile, Ala	May 29, 1855.
12944	Bedsteads, invalid	E. Daniels	Union, N. Y	May 29, 1855.
13034	Bedsteads	Florian Herz	Cincinnati, Ohio	June 12, 1855.
13088	Bed, spring, bottoms	Hiram Tucker	Cambridgeport, Mass	July 3, 1855.
13225	Bedsteads, machine for cutting screws on	O. Parkhurst and D. Bullock	Cohoes, N. Y	July 10, 1855
13253	Bedsteads, invalid	Benjamin Eastman	Philadelphia, Pa.	July 17, 1855.
13263	Bedstead, alarm	J. Carroll House	Lowville, N. Y	July 17, 1855.
13265	Bedsteads	Tyler Howe	Cambridgeport, Mass	July 17, 1855.
13307	Bedsteads	William White	Portsmouth, Va	Sept. 25, 1855.
13736	Bedstead fastenings	John W. Yothers	Spruce Grove, Pa	Oct. 30, 1855.
13803	Bedstead screws, forming heads on	H. N. Sherman	Birmingham, Conn	Nov. 13, 1855.
13909	Bedsteads	Benj. Hinkley	Troy, N. Y	Dec. 11, 1855.
12479	Bread, processes for making	Charles Cram	Hudson, N. Y	Mar. 6, 1855.
12182	Brush, paint	William Hicks	Steubenville, Ohio	Jan. 2, 1855.
12309	Brush, fountain	Dexter H. Chamberlain and John Hartshorn.	Boston, Mass	Jan. 30, 1855.
12376	Butter-coolers	James H. Stimpson	Baltimore, Md	May 15, 1855.
13291	Cans, preserve, devices for sealing	W. H. Elliot	Plattsburgh, N. Y.	July 17, 1855.
13667	Cans, double-seaming, machines for	Elliot Savage and Noah C. Smith	East Berlin, Conn	Oct. 9, 1855.
13707	Cans, sealing preserve	Stimmel Lutz	Philadelphia, Pa	Oct. 23, 1855.
13109	Carpets, fastenings for	Wm. S Loughborough	Rochester, N. Y	June 5, 1855.
13094	Carpets, fastenings for	Felix Miller	New York, N. Y	June 19, 1855.
13220	Carpets, fastenings for	Enoch Jackman and Edwin G. Dunham	Portland, Conn	July 10, 1855.
12578	Castors for furniture	Gilbert L. Bailey, assignor to G. L. Bailey and M. Nutting.	Portland, Maine	Mar. 20, 1855.
12357	Chair and crib, combined, for children	Wm. B. Carpenter	New York, N. Y	Feb. 6, 1855.
12587	Chairs	Lemuel W. Ferris	Owego, N. Y	Mar. 27, 1855.
13479	Chairs, folding	John Cram, assignor to John and John S. Cram.	Boston, Mass	Aug. 21, 1855.
13765	Clamps, clothes	James Sadgebury	Philadelphia, Pa	Nov. 6, 1855.
12775	Clothes pin machine	H. & M. Blake	Hartland, Vt.	May 1, 1855.
13447	Coffee-roaster	Saml. Pierce, assignor to Curtis B. Pierce.	Troy, N. Y	Aug. 14, 1855.
13595	Coffee pot	Joshua E. Hall	Cleveland, Ohio	Sept. 25, 1855.
12383	Cracker-machines	Phineas Emmons	New York, N. Y	Feb. 13, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12271	Curtains, rollers for	Dexter H. Chamberlain and John Hartshorn.	Boston, Mass	Jan. 23, 1855.
12361	Curtain-rollers, fixtures for	John Hartshorn and Dexter H. Chamberlain, assignors to John Hartshorn.	Boston, Mass.	April 3, 1855.
12524	Curtain-rollers	Frederick W. Urann	Saxonville, Mass	Mar. 13, 1855.
12540	Curtains, knobs for fastening, and for other like purposes.	W. Z. W. & J. W. Chapman	New York, N. Y	Mar. 20, 1855.
12792	Curtains, spring-rollers for	John & Jacob Hartshorn	Boston, Mass	May 1, 1855.
12866	Curtain-fixtures	Perches Miles	Hartford, Conn.	May 15, 1855.
12881	Curtain, spring, rollers.	Benjamin B. Webster	Boston, Mass.	May 15, 1855.
13150	Curtain-fixtures	Peter H. Niles, assignor to P. H. Niles and Jonathan A. Richards.	Boston, Mass	Jan. 2, 1855.
13481	Curtain-rollers	Dexter H. Chamberlain	West Roxbury, Mass	Aug. 21, 1855.
13588	Curtain-fixtures	Peter H. Niles, assignor to R. C. Webster	Boston, Mass.	Sept. 18, 1855; antedated Mar. 18, 1855.
13931	Curtains, mosquito	John S. Martin	Boston, Mass	Dec. 11, 1855.
	Desk, writing, combined table and. (See Tables.)			
	Dish-covers, wire, machine for making. (See Class II.)			
12217	Dough, kneading, machines for	John Lewis Rolland	Paris, France	Jan. 9, 1855; French patent dated April 11, 1851.
12640	Dumb-waiters, pulley arrangements for	Andrew Murtaugh	New York, N. Y	April 3, 1855.
13834	Graters, nutmeg	Hiram Carsley, assignor to himself and Edmund Brown.	Lynn, Mass	Nov. 20, 1855.
12419	Griddle	C. Wilson	New York, N. Y	Feb. 20, 1855.
12860	Hominy-machine	Ezra Fahrney	Mount Morris, Ill	May 15, 1855.
13883	Knives, scouring, machines for	G. M Morris and J. Newton	Watertown, Conn	Dec. 4, 1855.
12373	Meat and other substances, machines for chopping.	W. H. Allen	Lowell, Mass	Feb. 13, 1855.
12530	Meats, processes of curing	John C. Schooley	Cincinnati, Ohio	Mar. 13, 1855.
13990	Meat, mincing, machines for	Alexander Lightheiser	Reading, Pa	Dec. 25, 1855.
	Mills for grinding coffee, &c. (See Class XIII.)			
12365	Mop heads	James A. Taylor	Alden, N. Y	Feb. 6, 1855.
13347	Mop-wringer	Oliver D. Barrett	Fulton, N. Y	July 31, 1855.
13812	Mop-heads	Alexander Barnes	Ashtabula, Ohio	Nov. 20, 1855.
13125	Pitchers, ice	Samuel Eakins	Philadelphia, Pa	June 26, 1855.
13400	Pitchers, molasses	Edward Page	Worcester, Mass	Aug. 7, 1855.
12210	Refrigerators	H. L. McAvoy	Baltimore, Md	Jan. 9, 1855.
13329	Refrigerators	William Mootry	New York, N. Y	July 24, 1855.
14004	Sad iron heaters	J. D. Wheelock	Maysville, Wis	Dec. 25, 1855.
12660	Scrapers for removing dirt from boots and shoes	Ozro A. Crane and Henry J. Lewis, assignors to Ozro A. Crane.	Green Point, N. Y	April 3, 1855.
	Sewing-machine cases. (See Class III.)			
13566	Smoothing-irons, heaters for	Newell Cleveland and James J. Johnston	Alleghany City, Pa	Sept. 18, 1855.
12548	Tables, extension	Joel Haines	West Middleburgh, Ohio	Mar. 20, 1855.
12588	Table-leaves, mode of supporting	Henry A. Frost	Worcester, Mass	Mar. 27, 1855.
12765	Tables (combined table and writing desk.)	Lucius Paige	Cavendish, Vt	April 24, 1855.
	Tea-pot spouts and handles, casting. (See Class II.)			
12518	Washing-machines	Elijah Morgan	Morgantown, Va	Mar. 13, 1855.
12658	Washing-machines	George W. Edgcomb	Lima, Ind	April 3, 1855.
12757	Washing-machines, spring connecting-rods for.	Jason W. Corey	Crawfordsville, Ind	April 24, 1855.
12996	Washing-machines	Lewis W. Colver	Louisville, Ky	June 5, 1855.
13222	Washing-machine	Wright Lancaster	Near Fairfield, Ind	July 10, 1855.
13272	Washing-machines	Samuel M. Yost	Connersville, Ind	July 31, 1855.
13344	Washing-machines	John H. Atwater	Kalamazoo, Mich	July 31, 1855.
13356	Washing-machines	Josee Johnson	Washington, D. C	July 31, 1855.
13635	Washing-machines	John A. Bills	Troy, N. Y	Oct. 9, 1855.
13682	Wash-boards	Joseph Keech	Waterloo, New York	Oct. 16, 1855.
13692	Washing-machines	Charles Love	Peru, Ill	Oct. 16, 1855.
13751	Washing-machine	Daniel Haldeman	Morgantown, Va	Nov. 6, 1855.
12340	Window-washer	George A. Meacham	New York, N. Y	Jan. 30, 1855.
13482	Window-shades	John J. Crooke	New York, N. Y	Aug. 21, 1855.
13684	Wringers for clothes	John McLaughlin	Steubenville, Ohio	Oct. 16, 1855.

CLASS XVIII.—ARTS POLITE, FINE, AND ORNAMENTAL, *including music, painting, sculpture, engraving, books, paper, printing, binding, jewelry, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13044	Accordeons, method of tuning	E. A. Robbins	Rochester, N. Y.	June 12, 1855.
12279	Book-brace	William Ives	Buffalo, N. Y.	Jan. 23, 1855.
12954	Books, paging, apparatus for	Gabriel Leverich	Wellsburgh, N. Y.	May 29, 1855.
13199	Book clasp	Charles Folsom	Cambridge, Mass	July 3, 1855.
13302	Books: paging-machine	F. O. Degener	New York, N. Y.	July 24, 1855.
13477	Books, &c., machine for paging	W. C. Demain, assignor to A. B. Ely	Boston, Mass	Aug 21, 1855.
13501	Books, machine for trimming	M. Riehl	Philadelphia, Pa.	Aug. 28, 1855.
12477	Breastpins, &c., safe-catch for	E. C. Benyaurd	Philadelphia, Pa.	Mar. 6, 1855.
12700	Cameras, plate-holder for	A. S. Southworth	Boston, Mass	April 10, 1855.
12344	Daguerreotype-plate holder	David N. B. Coffin, jr	Lynn, Mass.	Feb. 6, 1855.
12560	Daguerreotype plates, machine for polishing.	David Shive	Philadelphia, Pa.	Mar. 20, 1855.
13196	Daguerreotype face-plates or mats, machine for bevelling and polishing the inner edges of.	Edward Brown, assignor to Scoville Manufacturing Company.	Waterbury, Conn	July 3, 1855.
13410	Daguerreotype cases, manufacture of	H. Halvereon, assignor to Horace Barnes	Cambridge, Mass Boston, Mass	Aug. 7, 1855.
13665	Daguerreotype-plate holder	David Shive	Philadelphia, Pa.	Oct 9, 1855.
13701	Daguerreotype-plate vise	Samuel S. Day	New York, N. Y.	Oct. 23, 1855.
13516	Electrotyping, machine for	Joseph Alexander Adams	Brooklyn, N. Y.	Sept. 4, 1855.
13521	Electrotype shells, mould for backing	Aaron D. Farmer and Ransom Rathbone.	Brooklyn, N. Y.	Sept. 4, 1855.
	Envelopes. (See Paper.)			
	Envelopes, &c, machine for making. (See Paper.)			
	Gridirons, gas-burning (See Class V.)			
12841	Inkstands	Henry Whitney, jr.	Cambridge, Mass	May 8, 1855.
13575	Inkstands	A. Bingham, assignor to Bingham & Bailey	Boston, Mass	Aug. 28, 1855.
13902	Inkstands, fountain	Charles T. Close	New York, N. Y.	Dec. 11, 1855.
	Jewellers' scraps, processes for refining. (See Class IV.)			
	Medallion, stereoscopic. (See Stereoscopes.)			
12713	Melodeons	Jeremiah Carhart	New York, N. Y.	April 17, 1855.
12938	Melodeons, &c., improved swell for	Thomas F. Thornton, assignor to Prince & Stephenson.	Buffalo, N Y.	May 22, 1855.
13021	Melodeon	William C. Whipple and Wm. C. Bowe	Westville, Conn	June 5, 1855.
13048	Melodeons and organs, coupling for	Henry W. Smith	Boston, Mass	June 12, 1855.
13704	Melodeons	George G. Hunt	Wolcotville, Conn	Oct. 23, 1855.
13959	Melodeons, organ	Thomas F. Thornton	Buffalo, N. Y.	Dec. 18, 1855.
12628	Musical instruments, wind, valve for	Gustavus Hammer	Cincinnati, Ohio	April 3, 1855.
12724	Music-books, &c., apparatus for turning the leaves of.	Isaac Gallup	Mystic Bridge, Conn.	April 17, 1855.
13001	Music, method of composing	William Fischer	Philadelphia, Pa.	June 5, 1855.
13365	Musical reed-instruments	Geo. S. Shepard	Canaan, N. H.	July 31, 1855.
13642	Music, (organ-pipes, wind-regulator for)	Daniel George	Nazareth, Pa.	Oct. 9, 1855.
13668	Music, producing, by steam or condensed air.	J. C. Stoddard	Worcester, Mass	Oct. 9, 1855.
13946	Music, registering, machine for	H. B. Horton	Akron, Ohio.	Dec. 18, 1855.
	Organ melodeons. (See Melodeons.)			
	Organs and melodeons, coupling for. (See Melodeons.)			
	Paging-machine. (See Books.)			
12255	Paper, boxes of, machine for making	R. L. Hawes	Worcester, Mass	Jan. 16, 1855.
12786	Paper-bags and envelopes, machine for making.	J. A. Smith and S. E. Pettee	Clinton, Mass. Foxborough, Mass	May 1, 1855.
12836	Paper-ruling machine	T. J. Baldwin	Bridgeport, Conn	April 17, 1855.
12945	Paper-bags, machine for making	E. W Goodale	Clinton, Mass.	May 29, 1855.
12982	Paper-bags, machine for making	Francis Wolle	Bethlehem, Pa	May 29, 1855.
13349	Paper, machine for ruling and paging	Jno. A. Elder and Jno. Richardson	Westbrook, Maine Portland, Maine	July 31, 1855.
13647	Paper, (machine for making envelopes)	E. W. Goodale	Clinton, Mass	Oct. 9, 1855.
13838	Paper, (envelopes)	Emanuel Harmon	Washington, D. C	Nov. 20, 1855.
12301	Pen, fountain	Newell A. Prince	Brooklyn, N. Y.	Jan. 23, 1855.
12727	Pen, fountain	Hugh K. McClelland	Elderaville, Pa	April 17, 1855.
12734	Pen-holder	William H. Towers	Philadelphia, Pa.	April 17, 1855.
13534	Pen, fountain	George W. White	East Chester, N. Y.	Sept. 4, 1855.
13995	Pens, fountain	Newell A. Prince	Brooklyn, N. Y.	Dec. 25, 1855.
12722	Pencil-sharpeners, moulds for casting	Walter K. Foster	Bangor, Me	April 17, 1855.
12391	Penmanship, method of teaching	William S. MacLaurin	New York, N. Y.	Feb. 13, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13885	Photographic bath	Isaac Rehn	Philadelphia, Pa	Dec. 4, 1855.
12188	Piano frames, brace for	Dwight Gibbons, assignor to Frederick Starr.	Rochester, N. Y	Jan. 2, 1855.
12315	Piano-fortes	Alexander Hall	Lloydsville, Ohio	Jan. 30, 1855.
12362	Piano-fortes, sounding-board for	James A. Gray	Albany, N. Y	Feb. 6, 1855.
12432	Piano-forte frames	Henry S. Ackerly	New York, N. Y	Feb. 27, 1855.
12737	Piano-forte action	Stephen P. Brooks	Boston, Mass	April 17, 1855.
12763	Piano forte action	William Munroe	Boston, Mass	April 24, 1855.
13091	Piano-forte action	Robert M. Kerrison	Philadelphia, Pa	June 19, 1855.
13236	Pianos, tables, &c., machine for cutting legs for.	Andrew Stoeckel	New York, N. Y	July 10, 1855.
13924	Piano-forte action	Francis Taylor	New York, N. Y	Dec. 11, 1855.
13942	Piano-fortes	S B. Driggs	Detroit, Mich	Dec. 18, 1855; English patent dated Nov. 1, 1855.
13956	Piano-forte action	John S Morton	New York, N. Y	Sept. 18, 1855.
13960	Piano-fortes	H. Schonacker	Detroit, Mich	Dec. 18, 1855.
13014	Portfolio	S. J. H. Smith	Boston, Mass	June 5, 1856.
12118	Printing-presses and ruling-machines, apparatus for feeding paper to.	David Baldwin	Godwinville, N. J	Jan. 2, 1855.
12178	Press for printing different colors	Stephen Brown	Syracuse, N. Y	Jan. 2, 1855.
12183	Printing-press	Sidney Kelsey	Erie, Pa	Jan. 2, 1855.
12185	Printing-press	James Lewis	Pratteville, N. Y	Jan. 2, 1856.
12213	Printing, machine for, from engraved plates.	Robert Neale	Clermont county, Ohio	Jan. 9, 1855; English patent dated Jan. 16, 1853.
12401	Printing-presses, machine for feeding paper to.	A. B. Childs and H. W. Dickinson	Rochester, N. Y	Feb. 20, 1855.
12553	Press for printing, hand	Charles Keniston	Boston, Mass	Mar. 20, 1855.
12568	Printing-press	Lemuel T. Wells	Cincinnati, Ohio	Mar. 20, 1855.
12634	Printing-presses, hand, apparatus for feeding paper to.	E. Mathers and W. D. Siegfried	Morgantown, Va	April 3, 1855.
12702	Printing-presses, apparatus for feeding paper to.	John B. Hall	New York, N. Y	April 10, 1855.

12733	Printers' ink, making	Caleb A. Thompson	Adrian, Mich	April 17, 1855.
12761	Printing-presses, machine for feeding paper to	J. B. Livingston and Miles Waterhouse	Barnet, Vt	April 24, 1855.
12989	Printing oil-cloths, registering blocks for	James Albro	Elizabethtown, N. J	June 5, 1855.
13069	Printing presses	Joel G. Northrup, assignor to James D. Mather.	Syracuse, N. Y	June 12, 1855.
13183	Printing-presses, machine for feeding sheets of paper to.	A. H. Rowand	Alleghany City, Pa	July 3, 1855.
13197	Printers' rules, machine for mitering	Wm. McDonald, assignor to R. Hoe & Co	New York, N. Y	July 3, 1855.
13333	Printing-presses, machine for feeding paper to.	Andrew Campbell	Newark, N. J	July 24, 1855.
13335	Printing-press	Merwin Davis	New York, N. Y	July 24, 1855.
13376	Printing textile fabrics, machine for	Jas. Melville and Jos. Burch	Chester county, England	Aug. 7, 1855.
13423	Printing, hand-press for	Dexter H. Chamberlain	West Roxbury, Mass	Aug. 14, 1855.
13462	Printers, calico, rollers, machine for engraving.	Jno. and Thomas Hope	Providence, R. I	Aug. 21, 1855.
13576	Printing-press, card	Daniel K Winder	Cincinnati, Ohio	Sept. 18, 1855.
13579	Press, seal and stamping	Edmund Morris	Trenton, N. J	Sept. 18, 1855.
13587	Printers, metallic plates for, preparation of.	Samuel W. Lowe, assignor to himself and Jacob M. Beck.	Philadelphia, Pa	Sept. 18, 1855
13691	Printing-press, card	Daniel K. Winder	Cincinnati, Ohio	Oct. 9, 1855.
13689	Printing-presses, card, inking apparatus for.	Daniel K. Winder	Cincinnati, Ohio	Oct. 16, 1855.
13703	Printing-press, card	Thomas Harsha	West Union, Ohio	Oct. 23, 1855.
13737	Printing-presses, machine for feeding paper to.	Hy. W. Dickinson, assignor to L. B. Swan	Rochester, N. Y Lowell, Mass.	Oct. 30, 1855.
13818	Printing yarns and cloths, machine for	Thomas Henderson	Lowell, Mass	Nov. 20, 1855.
13857	Printing-press	C. A. Sweet	Boston, Mass	Nov. 27, 1855.
13915	Printing calico, processes for	A. Lovis and R. Prince	Boston, Mass	Dec. 11, 1855.
12468	Stamp, hand	Daniel W. Messer, assignor to D. W. Messer, R. B. Filts, and A. James.	Boston, Mass	Feb. 27, 1855.
13308	Stamp, hand	J. and E. Harris	Boston, Mass	July 24, 1855.
13495	Stamp, hand	Horace Holt	Winchester, Mass	Aug. 28, 1855.
13740	Stamp, hand	Stephen P. Ruggles	Boston, Mass	Aug. 21, 1855.
12157	Stereotyping, apparatus for	Willard Cowles	Washington, D. C	Jan. 2, 1855.
12257	Stereoscopic medallion	John F. Mascher	Philadelphia, Pa	Jan. 16, 1855.
12451	Stereoscope case	John Stull	Philadelphia, Pa	Feb. 27, 1855.
13093	Stereoscopic photographs, apparatus for taking.	Joseph H. Marston	Philadelphia, Pa	June 19, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13106	Stereoscopic pictures, apparatus for moving.	A. S. Southworth and J. J Hawes	Boston, Mass	June 19, 1855.
13609	Types, printers', machine for making	Samuel S. Weed	Stoneham, Mass	Sept. 25, 1855.
13710	Types, composing and setting, machine for.	Wm. S. Loughborough	Rochester, N. Y	Oct. 23, 1855.
13935	Types, rubbing, machine for	Daniel Moore, assignor to himself, Geo. S. Cameron, and Jas. H. McWilliams.	Brooklyn, N. Y	Dec. 11, 1855.
13878	Violins, machine for cutting the fronts and backs of.	Matthias Keller	Philadelphia, Pa	Dec. 4, 1855.
12502	Watch-makers' lathes, polishing apparatus for.	James M. Bottum	New York, N. Y	Mar. 13, 1855.
12538	Watch-chains, swivel for	Elihu Bliss	Newark, N. J	Mar. 20, 1855.

CLASS XIX.—FIRE-ARMS AND IMPLEMENTS OF WAR, *and parts thereof, including the manufacture of shot and gunpowder.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
	Bomb-shells, fuze-stock for. (See Fuze.)			
12411	Bullet-mould	John S. Keith and John Brooks	Canton, Mass	Feb. 20, 1855.
12774	Bullet-mould	William Ashton	Middletown, Conn	May 1, 1855.
12295	Cannon, repeating	Samuel Huffman, assignor to S. Huffman and D. O. Hare.	Charlestown, Ill	Jan. 23, 1855.
12629	Cannon, rifled, mode of loading	Luther Houghton	Philadelphia, Pa	April 3, 1855.
13851	Cannon	Alfred Krupp	Essen, Prussia	Nov. 27, 1855; French patent dated Dec. 16, 1847.
13927	Cannon, manufacture of	Daniel Treadwell	Citizen of the United States residing in London, England.	Dec. 11, 1855.
13984	Cannon, wrought iron, manufacture of.	John Griffen	Safe Harbor, Pa	Dec. 25, 1855

12545	Cartridges, shot	Abbot R. Davis	East Cambridge, Mass	Mar. 20, 1855.
12556	Cartridges	Abner N. Newton	Richmond, Ind	Mar. 20, 1855.
12942	Cartridges	Charles F. Brown	Warren, R. I	May 29, 1855.
12189	Fire-arms, repeating	Joshua Stevens, assignor to Massachusetts Arm Co.	Chicopee Falls, Mass	Jan. 2, 1855.
12230	Fire-arms	Thomas H Barlow	Lexington, Ky	Jan. 16, 1855.
12235	Fire-arms	Edmund H. Graham	Biddeford, Me	Jan. 16, 1855.
12244	Fire-arms	Alonzo D. Perry	Newark, N. J	Jan. 16, 1855; English patent dated Oct. 8, 1853.
13294	Fire-arms, repeating, apparatus for cooling.	John A. Reynolds	Elmira, N. Y	July 17, 1855.
12328	Fire-arms, portable	A. O. H. P. Schorn	Murfreesboro', Tenn	Jan. 30, 1855.
12470	Fire-arms	John Hollingsworth and Ralph S. Mershon.	Zanesville, Ohio	Feb. 27, 1855; English patent dated Aug 1, 1854.
12471	Fire-arms, repeating	John Hollingsworth & Ralph S. Mershon.	Zanesville, Ohio.	Feb. 27, 1855; English patent dated Aug. 1, 1854.
12528	Fire-arms, breech-loading	Rollin White	Hartford, Conn	Mar. 13, 1855.
12539	Fire-arms, breech loading	Rollin White	Hartford, Conn	Mar. 13, 1855.
12555	Fire-arms	Frederick Newbury	Albany, N. Y	Mar. 20, 1855.
12567	Fire-arms, breech-loading	Alexander T. Watson	Castleton, N. Y	Mar. 20, 1855.
12638	Fire-arms, breech-loading	Rollin White	Hartford, Conn	April 3, 1855.
12648	Fire-arms, repeating	Rollin White	Hartford Conn	April 3, 1855.
12649	Fire-arms, repeating	Rollin White	Hartford, Conn	April 3, 1855.
12655	Fire-arms, breech-loading	George H. Soule	Jersey City, N. J	April 3, 1855.
12681	Fire-arms	Ferdinand Klein	Newark, N. J.	April 10, 1855.
12836	Fire-arms	John Stowell	Charlestown, Mass	May 8, 1855.
12906	Fire-arms	Henry Gross	Tiffin, Ohio	May 22, 1855.
13039	Fire-arms, revolving	Frederick Newbury	Albany, N. Y	June 12, 1855.
13154	Fire-arms	Ethan Allen	Worcester, Mass	July 3, 1855.
13292	Fire-arms	John A. Reynolds	Elmira, N. Y	July 17, 1855.
13293	Fire-arms	John A. Reynolds	Elmira, N. Y	July 17, 1855.
13474	Fire-arms, magazine, breech-loading	John Swyney, assignor to John Swyney and James Dandridge	Charlestown, Mass Boston, Mass	Aug. 21, 1855.
13507	Fire-arms, breech-loading	B. F. Joslyn	Worcester, Mass	Aug. 28, 1855.
13547	Fire-arms, charger for	Josee Johnson	Washington, D.C	Sept. 11, 1855.
13581	Fire-arms	William W. Marston	New York, N. Y.	Sept. 18, 1855.
13582	Fire-arms, revolving	F. Newbury	Albany, N. Y	Sept. 18, 1855.
13592	Fire arms	F. Beerstecher	Philadelphia, Pa	Sept. 28, 1855.
13691	Fire arms, breech-loading	H. B. Weaver	South Windham, Conn.	Oct. 16, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13706	Fire-arms, repeating, single-barrelled	Daniel B. Neal	Mount Gilead, Ohio	Feb. 27, 1855.
13941	Fire-arms	Joseph C. Day	Hackettstown, N. J	Dec. 18, 1855.
13959	Fire-arms, revolving	E. K. Root	Hartford, Conn	Dec. 25, 1855.
14001	Fire-arms, breech-loading	Gilbert Smith	Butter Milk Falls, N. Y	Dec. 25, 1855.
12810	Fuze, tape	Philip Bacon	Simsbury, Conn	May 8, 1855.
13138	Fuze-stock for bomb-shells	A. Powell, jr	Mare Island, Cal	June 26, 1855.
12124	Locks for fire-arms	J. S. Butterfield	Philadelphia, Pa	Jan. 2, 1855.
13442	Locks, gun	Michael Tromly	Mount Vernon, Ill	Aug. 14, 1855.
13825	Locks, gun	John Phin	Rochester, N. Y	Nov. 20, 1855.
12592	Ordnance	Christopher Wolter	Bridgeport, Conn	Mar. 13, 1855.
13249	Ordnance, mode of mounting	Chas. F. Brown	Warren, R. I	July 17, 1855.
13678	Ordnance, projectiles for	Andrew Hotchkiss	Sharon, Conn	Oct. 16, 1855.
12258	Projectiles, moulds for casting	Hezekiah Conant	Hartford, Conn	Jan. 16, 1855.
12574	Press for making cylindro-conical hollow projectiles by pressure.	W. M. B. Hartley	New York, N. Y	Mar. 20, 1855.
12795	Projectile for fire-arms	Eben Hoyt, jr	Chelsea, Mass	May 1, 1855.
12801	Projectiles	W. J. Von Kammerhueber	Washington, D. C	May 1, 1855.
13469	Projectiles, percussion	Augustus McBurth	Elizabeth, N. J	Aug. 21, 1855.
13799	Projectile, compound	S. Sawyer	Fitchburg, Mass	Nov. 13, 1855.
12285	Rifling-machine, compound	E. K. Root	Hartford, Conn	Jan. 23, 1855.

CLASS XX.—SURGICAL AND MEDICAL INSTRUMENTS, *including trusses, dental instruments, bathing apparatus, &c.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13467	Bath, warm, apparatus	Louis M. Lefebvre, M. D	New Orleans, La	Aug. 21, 1855.
13974	Bath, vapor, pipes of a	Jos. Buhler, M. D	New York, N. Y	Dec. 25, 1855.
12972	Chairs for dentists' use	Richard A. Stratton	Philadelphia, Pa	May 29, 1855.
13396	Chairs, dental	D. W. Perkins	Rome, N. Y	Aug. 7, 1855.
12951	Ear-trumpets, construction of	Edw. G. Hyde	Camptown, N. J	May 29, 1855.
13953	Eye, instruments for modifying focal length of the.	Daniel Parish	New York, N. Y	Dec. 18, 1855.
12636	Lancets	Henry Mellish	Walpole, N. H	April 3, 1855.
13360	Legs, artificial	William H. Rhodes	Berlin, N. Y	July 31, 1855.
13404	Legs, artificial	Addison Spaulding	Lowell, Mass	Aug. 7, 1855.
13611	Legs, artificial	John Taggart, assignor to himself and Theodore D. Parker.	Roxbury, Mass	Sept. 25, 1855.
13318	Medicines, pulverulent, apparatus for administering.	Jonas Moore and D. P. Adams	Marietta, Ohio	July 24, 1855.
13453	Obstetrical extractor	A. C. Buffum	Chicago, Ill	Aug. 21, 1855.
12960	Pill-making machines	Erasmus A. Pond	Rutland, Vt	May 29, 1855.
13975	Syringes, injecting, construction of.	Jos. Buhler	New York, N. Y	Dec. 25, 1855.
12156	Teeth	Sharpless Clayton	Weschester, Pa	Jan. 2, 1855.
13801	Teeth, artificial, preparing	Barclay A. Satterthwait	Lima, Ohio	Nov. 13, 1855.
12266	Trusses, hernial	William M. Bonwill, M. D	Camden, Del	Jan. 23, 1855.
12986	Trusses, hernial, pads for	Lucian E. Hicks, assignor to L. E. Hicks and H. L. Hall.	Boston, Mass	May 29, 1855.
13430	Trusses, hernial	E. B. Graham	Middletown, N. Y	Aug. 14, 1855.
13548	Trusses, hernial	F. G. Mitchell	New York, N. Y	Sept. 11, 1855.
12965	Uterine supporters	Henry A. Rosenthal	New York, N. Y	May 29, 1855.

CLASS XXI.—WEARING APPAREL, ARTICLES FOR THE TOILET, &c., *including instruments for manufacturing.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13002	Bootjacks	Franklin J. French	Whitingham, Vt	June 5, 1855.
12725	Button, stud and, fastening	Samuel H. Hopkins, assignor to William C. Greene, John T. Mauran, and Chas. Jackson.	Providence, R. I	April 17, 1855.
13926	Cloaks, cutting	A. S. Thompson	Albion, Pa	Dec. 11, 1855.
12379	Dress, stays for articles of	John Dick	New York, N. Y	Feb. 13, 1855.
13011	Garments, braces for supporting	Daniel Minthorn	New York, N. Y	June 5, 1855.
12173	Hats	W. F. Warburton	Philadelphia, Pa	Jan. 2, 1855.

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
13361	Hats, ventilating	William Sellers	New York, N. Y	July 31, 1855.
12313	Shirts, yoke of	Hezekiah Griswold	Hartford, Conn	Jan. 30, 1855.
12890	Shirts, wristbands of	Rufus R. Chandler	Richmond, Va	May 22, 1855
13213	Sun-shade	S. N. Campbell	Elgin, Ill	July 10, 1855.
13850	Umbrella sticks, &c., of ratan, preparation of.	Joseph Kleemann	City of Meissen, Germany	Nov. 27, 1855.
12903	Umbrellas	Wright Duryea	New York, N. Y	May 22, 1855.

Class XXII.—*Miscellaneous.*

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12433	Annunciators, hotel	John Bale	Buffalo, N. Y	Feb. 27, 1855.
13600	Awning for horse and dray	Jacob Nelson	Cincinnati, Ohio	Sept. 25, 1855.
12222	Beef-spreader	Frederick Tesh	Johnstown, Pa	Jan. 9, 1855.
13089	Bells, mode of hanging	George W. Hildreth	Lockport, N. Y	June 19, 1855.
12604	Bill-holder	George W. Palmer	Boston, Mass	Mar. 27, 1855.
12202	Bottles, devices for stoppers of	James Hanley	New York, N. Y	Jan. 9, 1855.
12501	Bottle-stopper fastenings	Theophilus A. Ashburner	Philadelphia, Pa	Mar. 13, 1855.
13266	Bottle-fastenings	Jules Jeannotat	Paterson, N. J	July 17, 1855.
13388	Bottle-fastenings	John Allender	New London, Conn	July 24, 1855.
13402	Bottles, glass, and similar articles, forming screw-threads, &c., in the necks of.	Amasa Stone	Philadelphia, Pa	Aug. 7, 1855.
13659	Bottle-fastenings, register	John Smylie, jr	Philadelphia, Pa	Oct. 9, 1855.
13782	Bottle-fastenings, ring and gudgeons for	Joseph C. Day	Hackettstown, N. J	Nov. 13, 1855.
12335	Boxes, cylindrical	Elisha Waters	Troy, N. Y	Jan. 30, 1855.
12511	Boxes, paper, machine for making	Louis Koch	New York, N. Y	Mar. 13, 1855.
12177	Burglars' alarm	Daniel Wells	Philadelphia, Pa	Jan. 2, 1855.
12351	Burglars' alarm	Daniel Haldeman	Morgantown, Va	Feb. 6, 1855.
13157	Burglars' alarm	Ephraim Brown	Lowell, Mass	July 3, 1855.
13478	Burglars' alarm	Albert Bingham, assignor to himself and A. J. Bailey.	Boston, Mass	Aug. 21, 1855.
13738	Burglars' alarm	D. E. Eaton, assignor to D. E. and P. O. Eaton.	Boston, Mass.	Oct. 30, 1855.
13874	Burglars' alarm	Samuel Hamilton, jr	Tolland, Mass	Dec. 4, 1855.
13876	Burglars' alarm	H. L. Hervey	Quincy, Ill	Dec. 4, 1855.
	Cans, preserve, devices for sealing. (See Class XVII.)			
12074	Card-exhibitor	Wright, Duryea	New York, N. Y	April 10, 1855.
12699	Chalking lines, method of	Samuel B. Knight	North Providence, R. I.	Mar. 27, 1855.
12815	Coffins	David Sholl	Cincinnati, Ohio	Mar. 27, 1855.
	Cork-machine. (See Class XIV.)			
12497	Desks, arrangement of, in school-rooms	Virgil Woodcock	Swanzey, N. H	Mar. 6, 1855.
13371	Desks, writing	William G. Wolf	Philadelphia, Pa	July 31, 1855.
13414	Egg-holder	Francis Arnold	Haddam, Conn	Aug. 14, 1855.
12843	Fire-escape ladder	Stephen R. Roscoe	Carlile, N. Y	April 3, 1855.
13068	Fish, serpentine spinner to catch	Charles De Saxe, assignor to Thomas H. Bate.	New York, N. Y	June 12, 1855.
13081	Fish-hook	Richard F. Cook	Troy, Ala.	June 19, 1855.
13649	Fish-hook	Job Johnson	Brooklyn, N. Y	Oct. 9, 1855.
	Hats and bonnets, pressing. (See Class III.)			
12395	Hogs, machine for slaughtering	Jefferson Parker	Louisville, Ky	Feb. 13, 1855.
13517	Holders, ticket	E. P. Fraissinet and H. E. Reboul	Routes d'Orleans, Montrouge, Empire of France.	Nov. 20, 1855; French patent dated Feb. 2, 1855.
12748	Hones, metallic	William H. Webb, jr	Chelsea, Mass	April 17, 1855.
13409	Hooks and eyes to cards, machine for attaching.	Jos. S. Dennis and Addison Capron, assignors to themselves and Henry M. Richards.	Attleborough, Mass	Aug. 7, 1855.
13198	Ice-house	W. D. Parker	New York, N. Y	June 19, 1855.
13809	Ice from rivers, &c., machinery for raising	C. R. Wortendyke	New York, N. Y	Nov. 13, 1855.
13824	Indicators, railroad station	Charles A. McEvoy	Richmond, Va	Nov. 20, 1855.
	Ivory, bleaching, devices for. (See Class IV.)			
12759	Pencils, slate, manufacture of	Norman C. Harris	Poultney, Vt	April 24, 1855.
	Ratan, machines for sawing. (See Class XIV.)			

Classified List of Patents issued—Continued.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.
12141	Ratans into strips, machine for splitting	Sylvanus Sawyer	Fitchburg, Mass	Jan. 2, 1855.
13627	Ratans, &c., machine for preparing	C. C. Reed, assignor to C. C. Reed and William S. Reinert.	Philadelphia, Pa	Oct. 2, 1855.
13823	Rattles, policemen's	Joseph McCord	Philadelphia, Pa	Nov. 20, 1855.
13913	Sand-paper making machine	Gibert D. Jones	Jersey City, N. J	Dec. 11, 1855.
13449	Sifting, apparatus for	Edward L. Seymour, assignor to W. O. Bourne.	New York, N. Y	Aug. 14, 1855.
12426	Skates	N. C. Sanford	Meriden, Conn	Feb. 20, 1855.
12427	Skates	N. C. Sanford	Meriden, Conn	Feb. 20, 1855.
12338	Spurs	James S. Ewbank, assignor to Wm. Everdell, jr.	New York, N. Y	Jan. 30, 1855.
13312	Stalls for horses	John Jeune	Bethany, N. Y	July 24, 1855.
12926	Sticks, tapering, mandrel for cutting	George Turner	Edinborough, Pa	May 22, 1855.
	Stirrups, open (See Class XVI.)			
13709	Sweeping gutters, &c., machine for	Robert A. Smith	Philadelphia, Pa	Oct. 23, 1855.
13455	Swimming glove	Dugald Campbell	New York, N. Y	Aug. 21, 1855.
12832	Tacks, machine for leathering	M. M. and J. C. Rhodes	Taunton, Mass	May 8, 1855.
12417	Tobacco, maize-leaf as a substitute for	Joseph G. Goshen and Samuel M. Eby	Shirleysburg, Pa	Feb. 20, 1855.
12125	Trap for catching animals	James Caffrey	Paradise township, Pa	Jan. 2, 1855.
12832	Trap, rat	Lucius B. Bradley	Watertown, Conn	May 22, 1855.
13483	Traps for catching animals	L. B Bradley	Watertown, Conn	Aug. 28, 1855.
13853	Trunks, attaching castors to	Leonard S. Maring	Fall River, Mass	Nov. 27, 1855.
12671	Votes in legislative bodies, machines for recording.	Thomas C. Connolly	Washington, D C	April 10, 1855.
12826	Votes in legislative bodies, mode of indicating the numbers of the yea and nay balls in machines for taking.	Samuel Huffman, assignor to S. Huffman and C. D. Hay.	Charlestown, Ill	May 15, 1855.

"EXTENSIONS" DURING THE YEAR 1855.

Inventions or discoveries.	Patentees.	Residence.	Date of extension.	Date of patent.
Bridges, iron truss, construction of	Squire Whipple	Albany, N. Y	Mar. 26, 1855	April 24, 1841.
Buildings, &c., machines for removing	Emily C. Pullman, administratrix of Lewis Pullman.	Albion, N. Y	Aug. 20, 1855	Aug. 21, 1841.
Dovetails, square-joint, machine for cutting	William Perrin	Lowell, Mass	Mar. 19, 1855	Mar. 24, 1841.
Drill, seed	Moses & Samuel Pennock	Kennet Square, Pa	Mar. 5, 1855	Mar. 12, 1841.
Engine, arranging the low pressure or condensing steam, so as to adapt its parts to be used by vessels for ocean service.	C. W. Copeland	New York, N. Y	May 31, 1855	June 11, 1841.
Engines, fire, mode of applying water to, so as to render their operation more effective.	F. Ransom and U. Wenman	New York, N. Y	Feb. 8, 1855	Feb. 13, 184 .
Gins for ginning cotton, manner of constructing.	Lewis G. Sturdevant	Delaware, Ohio	July 21, 1855	July 23, 1841.
Harbors and rivers, machinery for removing bars and other obstructions from, and for forming and cleaning out docks.	James M. Putnam, administrator of Jas. R. Putnam, deceased.	New Orleans, La	May 4, 1855	May 6, 1841.
Horse-power, endless chain	Alonzo & A. F. Wheeler, executors of W. E. Wheeler, deceased.	Albany, N. Y	June 30, 1855	July 8, 1841; reissued May 22, 1855.
Mill, saw, for resawing boards and other timber.	Pearson Crosby	Fredonia, N. Y	Oct. 30, 1855	Nov. 3, 1841; reissued Mar. 10, 1849.
Mill, saw, portable circular	George Page	Washington, D. C	July 14, 1855	July 16, 1841.
Pins, sticking, into papers, machine for	Samuel Slocum	Smithfield, R I	Sept. 22, 1855	Sept. 30, 1841.
Pipes or tubes of lead, tin, and other metallic substances, machinery for making.	Benjamin Tatham and. George N. Tatham	New York, N. Y. Philadelphia, Pa	Sept. 24, 1855	Oct. 11, 1841.
Pumps	Jesse Reed	Marshfield, Mass	April 14, 1855	April 16, 1841.
Railroad carriages, the manner of constructing, so as to ease the lateral motion of the bodies thereof.	Charles Davenport and Albert Bridges	Formerly of Cambridgeport, Mass	May 2, 1855	May 4, 1841.

Extensions for 1855—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of extension.	Date of patent.
Screw-propeller, form of, for propelling vessels.	Ebenezer Beard	New Sharon, Maine	Mar. 26, 1855	April 10, 1841.
Screw-wrenches	Loring Coes	Worcester, Mass	April 14, 1855	April 16, 1841.
Shingles, machines for riving and dressing	William S. George	Baltimore, Md	May 18, 1855	May 29, 1841.
Valves, steam, of steam-engines, when the steam is cut off and allowed to act expansively, method of working the.	Robt L. and Francis B. Stevens, assignors to Jas. A. Stevens.	Hoboken, N. J	Jan. 3, 1855	Jan. 25, 1841.
Wire heddles, manufacture of	Abraham Howe and S. S. Grannis	Morristown, N. Y	Oct. 10, 1855	Oct. 11, 1841.

"DISCLAIMERS" ENTERED DURING THE YEAR 1855.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Date of disclaimer.
Beams and girders, iron	Anthony Pollak	Philadelphia, Pa	June 5, 1855.	Aug. 18, 1855.
Brakes, wagon	Jehial E. Blodgett	Hannibal, N. Y	Mar. 20, 1855.	June 8, 1855.
Engine, arranging the low pressure or condensing steam, so as to adapt its parts to be used by vessels for ocean service.	C. W. Copeland	New York, N. Y	June 11, 1841.	May 31, 1855.
Pumps	Jesse Reed	Marshfield, Mass	April 16, 1841.	April 11, 1855.

"ADDITIONAL IMPROVEMENTS" GRANTED DURING THE YEAR 1855.

No.	Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Improvements added.
130	Engine, locomotive, apparatus for heating feed-water to.	David Matthew	Philadelphia, Pa	July 17, 1855	Dec. 11, 1855.
126	Fire-arms	Frederick Newbury	Albany, N. Y.	Mar. 20, 1855	y 31, 1855.
122	Furnace of hot-water apparatus, mode of regulating the.	Thomas T. Tasker	Philadelphia, Pa	Dec. 5, 1854	y 8, 1855.
129	Gun-locks	J. S. Butterfield	Philadelphia, Pa	Jan. 2, 1855	Dec. 11, 1855.
119	Lubricator, steam	Robert M. Wade	Wadesville, Va.	June 6, 1854	Mar. 27, 1855.
120	Pen-holders	E. W. Hanson	Philadelphia, Pa	Dec. 6, 1853	April 10, 1855.
118	Planters, seed	J. Graham Macfarlane	Perry county, Pa.	Mar. 14, 1854	Feb. 6, 1855.
127	Propellers	William D. Jones, assignor to Henry Whinfield.	Poughkeepsie, N. Y.	April 17, 1855	Aug. 21, 1855.
124	Quartz-crushing machines	James Hamilton	New York, N. Y.	Jan. 3, 1854	May 22, 1855.
121	Saddle-trees	William E. Jones	United States army	June 13, 1854	April 17, 1855.
123	Sawing and planing clap-boards, machine for.	Ephraim Parker	Rock Island, Ill	Dec. 20, 1853	May 15, 1855
128	Ventilating and warming houses	Henry Ruttan	Coburg, Canada	June 23, 1848; anted'd Dec 5, 1848; reissued Aug. 14, 1855.	Nov. 6, 1855.
125	Wrenches, screw	Lorenzo D. Gilman	Troy, N. Y.	Mar 27, 1856	July 17, 1855.

"REISSUES" DURING THE YEAR 1855.

Inventions or discoveries.	Patentees.	Residence.	Date of patent	Date of reissue.
Bands, endless, for grain-dryers	John Massey	New York, N. Y	April 17, 1849	Sept. 11, 1855.
Bathing-tubs	Jordan L. Mott	West Haven, N. Y	Sept. 27, 1853	Aug. 14, 1855.
Bedsteads, sofa	Charles F. Martine	Boston, Mass	June 6, 1854	Dec. 25, 1855.
Bleaching-apparatus	Charles T. Appleton	Roxbury, Mass	April 17, 1855 English patent dated Aug. 30, 1853.	May 22, 1855.
Buildings, &c., warming and ventilating	Henry Ruttan	Coburg, Canada West	Dec. 5, 1848; antedated June 23, 1848	Aug. 14, 1855.
Caldron and furnace, mode of constructing a combined, for the use of agriculturists and others.	Jordan L. Mott	Mott Haven, N. Y	Dec. 1, 1840; extended Dec. 1, 1854	Feb. 6, 1855.
Candlesticks	Francis A. Rockwell, assignor to John W. Rockwell.	Ridgefield, Conn	Dec. 16, 1851	Feb. 27, 1855.
Coffins, metallic	Martin H. Crane, assignor to Crane, Breed, & Co.	Cincinnati, Ohio	Jan. 23, 1855	Mar. 13, 1855.
Flour, machine for separating from bran	J. Frost and Jas. Monroe	Albion, Mich	Feb. 27, 1849	Mar. 13, 1855.
Gates, method of opening and closing	William G. Philips	Newport, Del	Mar. 7, 1854	Aug. 21, 1855.
Glass, construction of moulds for pressing	Hiram Dillaway	Sandwich, Mass	Aug. 21, 1841	May 1, 1855.
Harvester-cutters, arrangements for controlling. (Division marked "C.")	John H. Manny	Rockford, Ill	Sept. 23, 1851	Jan. 2, 1855.
Harvester-frames, arrangement of joints for attaching trucks to (Division marked "B.")	John H. Manny	Rockford, Ill	Sept. 23, 1851	Jan. 2, 1855.
Harvesters	John H. Manny	Rockford, Ill	Nov. 23, 1852; antedated Sept. 17, 1852	Jan. 2, 1855.
Harvesters, cutter-fingers of	John H. Manny	Rockford, Ill	Apr. 19, 1853; antedated Dec. 9, 1852	Jan. 2, 1855.
Harvesters, grain	Aaron Palmer and S. G. Williams	Brockport, N. Y. / Janesville, Wis	July 1, 1851	April 10, 1855.
Harvesters, grain and grass. (Division marked "A.")	John H. Manny	Rockford, Ill	Oct. 17, 1854; antedated June 15, 1854	Mar. 6, 1855.
Harvesters, grain and grass. (Division marked "B.")	John H. Manny	Rockford, Ill	Oct. 17, 1854; antedated June 15, 1854	Mar. 6, 1855.
Harvesters, grain and grass. (Division marked "C.")	John H. Manny	Rockford, Ill	Oct. 17, 1854; antedated June 15, 1854	Mar. 6, 1855.
Harvesters, grain and grass	Abner Whiteley	Springfield, Ohio	Sept. 19, 1854	April 3, 1855.
Harvesters having a leading truck. (Division marked "D.")	John H. Manny	Rockford, Ill	Sept. 23, 1851	Jan. 2, 1855.
Harvesters: mowing-machines. (Marked "A.")	John H. Manny	Rockford, Ill	Sept. 23, 1851	Jan. 2, 1855.
Harvesters, triangular frame, construction of. (Division marked "E.")	John H. Manny	Rockford, Ill	Sept. 23, 1851	Jan. 2, 1855.
Harvesting-machines	Jonathan Haynes	Pekin, Ill	Mar. 27, 1849	Nov. 6, 1855.
Hat-bodies, felting	William Fuzzard	Charlestown, Mass	Feb. 13, 1855	July 10, 1855.
Hinges	William Baker, assignor to Chas. Parker.	Meriden, Conn	April 13, 1852	Aug. 28, 1855.
Horse-power, endless chain	Alonzo and Alexander F. Wheeler, administrator of W. C. Wheeler, deceased.	Albany, N. Y	July 8, 1841	May 22, 1855.
Horse-power, endless chain	George Westinghouse	Central Bridge, N. Y	June 13, 1854	July 10, 1855.
Hot water apparatus	John Brown	New York, N. Y	May 30, 1854	Aug. 14, 1855.
Lanterns	H. & J. Sangster	Buffalo, N. Y	June 10, 1851	Aug. 21, 1855.
Lanterns, fastening	Chas. Monnin and Wm. M. Booth	Buffalo, N. Y	Aug. 1, 1854	Jan. 30, 1855.
Loom for weaving figured fabrics	Richard Garsed	Frankford, Pa	Nov. 6, 1849	July 24, 1855.
Looms	B. H. Jenks	Bridesburg, Pa	April 3, 1855; antedated Jan. 8, 1855	June 5, 1855.
Metal bars, machinery for reducing	D. H. Chamberlain, assignor to C. G. Howard, assignor to Chas. Thompson, jr., assignor to Peter Cooper.	New York, N. Y	Jan. 18, 1853	May 15, 1855.
Mills, portable grinding	Lyman Scott	Philadelphia, Pa	May 16, 1854	July 10, 1855.
Mortising-machines	James Guild	Cincinnati, Ohio	Nov. 30, 1852	Dec. 11, 1855.
Mowing-machines	Samuel Rockafellow	Coatsville, Pa	July 3, 1855	Dec. 11, 1855.
Nut and washer machine	Henry Carter and James Rees	Pittsburg, Pa	Aug. 26, 1851	June 19, 1855.

Reissues during the year 1855—Continued.

Inventions or discoveries.	Patentees.	Residence.	Date of patent.	Date of reissue.
Pins in paper, machine for sticking	Samuel Slocum	Providence, R. I.	Sept. 13, 1841; extended Sept. 30, 1855	Dec. 4, 1855.
Planters, corn	Samuel Malone	Tremont, Ill.	Jan. 3, 1854	July 10, 1855.
Ploughs	Cornelius R. Brinckerhoff	Batavia, N. Y.	Oct. 11, 1853	Jan. 30, 1855.
Presses, cotton	C. J. Fay	North Lincoln, Me.	Jan. 31, 1854	July 17, 1855.
Pumps	S. P. & William F. Dodge	Newbury, N. Y.	June 7, 1853	Sept. 25, 1855.
Sawing lumber	Pinney Youngs	Milwaukie, Wis.	Jan. 30, 1855	Oct. 2, 1855.
Shutters, rolling iron, hinge of	A Livingston Johnson	Baltimore, Md.	June 25, 1850	April 24, 1855.
Spark-arresters	James Radley and John W. Hunter	New York, N. Y.	Jan. 22, 1850	Jan. 16, 1855.
Spark-arresters	William C. Grimes	Philadelphia, Pa.	Feb. 19, 1842	Dec. 25, 1855.
Stoves, air-heating	J. M. Thatcher	Jersey City, N. J.	Mar. 23, 1852	Sept. 11, 1855.
Tree-nails, machinery for dressing	Jesse Fitzgerald, assignor to J. Pierce, assignor to D. A. Fitzgerald.	New York, N. Y.	Aug. 28, 1849	July 17, 1855.
Vault-covers	Thaddeus Hyatt	New York, N. Y.	Nov. 12, 1845	April 3, 1855.
Winnowing machine	B. D. Sanders	Holliday's Cove, Va.	June 19, 1849	April 10, 1855.

PATENTS FOR DESIGNS GRANTED DURING THE YEAR 1855.

Designs.	Patentees.	Residence.	Date of patent.
Birds, sewing	John North	Middletown, Mass.	May 29, 1855.
Bottles and jars, labels on	W. A. Rogers	Decatur, Ala.	Aug. 7, 1855.
Bottles, perfumery	Augustus E. Wetherell	Cincinnati, Ohio	Dec. 25, 1855.
Burial-cases	Martin H. Crane, assignor to Crane, Breed & Co.	Cincinnati, Ohio	Oct. 9, 1855.
Castors, table	Edward Gleason	Dorchester, Mass.	Sept 11, 1855.
Clock-frames	J. C. Brown	Bristol, Conn.	Dec. 11, 1855.
Clock-fronts	William B. Lorton	New York, N. Y.	May 1, 1855.
Coffins, metallic	M. H. Crane, assignor to Crane, Breed, & Co.	Cincinnati, Ohio	Jan. 23, 1855.
Covers, steam-tube and hot-air	J. O. Morse and J. W. Adams	New York, N. Y.	Nov. 27, 1855.
Daguerreotype and other mats, ornamenting	Hiram W. Hayden	Waterbury, Conn.	Oct 9, 1855.
Daguerreotype-cases	Henry A. Eichmeyer	Philadelphia, Pa.	Feb. 27, 1855.
Fire-places, portable	Winslow Ames	Nashua, N. H.	Aug. 28, 1855.
Fork and spoon handles	Henry Biggins, assignor to	Mount Vernon, N. Y.	April 3, 1855.
	Michael Gibney	New York, N. Y.	
Forks, table	Joseph W. Gardner	Shelburne Falls, Mass.	Mar. 20, 1855.
Franklin fire-place	N. P. Richardson	Portland, Me.	July 31, 1885.
Grates, parlor	James Andrews, assignor to Andrews & Dixon	Philadelphia, Pa.	Sept. 11, 1855.
Hinges, strap	E. Woolman	Damascoville, Ohio	Dec. 11, 1855.
Jugs, metallic covers for	Orrin Newton	Pittsburg, Pa	Oct. 9, 1855.
Knives and forks	Joseph W. Gardner, assignor to Lamson Goodnow & Co.	Shelburne Falls, Mass.	Dec. 25, 1855.
Lanterns	William D. Titus	Brooklyn, N. Y.	Jan. 9, 1855.
Monuments, cast-iron	J. H. Wilson	Chesterfield, Ill.	Sept. 18, 1855.
Railings, iron	Minard H. Fowler and Enoch Jacobs	Cincinnati, Ohio	Aug. 21, 1855.
Spoons	John Gorham	Providence, R. I.	April 10, 1855.
Spoons	Henry Hebbard and John Polhamus	New York, N. Y.	July 3, 1855.
Statues, equestrian	Clark Mills	Washington, D. C.	May 15, 1855.
Stove	G. Smith, H. Brown, and J. Halzer, assignors to Abbott & Lawrence.	Philadelphia, Pa.	Jan. 2, 1855; antedated Dec. 30, 1854]
Stove, parlor, plates	James Wager	Troy, N. Y.	Oct. 16, 1855.
Stove-plates	Samuel W. Gibbs, assignor to S. Rinner & Brothers.	Albany, N. Y.	June 26, 1855.
Stove-plates	Calvin Fulton, assignor to McClure, Bedell, and Barry.	Rochester, N. Y.	Oct. 30, 1855.
Stove-plates, ornamenting	Samuel W. Gibbs, assignor to	Albany, N. Y.	Aug. 14, 1855.
	A. H. McArthur & Co.	Hudson, N. Y.	
Stoves	S. W. Gibbs, assignor to	Albany, N. Y.	Feb. 20, 1855.
	North, Chase, & North	Philadelphia, Pa.	
Stoves	John Hanfbauer and Henry Waas	Cincinnati, Ohio	Feb. 27, 1855.
Stoves	James H. Conklin, assignor to	Peekskill, N. Y.	Sept. 11, 1855.
	S. B. Sexton	Baltimore, Md.	
Stoves	Andrew O'Neill, assignor to O'Neill & Hunter.	Portsmouth, Ohio	Oct. 30, 1855.
Stoves	Benjamin Wardwell	Fall River, Mass.	Nov. 20, 1855.
Stoves and fireplaces	Winslow Ames	Nashua, N. H.	Aug. 28, 1855.

Designs—Continued.

Designs.	Patentees.	Residence.	Date of patent.
Stoves, box, six-plate	Conrad Harris and Paul W. Zoiner	Cincinnati, Ohio	Dec. 11, 1855.
Stoves, coal	Conrad Harris and Paul W. Zoiner	Cincinnati, Ohio	Jan. 23, 1855.
Stoves, coal	James Horton, assignor to Liebrandt, McDowell, & Co.	Philadelphia, Pa	Oct. 30, 1855.
Stoves, coal	G. Smith and H. Brown, assignors to Liebrandt, McDowell, & Co.	Philadelphia, Pa	Nov. 6, 1855.
Stoves, cooking	G. Smith, H. Brown, and J A. Read, assignors to J. G. Abbott and A. Lawrence	Philadelphia, Pa	Jan. 2, 1855; antedated Dec. 30, 1854.
Stoves, cooking	S. W. Gibbs, assignor to North, Chase, & North	Albany, N. Y. Philadelphia, Pa	Feb. 20, 1855.
Stoves, cooking	Jacob Beesley and Edward J. Delany, assignors to Cresson, Stewart, & Peterson.	Philadelphia, Pa	Mar. 20, 1855.
Stoves, cooking	George Warren, S. H. Swetland, and E. C. Little.	Crescent, N. Y	May 1, 1855.
Stoves, cooking	B. Wardwell, E. R. Barstow, and G. C. Harkness	Providence, R. I	May 8, 1855.
Stoves, cooking	A J. Blanchard, assignor to Blanchard, Whittemore, & Co.	South Reading, Mass	May 29, 1855.
Stoves, cooking	Samuel D. Vose	Albany, N. Y	May 29, 1855; antedated April 9, 1855.
Stoves, cooking	Samuel D. Vose	Albany, N. Y	May 29, 1855; antedated April 9, 1855.
Stoves, cooking	Samuel D. Vose	Albany, N. Y	May 29, 1855; antedated April 9, 1855.
Stoves, cooking	Russell Mann, assignor to George W. Eddy	Troy, N. Y Waterford, N. Y	July 3, 1855.
Stoves, cooking	Apollos Richmond, assignor to A. C. Barstow & Co.	Providence, R. I	Aug. 14, 1855.
Stoves, cooking	C. Harris and P. W. Zoiner, assignors to A. Bradley.	Pittsburg, Pa	Aug. 28, 1855.
Stoves, cooking	R. Wheeler and S. A. Bailey.	Utica, N. Y	Aug. 28, 1855.
Stoves, cooking	William T. Coggershall	Fall River, Mass	Sept. 4, 1855.
Stoves, cooking	James Wager	Troy, N. Y	Oct. 16, 1855.
Stoves, cooking	James Wager	Troy, N. Y	Oct. 16, 1855.
Stoves, cooking	E. Ripley and N. S. Vedder, assignors to Johnson, Cox, Lesley, & Co.	Troy, N. Y	Oct. 30, 1855
Stoves, cooking	Conrad Harris and Paul W. Zoiner	Cincinnati, Ohio	Dec. 11, 1855.
Stoves, cooking. ovens for	G. W. Chambers, assignor to P. A. Palmer	Leroy, N. Y	Sept. 18, 1855.
Stoves for parlor	Wager, Richmond, & Smith	Troy, N. Y	Jan. 2, 1855.
Stoves, parlor	N. S Vedder and E. Ripley, assignors to G. F. Filley	Troy, N. Y St. Louis, Mo.	Jan. 23, 1855.
Stoves, parlor	Samuel D. Vose	Albany, N. Y	May 29, 1855; antedated April 9, 1855.
Stoves, parlor	A. P. Blanchard, assignor to Blanchard, Tarbell, & Co.	South Reading, Mass	May 29, 1855.
Stoves, parlor, cook	G. Smith, H. Brown, and James A. Reed, assignors to J. G. Abbott and A. Lawrence.	Philadelphia, Pa	Jan. 2, 1855; antedated Dec. 30, 1854.
Stoves, parlor, open front	N. S. Vedder, assignor to G. F. Filley	Troy, N. Y St. Louis, Mo.	Jan. 23, 1855.
Stoves, parlor, to burn coal	Conrad Harris and P. W. Zoiner	Cincinnati, Ohio	Dec. 11, 1855.
Stoves, parlor, to burn wood	Conrad Harris and Paul W. Zoiner	Cincinnati, Ohio	Dec. 11, 1855.
Stoves, ships' caboose	A A. Lincoln, jr.	Norton, Mass	Dec. 18, 1855.
Trade-marks	Thomas Lewis	Malden, Mass	Sept. 4, 1855.
Water-coolers	Smith, Brown, & Read, assignors to Abbott & Lawrence.	Philadelphia, Pa	May 1, 1855.
Water-coolers	George Hodgetts	New York, N. Y	May 22, 1855.

DESCRIPTIONS AND CLAIMS OF PATENTS,

ISSUED IN THE YEAR 1855.

ILLUSTRATED WITH ENGRAVINGS.

I.—AGRICULTURE.

No. 13,672.—Jos. Welton.—*Leading Clasp for Cattle.*—Patented October 9, 1855. (Plates, p. 1.)

The two balls A A are to enter the nostril of the animal, and are held shut by the slide B and spring C. A rope can be attached to ring D.

The inventor says, I do not claim the method of leading cattle, but I claim the combination of the spring and slide with the clasp, as set forth.

No. 12,127.—Ezekiel Gore.—*Improvement in Churns.*—Patented January 2, 1855. (Plates, p. 1.)

The sides of the churn are perforated, and through the holes pins D are introduced, flattened at their inner extremities, which may be turned by the hand from the exterior of the churn, so as to present a greater or less surface of resistance to the cream when put in motion by the dasher.

Claim.—I claim making the pins D with their inner ends flat, and so arranging them that they may be turned to the right or left as desired, and thus made to present a large or small resisting surface to the agitated cream, and facilitate or retard the production of butter, substantially as set forth.

No. 12,366.—Isaiah M. Williams.—*Improvement in Butter-Workers.*—Patented February 6, 1855. (Plates, p. 1.)

In working the stick *f* round, the buttermilk or water will sink to the bottom and escape at *d*, while the butter is pushed from the hole *d* by the action of the stick upon the bottom of the bowl *a*. Thus, as the inventor states, butter can be obtained with this machine perfectly clear of water or buttermilk.

Claim.—A hollow cone in combination with a conical roller work ng on its apex, constructed in the manner and for the purpose substantially as described.

No. 12,370.—Hazen Webster.—*Improvement in Churns.*—Patented February 6, 1855. (Plates, p. 1.)

B is the spiral agitator, with the sides terminating at a point near the centre of the disk A, to which it is attached, and with a curve diverging towards the circumference of the disk. The air passes down through opening *a*, as the revolution of the agitator throws the cream towards the circumference of the tub, and thus produces a central passage for the air down to hole *a* and up through hole *b*.

The inventor says, I do not claim the device of a disk rotating at the bottom of the churn tub upon a vertical axis, nor do I claim the use of a tubular stem upon such a disk for admitting air beneath it, as these have been used before with the churn of S. P. Francisco, patented June 19, 1849; nor do I claim mounting an agitator upon such disk, as the same was proposed by said Francisco.

But I *claim*, in combination with such rotating disk, that form of the agitator which occupies the central portions of the disk, and sweeps towards the circumference in a spiral shape with rounded angles, and is surmounted towards the circumference with one or more vertical breakers; and this I claim, whether used with or without the air passages herein described

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No. 12,377.—Edwin B. Clement.—*Improvement in Churns.*—Patented February 13, 1855. (Plates, p. 1.)

The dasher consists of slats G, L, I, which are connected to bars E, which bars E are pivoted in C to arms B. Two of these arms B are pivoted (in K) to the frame of the churn, whereas the crank-axle passes through the square holes J in the other two arms B. A reciprocating motion of the crank O around its bearings in the churn frame will alternately compress the dasher into a diamond shape, and again extend it to the square shape represented in figure 2. Thus the cream will alternately be forced through the slats of the dasher by means of the successive folding together of the latter.

I *claim* the folding dasher, operating as set forth.

No. 13,133.—Isaac M. Wade.—*Improvement in Churns.*—Patented June 26, 1855. (Plates, p. 1.)

The cream by the rotation of the wings *e* is forced upward between the slats *f* and thrown against the brakes A^1, which direct it to the aperture *g* in the disk H. The slats *f* in conjunction with the brakes A^1 prevent the cream from rotating. The cream, being forced upward between the slats, passes down through *g* with increased speed, owing to its gravity and suction caused by the aperture *g* being smaller than the spaces between the slats *f* and the edge of disk H.

Claim.—The construction and arrangement of the wings or beaters *e*, attached to the lower end of the shaft D, slats *f*, attached to the inner side of the case or tub A, and the brakes A^1 attached to the disk H, as shown and for the purpose as set forth.

No. 13,281.—Moses D. Wells.—*Improvement in Churns.*—Patented July 17, 1855. (Plates, p. 1.)

The nature of this improvement will be understood from the claim and engraving.

Claim.—The construction of the dasher with an inclined continuous channel *e*, substantially as set forth, for producing the upward flow of a continuous hollow column of cream at each down stroke of the dasher, and thus favoring atmospheric action, as specified.

No. 13,421.—Jacob Boyers.—*Improvement in Churns.*—Patented August 14, 1855. (Plates, p. 1.)

The nature of this improvement consists in giving such a direction to the cream in the tub by the action of the agitator, that it shall assume the character of a screw, whereby (the inventor states) the butter is separated in a more solid condition, and gathered in a mass at one side of the churn. By placing the shaft obliquely, a vortex or whirlpool is created at A, while at the other side of the tub, at B, the butter is comparatively quiet and suffered to gather in lumps.

Claim.—The shaft E, in combination with the dashers DD, when arranged and combined in the manner and for the purpose substantially as set forth.

No. 13,638.—John G. Dungan.—*Improvement in Churns.*—Patented October 9, 1855. (Plates, p. 1.)

The pinion *p* is attached to the hub of the inner leaves *h*, and is revolved alternately in opposite directions by means of cog-gearing F F^1. The head *n* of pinion *p* contains a spiral groove, which serves to work the arm *i* up and down, thereby elevating and depressing the rod *d* and spring-rods *f*. During the downward movement of the rod *d* and rods *f*, the outer leaves *g* will be turned on their fulcra *m* into the position represented in dotted lines.

Claim.—Giving the outer leaves of an alternately opposite rotating agitator a rocking motion to and from the sides of the churn, substantially as set forth.

No. 13,686.—Lewis P. Pease.—*Improvement in Churns.*—Patented October 16, 1855. (Plates, p. 1.)

The curved surfaces *e* gather the cream, and by the reaction of the liquid against their surfaces are forced to revolve around their axles *c*, in addition to their primary rotation in a horizontal plane around the

shaft *b*. This rotation of each wing around its respective axle results in a constant breaking up of the principal vortex by the counter currents thus generated by the wings, and hence results a violent agitation of the cream.

Claim.—The winged dasher, formed by two series of curved paddles as described, rotating around axles, projecting outward and slightly upward from a vertical shaft, the said paddles of each series forming a conic frustrum, revolving with its lower edge parallel to the tub bottom.

No. 12,314.—JONATHAN HIBBS.—*Improvement in Clover Hullers.*—Patented January 30, 1855. (Plates, p. 2.)

Just over the cylinder A there is a semicircular metal jacket E, which is cut open in the middle so as to leave a triangular hole as shown in fig. 2. Two sides of this hole have a flange *a* projecting below and extending down to the surface of the cylinder and following its curve, leaving just room for the teeth to clear. This flange divides as it were the top space over the cylinder into three parts, the centre part or opening being the place where the clover-heads are fed in. As the chaff strikes the point where the two sides of the triangle meet, it is spread over towards the ends of the cylinder, which carries it round and passes it between the concave near its ends, when it is allowed to be discharged, while fresh material is being fed in at the centre.

Claim.—Combining with the concave shell two flanges diverging from a central point, and so acting as to divide the chaff from the fresh fed straw during the time that the former is passing a second time round the cylinder, substantially as described.

No. 12,372.—JAMES ALLEN.—*Improvement in Clover Hullers.*—Patented February 13, 1855. (Plates, p. 2.)

The screen I is somewhat inclined, and the chaff and hulls pass over the depressed end of it and fall upon the floor. The seed passes through screen I, and falls upon the lower screen J, and through it upon the inclined bottom K, and passes down the bottom K into blast passage G. The tailings pass off the depressed end of screen J, and enter underneath K and upon screen L. Any seed that may pass into this space with the tailings falls through screen L, and passes through aperture M and into passage G. The tailings pass out of aperture b^1 at the side of the shoe above screen L, screen L not allowing the tailing to pass through it. The tail-boards, by being properly adjusted, according to the strength of the blast, prevent the seed from being blown out of the shoe with the chaff.

The inventor says, I do not claim adjustable tail-boards in separators, nor inclined guide-boards for receiving and conducting the seeds to their receptacle; nor do I claim a tailing-screen, except under an arrangement like that set forth.

But I *claim* the arrangement of the two tail-boards *d d*, in combination

with the tailing screen L, so arranged under the inclined board K, that it shall be out of the way of the blast, and yet deliver the seed at M into the main receptacle, and the tailings out at its side through the aperture b^1, it being understood that the outer and inner tail-boards must be adjusted, respectively, with reference to the screens I and J, all as set forth.

No. 12,462.—MARTIN H. MANSFIELD.—*Improvement in Hulling and Cleaning Clover Seed.*—Patented February 27, 1855. (Plates, p. 2.)

The nature of this invention consists in employing a considerably greater length of screen than has heretofore been used in such machines, and in receiving the seeds which fall from said screen upon an endless apron, which conveys the seeds to a receptacle *k*, placed in front of and near the winnowing fan *d*.

Claim.—The arrangement and combined operation of the screen *e*, the endless conveyor *f*, and the fan *d*, in such a manner as to enable a strong blast to be employed without wasting the seeds, substantially as set forth.

No. 12,454.—JEREMIAH P. SMITH.—*Improvement in Corn Shellers.*—Patented February 27, 1855. (Plates, p. 2.)

The ribs *l* and *n* are intended to shell the corn when operated upon by the cylinder *a*. The slides *o o* are intended for the shelling bar *t* to slide on backwards and forwards. The open spaces *g* between the ribs allow the shelled corn to drop through without breaking the grains. The guide-frames *r r* are in separate pieces, screwed on the guide-beam *p*, so that they can be adjusted backwards or forwards to suit the nature of the corn. The shelling-bar *t* (which is also toothed) presses the ears of corn against the cylinder (by means of spring *u*). The feeder-plate *v* derives a vibrating motion from the zigzag curve in pulley *z*, and has teeth on both sides to work in the corn by its continual vibration

The inventor says, I am aware that an adjustable flat toothed bar has been used opposite to a toothed cylinder in corn shellers; I am also aware that the ribbed shelling bar has been used; therefore, I do not claim any of the above-mentioned parts.

But I *claim*, first, the breast-beam *j*, having fluted concave ribs *l l*, cross ribs *n n*, with openings or spaces *g g*, and slides *o o*.

Second, I *claim* the guide-frames *r r* in separate pieces, for the purpose described.

Third, I *claim* the vibrating feeder having teeth thereon, in combination with the pulley *z*, having a zigzag groove *e*, substantially as described.

No. 13,122.—Abram Clow and Chas. N. Clow.—*Improvement in Corn Shellers.*—Patented June 26, 1855. (Plates, p. 2.)

The cobs fall, after having the corn shelled from them, to the bottom of tube H at the point *f*, and are carried around by the revolutions of shaft E to the point *g*; and as the space is narrower at that point than at the point *f*, the screw *d* will enter the cobs and force them upward to the opening *e*, through which they fall upon the floor.

The inventor says, We do not claim separately either of the parts described for shelling the corn from the cobs, for shelling-wheels similarly constructed have been previously invented.

But we *claim* the tube H in combination with the screw *d*, on the shaft E, arranged as shown, for discharging the cobs separately from the shelled corn.

No. 13,182.—John J. Rollow.—*Improvement in Machine for Shucking and Shelling Corn.*—Patented July 3, 1855. (Plates, p. 2.)

The concave *d* is hinged at *e*, and is pressed upward towards the cylinder C by springs *f*. The corn in the shuck is fed into the hopper F, and on passing down the thicker end of the ear is caught by the nibs on the cylinder, and brought in contact with the diagonal rib on the concave, which inclines it sideways, always in the same direction, when they split the shuck from end to end on two opposite sides, and the two diagonal projections, in crossing each other, turn the husk one half each way entirely back over the stalk, when the corn is exposed to the action of the diagonal ribs and nibs on the concave and cylinder, which pick it off the cob, the corn passing through the perforated concave whilst the cob is discharged on to the chute D.

Claim.—The diagonal ribbed perforated concave when hinged at the upper end, and supported on springs at the lower end, in combination with the diagonal ribbed cylinder, substantially as and for the purpose specified.

No. 13,634.—Chas. Bishop.—*Improvement in Corn Shellers.*—Patented October 9, 1855. (Plates, p. 2.)

The nature of this invention will be understood from the claim and engraving.

The inventor says, I do not claim separately the toothed or corrugated wheel C, for that has been previously used.

But I *claim*, in combination with a shelling disk or wheel, such as described, the series of ear boxes radially arranged around it; said boxes being composed of elastic backs and unyielding partitions as described.

No. 13,640.—Stephen Elliott.—*Improvement in Corn Shellers.*—Patented October 9, 1855. (Plates, p. 3.)

kh are springs which support the screws B and press them together, so as to suit the different sizes of the ears of corn. The screws and spring clamps D D are geared together by wheels F and C. The corn is received in the centre of the screws B, which, in their revolutions, carry it down into the jaws of the sheller, or spring clamps D, which receive it at the centre of motion; and, as they revolve, the corn is shelled from the cob.

Figure 1 represents a side elevation; and

Figure 2, a top view of the machine.

Claim.—The combination of the screws B with the clamping jaws D, arranged and operating in the manner set forth.

No. 13,922.—Jeremiah P. Smith.—*Improvement in Corn-Shellers.*—Patented December 11, 1855. (Plates, p. 3.)

The projections *d* and *c* (not exactly at right angles to each other) serve to facilitate the separation of the corn from the cobs, and to give a slight turning motion to the ears of corn while passing down through the machine. Figure 2 represents a plan, and figure 1 a vertical section of the machine.

Claim.—The construction of the frustrums D and C, with their winding wings *d d* upon both, and cross projections *c c* upon one, substantially in the manner and for the purposes set forth.

No. 13,912.—James Jones Johnston.—*Improvement in Corn-Shellers.*—Patented December 11, 1855. (Plates, p. 3.)

This invention consists in running a series of secondary pickers around the cob, as the cob is projected by the main cylinder through the discharging aperture of the ordinary corn-sheller, and thereby securing the stripping from the cob of every grain of corn.

The gear wheel *j* projects through opening *k*, and drives pinion *m* in the circular casing *u*, which covers an opening in the case *a*. The wheel *m* is fastened to ring *n*, and both (*m* and *n*) to a disc *o*, with a central opening of the size of the opening in case *a*; the two rings *q r* are also fastened to disc *o*; and through slots at three equal distances apart play the secondary pickers *f*, pressed inwards by springs *s*. These pickers *f* are prevented from projecting too far or from dropping out by shoulder *t*. The shelled corn passes out at *b*, and the cobs pass through the opening *w*.

Claim.—The secondary cleaners or pickers *f* revolved around the cob, as the cob is projected by the main cylinder *c* through the opening in the case *a* of the machine, substantially in the manner and for the purpose described.

No. 13,997.—James Robb.—*Improvement in Corn-Shellers.*—Patented December 25, 1855. (Plates, p. 3.)

The corn, being received at one end of the cylinder B, is shelled between the cylinder and concave F; the cobs, as they cannot pass the arrester *h*, will finally be worked out (by the spiral action of the teeth)

at the discharge opening E at the other end of the cylinder; the cob arrester is perforated, so as to let the blast (see arrows) freely pass. As soon as a few shovelfuls of ears are thrown in, the cobs and corn partially fill the space between the cylinder and concave, and thus prevent the blast (created by the revolutions of the cylinder) from following the cylinder, and direct it over the edge *b* of the concave. The blast is conducted by the casing G, immediately under the riddle H.

Claim.—The hood or casing G, in combination with the concave F, fender-board or cob-arrester *h*, and cylinder B, for the purpose of directing a blast, and separating or cleaning the corn and cob, substantially as described.

No. 13,436.—Richard Ray.—*Improvement in Machines for gathering Cotton Stalks.*—Patented August 14, 1855. (Plates, p. 3.)

The teeth of the revolving puller E lay hold of the stalk of the cotton near the earth, and the stalk having been previously bent backwards and directed over E, by the revolving endless band K, the bushy nature of the cotton plant assists in bringing it into a proper position for the teeth of E to draw the plant up by the roots; on the further revolution of E, the stalks are forced off the teeth by means of a sliding plate F, which forms a shield to the teeth of one side of E, when the edge of F is brought in contact with the guide Z, and being liberated drops on the ground, to be afterwards gathered in bunches by rake G.

Claim.—The arrangement of the apron K, plate E, and rake G, all operated in the manner described, for the purposes of pulling up and gathering stalks of cotton, as described.

No. 13,505.—S. Bowerman.—*Improvement in Machine for cutting standing Cotton Stalks.*—Patented August 28, 1855. (Plates, p. 3.)

As the machine is drawn along, the wheel J rotates, and the cogs *d*, taking into rack K, raise the block F; and when the cogs pass out from the rack, the springs I force down the block, and the knife G (attached to the block) cuts the cotton stalk, which was previously bent over by the frame. (See engraving.)

I *claim* the combination of the block F, knife G, rods HH, springs II, rack K, and cog-wheel J, when arranged for the purpose specified and shown.

No. 13,538.—J. W. Brocage.—*Improvement in Machines for cutting standing Cotton Stalks.*—Patented September 11, 1855. (Plates, p. 3.)

As the machine is drawn along, the stalks are caught by the frame L, and forced or bent into the angles of bars *e*, and are cut by the rotating saws *d*. The front wheels and draught pole (not represented in the engravings) are attached to bar C.

I *claim* the employment or use of a series of circular saws *d*, placed upon a vertical shaft J, and rotating between the bars *e* of a metallic frame L, the saws and frame being placed upon, or attached to, a proper carriage, and arranged as shown.

No. 13,877.—Geo. A. Howe.—*Improvement in Hand Cotton Pickers.*—Patented December 4, 1855. (Plates, p. 4.)

To operate this picker, the strap, which is passed through ring V, is put over one shoulder and under the opposite arm; the thumb is then placed in the ring W, and hand lever N operated. The roller B is then brought in contact with the cotton-ball, and the cotton picked out by the chain of gatherers and carried into the machine. As the chain passes stripper H, the cotton is detatched and falls into bag R, which, when full, can be detached and the cotton emptied.

Claim.—The endless belt or chain of gatherers F, stripper H, bag R, and case A A, when combined, arranged, and operated, substantially in the manner and for the purpose set forth.

No. 13,894.—R. C. Wrenn.—*Improvement in Machines for Preparing Cotton Seed for Planting.*—Patented December 4, 1855. (Plates, p. 4.)

The seeds are admitted through opening 9; box 8 contains the lime, or such material as may be used, to form a body around the seed; the projections 6 on lever 7 being alternately struck by the row of teeth 4, the lime is jarred into the case, the teeth 3 acting in conjunction with teeth 11, separate the seeds, and at the same time (being spirally set) carry the seeds to the discharge 12. The pads 5, being placed diagonally across the cylinder, assist in drawing the seeds when rolling towards the discharge opening.

Claim.—Pads 5, in combination with cylinder 1, and teeth 11 and 4, in combination with hopper slide, combined and arranged substantially in the manner and for the purpose set forth.

No. 12,163.—Jno Imel.—*Improvement in Cultivators.*—Patented January 2, 1855. (Plates, p. 4.)

This improvement consists in the guard *a*, which is to protect the young sprouting crop from being crushed or buried beneath the clods turned over by the inner shares *bb*[1]. This guard is somewhat pointed in front, and is bent to the shape of a cylinder, of diameter somewhat greater than the width of the plate, and is so attached to the beam *c* as to present its concave surface downwards. The beam *c* is in front, hinged to the under side of the tongue *d*, and terminates behind in a perforated shank *k*, by which its height can be adjusted.

Claim.—The curved and adjustable guard or fender, hinged, as described, to a tongue supported upon running gear.

No. 12,332.—Jos. Stockdale.—*Improvement in Cultivator-Teeth.*—Patented January 30, 1855. (Plates, p. 4.)

The reversible plate is made to be used on either side of the frame of the cultivator, and being placed on a line parallel with the inside of the frame of the cultivator, as seen in dotted lines marked 5, places the tooth or teeth in the exact position to make straight lands or furrows; further, the reversible plate being made of a greater thickness at one end sets the tooth or teeth in the exact position or pitch for practical use.

Claim.—The reversible cast-iron plate, marked fig. 2, with the groove on the under side, marked letter K, round cast iron stay-pin on the upper side G, also the application of the top of the cultivator-tooth in the groove aforesaid, and also the application of the wrought iron bolt or shank passing through the said plate as described.

No. 12,428.—Jonathan A. Robinson.—*Improvement in Hand-Cultivators.*—Patented February 20, 1855. (Plates, p. 4.)

The dotted central line, in figure 2, represents the row of plants to be weeded. The instrument is wheeled along by the operator in the direction of the arrow, so that the knives shall cut close up on each side of the plants, the distance between the knives being so adjusted that the plants shall not be injured by them.

The inventor says: I do not claim the yoke A, nor the knives B; but what I *claim* is the instrument as described, for weeding and cultivating plants in rows, the same consisting substantially of the combination of the yoke A with the knives B, constructed and operating in the manner and for the purpose set forth.

No. 12,478.—Nehemiah B. Chase and Chauncey W. Saunders.—*Improvement in Hand-Cultivators.*—Patented March 6, 1855. (Plates, p. 4.)

The knives A A are placed some distance below the frame, and are held in slats B B by means of nuts M M, which allow of an adjustment as to the angle and the distance of the knives from the frame and from each other.

The inventors say: We are aware that a hand-cultivator carried on wheels has been constructed, with shares not guarded at the points, and having both a rotary and a lateral adjustability; therefore, we do not claim these features.

But we *claim* the arrangement of the knives A A, upon the frame, so as to be adjustable in an oblique direction, and also reversible, as set forth.

No. 12,536.—Saml. A. Knox, assignor to Ruggles, Nourse, Mason, and Co.—*Improvement in Cultivators.*—Patented March 13, 1855. (Plates, p. 4.)

The object of tooth K is to enable the attendant, while having hold of the handles, to steady the horse-hoe, and to prevent the lateral irregular motion of it which is produced by the draft and obstructions. It serves also as a fulcrum to move the hoe, so as to suddenly lift the rear part of it to throw or flirt loose earth among stalks of the hills.

The inventor says: I do not claim combining a curved and pointed knife with a common land plough, when said knife is placed against or very near to the nose of the plough; my employment of the knife or tooth on the horse hoe being in a different manner and for a different purpose from its use on a plough.

But what I *claim* is arranging the curved knife, or pointed tooth K, at or near the front end of the beam of the horse hoe, while the main or double hoe C is disposed at or near the rear end of the beam, and so as to enable the said tooth to be used in the manner and for the purposes as stated; it being employed in a common plough simply for cutting the sod or opening it for the reception of the nose of the plough.

No. 12,571.—Geo. W. N. Yost.—*Improvement in Cultivators.*—Patented March 20, 1855. (Plates, p. 5.)

The scraper E is secured to handle B by two bolts *c c*, it slightly turning on the lower one, and the upper one working in a slot in the scraper for the purpose of raising or lowering the point *d* to work properly on the side of a higher or lower row.

The inventor says: I am aware that cultivators and scrapers have been used, which were laterally and perpendicularly adjustable; therefore, I do not claim such devices.

But I *claim* the combination of the adjustable scraper E, with the bar, point, &c., D, as described, for the purpose of baring off the row and rapping up the middle; also, for scraping off the row, and rolling the scrapings over into the furrow opened by the plough, substantially as set forth.

No. 12,589.—Hervey D. Ganse.—*Improvement in Cultivators.*—Patented March 27, 1855. (Plates, p. 5.)

f d are cutting edges which incline backwards at an angle sufficient to cause incumbrances to pass off backward without choking. The parts 1 are fenders, which protect the young plants from being covered. The cutting edge *d k* of the parts 2, continues the edge *f d*. The earth is shaved down and pressed outward by the inclined edges and the lateral flare of the fenders, and then flows over the mould-boards completely crumbled, filling again the furrows from which it has been taken. The plants, however small, are not moved or covered.

The inventor says: I *claim*, 1st, That shape of the upright forms or fenders described, in its application to the purposes described, by which the foremost point of each fender is elevated to or above the surface of the ground, and the lower or cutting edge inclines backward

from that point, in the manner described, so as to secure the result described.

2d. The combination of said fenders with the mould boards and wheels, in the manner described, the invention of which mould boards and wheels I do not claim.

No. 12,609.—R P. VANHORN.—*Improvement in Cultivators.*—Patented March 27, 1855. (Plates, p. 5.)

The object of making the frame A of an elongated shape is to cause it to run smoothly and steadily. The fore tooth has a cutter-edge and very small nosing, and serves to cut the sods and roots; the rear tooth D, which is the largest of all, throws the earth towards the corn, and leaves a fine deep furrow for the water to settle in.

Claim.—The peculiar elongated rhombus-shaped, wrought-iron frame and arrangement of teeth, the front angle bearing a light steel cutter tooth, and the rear angle a large shovel tooth, in the manner and for the purposes set forth.

No. 12,611.—WM. P ZANE.—*Improvement in Cultivators*—Patented March 27, 1855. (Plates, p. 5.)

The hook *f* divides the potato vines centrally between the rows. The hooks *g g* lift up the vines and throw them to each side. They are shorter than hook *f*, and are arranged such a distance in rear of hook *f* as to bring the points of all said hooks into the same horizontal plane. The hooks must be of proper shape, so as not to cut the vines, and their points are at such a height above the points of the cultivators *h*, that when the cultivators are inserted the proper depth, the points of *f g g* will be even with the surface of the earth.

Claim.—The vine-hooks *f g g* arranged in such a manner in relation to the cultivating teeth *h h h*, that the said hooks will remove the vines out of the way of the said cultivating teeth, and allow them to operate upon the soil without injury to the vines, substantially as set forth.

No. 12,653.—FRANCIS L. SMITHSON.—*Improvement in Cultivators.*—Patented April 3, 1855. (Plates, p. 5.)

The teeth *f* are on a swivel bar, so that when drawn forward they are in place, but when the horse backs they turn up, and thus pass over the ground without action. The teeth are designed to break and loosen the earth just previous to planting tobacco, and the cylinder C following after is made to press the top of the hill.

Claim.—The combination of the harrow teeth and cylinder, substantially in the manner and for the purpose set forth.

No. 12,744,—JOHN STRYKER.—*Improvement in Cultivators.*—Patented April 17, 1855. (Plates, p. 5.)

The object of this improvement is to obviate the usual serpentine, unsteady movement of ordinary wheel cultivators. The front supports

k are permanently attached to the frame *a b*. The rear supports *h* are adjustable, so as to serve not only as supports, but also to regulate the depth of action of the coulters.

Claim.—The application or use of front and rear supports or supporters, which not only answer all the purposes of wheels, but regulate and govern the action of the coulters in the ground; constructed and arranged substantially in the manner and for the purpose herein set forth.

No. 13,062.—JOS. MONTGOMERY & JAMES MONTGOMERY.—*Improvement in Wheat Fans.*—Patented June 12, 1855. (Plates, p. 5.)

Figure 1, represents this fan arranged for chaffing, and figure 2, for cleaning the grain after being chaffed. The operations of the machine will be understood from the engravings.

Claim.—Constructing the screen-box, with the addition of a plate or apron under its upper screen, for conveying whatever passes through said screen to the front part of the box, and of a fine screen at the bottom for separating sand or grit from the small grain and seeds caught therein, in combination with a box or its equivalent beneath, for collecting or conveying away the sand or grit therein separated.

Also, adding an adjustable board or shelf H in the front part of the shoe, so situated that light and bulky impurities, blown from the apron, may be caught thereon, and conveyed out of the shoe, while sufficient space is left behind and below it for the whole extent of screen beneath to be employed to receive the grain, substantially as set forth.

No. 12,453 LEWIS TEESE & SON.—*Improvement in Forks for Gold D ggers.*—Patented February 27, 1855. Antedated November 27, 1855. (Plates, p. 5.)

The prongs of this fork are triangular, the edges upward, so that the smallest particles of gold cannot lodge on them; the backs of the prongs are flat, so that the fork will slide easily, and not wear out the sluice boxes.

Claims—Making the fork tines triangular, with one side of the triangle forming the back of the tines, for the purposes and in the manner set forth, whether applied to more or less number of tines, or length or breadth of fork.

No. 12,973.—CHAPIN STREET.—*Improvement in Grain Drills.*—Patented May 29, 1855. (Plates, p. 6.)

The seeds pass through the seed chambers and the holes *x*, (these holes being alternately covered by guards *m*, as the distributor vibrates,) and finally through conductors *p q*, and drill *r*, to the ground. The dust and grit collect in the spaces o^1, and passes out through holes x^1. The strength with which spring *t* bears upon *n*, is regulated

by screw t^1, and the distance of the movement is regulated by screw *y*. The movement is created by means of cam *v*. The lifting board *h* passes across the machine in front of the seed box. Connecting rod *u* is attached at one end to support *i*, and at the other end to the sliding cam *e*, which moves in a slot at one end of the machine. The board *h* can be lifted by means of a lever, which will draw forward cam *e*, by means of rod *u*; the cam *e*, in moving forward, presses out spring *t*, the distributor remains stationary, and no seed will be discharged until board *h* is brought back to its former position. In throwing up lever h^1, the rods r^1 are also drawn up, and with them the drills *r*; so that not only is the seed stopped from discharging, but the drills are also lifted clear from all obstructions.

The inventor says: I *claim*, first, the seed distributor *n*, with its seed chambers *o*, and dust boxes o^1, in combination with the cam wheel *v*, the spring *t*, and adjusting screens *t* and *y*.

Second. I do not claim the lifting board *h*, nor the conductors *p* and *q*, nor drills *r*, separately.

But I *claim* their peculiar arrangement and connection with the sliding cam *e*, as set forth.

No. 13,143.—Charles Taylor.—*Improvement in Machines for Cutting Grain, Grass, &c.*—Patented June 26, 1855. (Plates, p. 6.)

The cutter-blocks *h* are fastened to the main frame *d* by means of braces *g*, and the cutters *f* are screwed to the cutter-blocks. The rear ends of the cutters, being unconnected with the machine, give elasticity to the cutters, which enables them to meet any unusual resistance without breaking. The fact of their being disconnected with each other at the rear ends prevents the clogging of the machine. *k* is the platform, and *a a* are the runners.

Claim.—The use of a series of knives or cutters connected with the frame of the machine at the point or angle formed by the connexion of each pair of cutters, but not connected with the machine, or with each other, at the heel, and removeable at pleasure, substantially in the manner and for the purposes specified.

No. 13,532.—J. Van Horne.—*Improvement in Grain Separators.*—Patented September 4, 1855. (Plates, p. 6.)

The corn, previously shelled by a corn-sheller, (arranged in front of spout G and not shown in the engravings,) and the cobs pass down the spout G into screen F, through which a blast of air passes, entering at I. As screen F rotates, the cobs will be carried by the spiral-toothed flanches g^1 to the outer end of screen F, and will be discharged therefrom, while the shelled corn will pass through the screen and fall upon the inner side of cylinder E, and will be conveyed by the flanches *g* to the hole *f*, through which the corn passes into the buckets *d*, and is carried around by them and discharged from the side of the framing, as shown in figure 2.

I *claim* the revolving cylinder E, furnished with buckets *d*, flanching *p*, and holes *f*, in combination with the revolving cylindrical screen F, for the purpose of cleaning the grain, separating the chaff, and elevating the grain and delivering it, in the manner set forth.

No. 13,644.—Peter Geiser.—*Improvement in Grain Separators.*—Patented October 9, 1855. (Plates, p. 6.)

The air enters the fan case through the perforated side plates I, each of which plates is covered with a moveable plate K, the perforations of which correspond with the perforations in plates I. The moveable plates can turn on the centre pin of the fan, and are connected by bars *t* and *u*. When the blast increases too much, it will act upon and depress the broad bar *t*, and the solid parts of plate K will partially cover the apertures in plates I, thereby decreasing the admission of air. As soon as the blast becomes weaker, the plates K (being properly balanced) will again return to their original position.

The grain and straw is fed upwards on slide E by rakers B C, which are vibrated each by a double crank *a*, one of which cranks is driven by pulley D. As the straw is raked upwards, the rakers at the same time act like combs, causing the blades of straw to assume a parallel position to each other, and causing the grain to settle through the straw down plane E, where, with the chaff, it passes towards and through the aperture *c*, out to the curved apron *d*, which is hung on journals *f*, and receives a shaking motion by means of the square ends of roller *k* acting upon the outer ends of the apron. The front edge of the apron is provided with teeth like a comb, which teeth reach between the grooves on roller *k*, and thus form meshes through which the grain can fall, constituting a substitute for a screen. The unseparated grain and chaff pass over roller *k*, and drop down on to the regulating dividing shelf or apron *n*, constructed similarly to apron *d*. The shoulder in the centre of apron *n* divides the apron into two surfaces. The heavy grain remains on the rear surface, which, after the chaff has been blown off, will drop down into the box L. The lighter grain goes forward to comb and roller *l*, and drops down the screen M into the box.

The slide S is hinged to the upper portion of the straw carrier, and the slide Z is hinged to the slide S. By adjusting these slides the straw can be carried to either side of the machine.

The inventor says: I am aware a self-acting blast regulator for fan blowers is not new; this I do not claim.

But I *claim* the vanes within the fan case against which the blast acts, for the purpose of closing or opening the register automatically, to regulate the blast, as set forth.

I also claim the manner of separating the grain from the straw and other impurities, by means of aprons, combs, and grooved rollers, without the use of a riddle, whether one, two, or more sets of such separating apparatus be used, substantially as described.

I also claim, in combination with the separating apparatus, the self-regulating dividing shelf, upon which the grain drops, for the purpose

of carrying the heavy grain back, and the light forward, for a second or more complete separation, as set forth.

I also claim the hinging of the upper to the lower portion of the straw carrier frame, and providing it with adjustable slides or conveyors for dividing and conveying the straw into any desired localities, as set forth.

No. 13,658.—Benj. Wright and John Bean.—*Improvement in Grain Separators.*—Patented October 16, 1855. (Plates, p. 6.)

The grain and straw pass between cylinder K and concave J, upon shoe E, which has a shaking motion; the straw is carried along the shoe and drops off the ends of the slats *c*, (see arrows *x*,) while the grain and short light particles fall between the fingers upon screen B; the grain passes through screen B, and falls upon screen D, and is discharged in the direction of arrow 1; the short light particles are discharged in the direction of arrow 2; and dust, chaff, etc., are blown out from both screens by a blast coming from fan G.

The inventors say: We do not claim the cylinder, concave, and fan separately, for they have been previously used.

But we *claim* the employment or use of the rotating screens B D, and shoe E, when arranged substantially as shown and described, whereby the straw is carried through the screens, and the grain shaken therefrom within the screens, as described.

No. 12,415.—Danl. Haldeman.—*Improvement in Harrows.*—Patented February 20, 1855. (Plates, p. 7.)

Claim.—The so forming and hinging together of the frames or frame pieces of a harrow, as that it may be susceptible of such an adjustment as represented, and so that it may be folded up and rest upon a portion of the frame which forms a sled, upon which it may be conveyed from place to place, as described. (See engraving.)

No. 12,659.—Charles Clareni, assignor to Charles Clareni and George P. Field.—*Improvement in Harrows.*—Patented April 3, 1855. (Plates, p. 7.)

a is the draft pole.

The harrow consists of three segments *f*, which are provided with harrow teeth *i*. Each of the segments has two radial arms *e e*, which, where they meet, are bolted to short radial arms d^1 d^1 projecting from plates *d*, which latter are hinged to the central plate *c* by means of horizontal pivots c^1 c^1, thus allowing each of the segments to rise and fall freely and independent of the others, to adapt themselves to the inequality of the surface.

Figure 2 represents a section on line *x y*.

Figure 3 is drawn on an enlarged scale.

Claim.—Making the rotating harrow in flexible segments as described.

No. 12,667.—Lyman Brainard and Levi Newton.—*Improvement in Rotary Harrows.*—Patented April 10, 1855. (Plates, p. 7.)

The three ends of frame A B support three horizontal wheels D, free to revolve on their vertical journals. Teeth *s* projecting vertically downwards are inserted into the rim and arms of said wheels. The smaller vertical wheels F F H, on the upper side, are for the purpose of drawing the harrow on when removing it, and are put into use by turning the harrow bottom side up. The arrangement of the harrowing wheels D allows them to turn or react when coming in contact with any obstacle.

The inventors say: We are aware that wheel-shaped harrow-frames have been used, both without rotation and with a compulsory rotation in one direction.

But we *claim* the employment of the wheel-shaped harrows when fastened upon a central point, so as to turn in either direction, for the purpose and in the manner set forth.

No. 13,257.—William Gourley.—*Improvement in Harrows.*—Patented July 17, 1855. (Plates, p. 7.)

The vertical slots in the bearings F of the roller D, allow the latter to rise and fall. The roller knives are designed to cut such clods as may escape the knives of the frame, the surface of the roller meantime compressing the ground. By inserting boxes L under the roller-pivots, the roller will press only partially on the ground, and, consequently, additional weight will be thrown on the frame.

The inventor says: I do not claim any of the parts separately; nor do I claim so attaching to a clod cutter or harrow a roller, that may be adjusted to any given height from the ground, as this has been done before.

But I *claim* arranging, in connection with a clod-cutter, a cutting roller, which may adapt itself to the inequalities of the ground, and also be made to throw its weight upon the clod-cutter or not, as desired, substantially in the manner and for the purpose set forth.

No. 12,121.—John E. Brown and Stephen S. Bartlett.—*Improvement in Grain and Grass Harvesters.*—Patented June 2, 1855. (Plates, p. 7.)

A bar G has its fulcrum in shaft F, which turns in stands E, extending from main frame A. The other end of bar G has a projection K, to which is attached a pin sliding in slot I of upright stand H, which latter extends from main frame A. The projecting parts L and M of said bar G receive the journals of rock-shaft N, from which rock-shaft extends the cutter-bar *n*, which arrangement is to allow the cutter-bar to rise and fall according to the inequalities of the ground. The rack *x*, which is to work the cutter-knives, is motioned by the linked rods *b* and *z*, which latter is horizontally linked to the vertical rock-shaft *a*, so as to allow arm *z* to accommodate itself to the undulations of the cutter-bar. Connecting rods *d f*, and eccentric *g*, impart to shaft *a* the rocking motion.

Fig. 1, top view; fig. 2, view from one side; fig. 3, view from the other side.

Claim.—Hanging or hinging the bar G to the carriage, so as to vibrate substantially as described, in combination with the hanging or hinging of the cutter-stock to the bar G, substantially as described, so that the cutter-stock may vibrate and accommodate itself to any undulations in the surface of the ground, and so that it may be raised by the attendant to pass stones, stumps, or other obstructions, without tipping the carriage.

No. 12,123.—Marshall Burnett and Charles Vander Woerd.—*Improvement in Grain and Grass Harvesters.*—Patented Jan. 2, 1855. (Plates, p. 8.)

Claim.—Making the same shaft or axle H, which serves to drive the cutter rods, cutter, or cutters, serve also as the pivot or centre of the joint between the cutter-bar M and the carriage A, substantially as herein described, (see illustration,) thereby preserving the proper relation between the cutter or cutters and their driving mechanism.

No. 12,215.—John E. Newcomb.—*Improvement in Grain Harvesters.*—Patented January 9, 1855. (Plates, p. 8.)

The apron or platform *b*, upon which the grain is received after it is cut by the scythes, is hinged at b^1, and is, at intervals, dropped (see arrow 2) so as to drop its load, by means of a crank d^1 and rod *d*, which is operated upon by a properly-shaped cam on the axle of the driving wheel. The apron has, underneath, an additional platform b^2, which can be slid out, (see arrow 1,) more or less, so as to increase or diminish the actual length of the platform bb^2, to prevent vent the grain from running over the platform before it drops.

The scythe-plate *f* is kept in close contact with the shear edges of the fingers by supporting the scythe-plate by a grooved bar *i*, under the said scythe-plate, and about midway between its front edges (the scythe-points) and its rear edge, which latter slides, as usual, in a groove in a stationary cross-bar. The bar *i* is kept up against the under surface of the scythe-plate by set-screws, and the groove is kept filled with oil to obviate excessive friction.

Claim.—Making the hinged apron extensible, substantially in the manner set forth.

Also, the mode of keeping the scythe-plate to the shear edges of the guides, said mode consisting in the employment of a grooved pressure-plate or bar and set-screws, for the purposes herein set forth.

No. 12,252.—O. B. Judd.—*Improvement in Grain and Grass Harvesters.*—Patented January 16, 1855. (Plates, p. 8.)

The cutters M N, arranged at the outer end of the machine, are to cut the grain that may overlap or become entangled at the inner edge of the swath.

Claim.—1st. The employment or use of the rotating cutters M, and stationary cutter N, arranged substantially as shown and for the purpose set forth.

2d. Attaching the connecting rod G to the outer end of the sickle H, as shown, for the purpose of being enabled to employ a long straight rod with a compact machine.

3d. Attaching the sickle bar I to the finger bar F, by hinges, as shown, whereby the sickle and connecting rod are kept properly in place, and the sickle readily attached to, and detached from, the machine, as described.

No. 12,323.—Aaron Palmer.—*Improvement in the construction of the frame of Grass-Harvesters.*—Patented January 30, 1855. (Plates, p. 8)

Claim.—Connecting the wheel A, the cutter beam B, and the tongue C, to the frame D, in the manner described, by which the frame operates as a lever, of which the axle of the wheel A is the fulcrum; by which means the cutter-beam rises and falls independent of the wheel, thereby adapting itself to undulating surfaces; and by which means the draft of the team holds the cutter-beam snug to the ground, thereby causing the machine to cut close and smooth.

No. 12,327.—David Russell.—*Improvement in Harvester-Cutters.*—Patented January 30, 1855. (Plates, p. 9.)

The cutters *a a* are let into the chains on the inner sides by dovetailing them in and fastening them by screws, making the chains a smooth surface after the cutters are let in. The cog-wheels *b* are revolved by means of driving-pulleys *d*, and as they are revolved in opposite directions, the knives pass over each other in the form of shears, cutting the grain as it comes within their reach.

Claim.—The combination of cutter with an endless chain or chains operating as described, and for the purposes set forth.

No. 12,339.—Edwin A. Morrison, assignor to himself and Robert J. Morrison.—*Improvement in Delivering Apparatus of Grain Harvesters.*—Patented January 30, 1855. (Plates, p. 9.)

At that end of the frame, towards which the cut grain is carried, is hinged a door E, to which a cord and weight H are attached so as to hold the door in the position shown in the engraving. The cut grain collects under the projecting flange I, until the rake teeth D (attached to the carrying belt C) arrive at the door, raise it up against the weight, and allow the grain to drop out.

The inventor says: I am fully aware that an endless belt with rakes thereon for conveying the cut grain from the platform, and hinged doors, controlled by weight or spring, have both been used on reaping machines for gathering and delivering the cut grain in bundles; these I do not claim.

But I *claim*, in combination with an endless conveying belt with rakes thereon, and the weighted or spring door, the inclined flange on said door under which the grain is carried and compressed, until the rake teeth come against said flange, when the door is forced upward on its hinges and the cut grain delivered in compact bundles, as set forth.

No. 12,363.—JAMES H. MAYDOLE and ALBERT W. MORSE.—*Improvement in Grass Harvesters.*—Patented February 6, 1855. (Plates, p. 9.)

The nature of this improvement consists in combining a roller *a* with a grass harvester by means of the levers *b* and *c*, (*c* having its fulcrum in *m*,) and the parts in connection with them in such manner that a person riding upon seat *n* can elevate or depress arm *d*, which carries and guides the cutter plate *e*, causing the whole weight of said arm and cutter plate to rest upon the said roller, or allow said arm to rest upon the ground, as circumstances may require.

Claim.—The combination of the adjustable and controllable roller *a* with a grass harvester, substantially and for the purpose set forth.

No. 12,367.—CYRENUS WHEELER.—*Improvement in Grain and Grass Harvesters.*—Patented February 6, 1855. (Plates, p. 9.)

The holes *g* serve for the passage through the cutter bar *x* of the dirt and grit that would otherwise collect on the stationary cutters *r*. The ribs *t* form a bearing for the projections *u* on the under sides of the shanks *m m*; *y* are the cavities for inserting cutters *r*; *s* are holes for inserting bolts *p* for attaching the moveable cutters *m l*; *z* are braces united to the ribs *d* of the cutter bar and to the stationary cutters *r*, and they serve as a protection to the cutters. The ribs *d* serve also to protect a spring *a*, one end of which is fastened to the cutter bar. To the other end of spring *a* is attached (by means of a pin *b*) the lower end of bolt *p*, which passes up through the hole *s*, and serves as fulcrum for the shank and moveable cutter *m l*. The spring *a*, by pressing the bolt *p* downwards, serves to press continually the moveable cutters *l* towards the stationary cutters *r*. The moveable cutters receive a vibrating motion around their fulcra by the usual means of connecting rod, crank, etc.

The revolutions of wheel 3 revolve also the disc 5 with the teeth 8 along the apron 2, thereby removing the cut from the standing grass, and leaving a clear and uniform track adjoining the standing grass.

Claim.—The combination of the double-edged cutters *r r* with the cutter bar *x x*, the braces *z z*, the vibrating cutters *l l*, their shanks *m m*, projections *u u*, the circular ribs *t t*, the bolts *p p*, the springs *a*, the holes *q q*, the ribs *d*, the cavities *y y*, or their equivalents, as substantially set forth, the whole forming the cutting apparatus of the machine.

2d. The revolving or track rake, consisting of its frame 1, its wheel 3, shaft 4, pinions 7 10, shaft 6, wheel 5, teeth 8, apron 2, joint 9, and cap 11, or their equivalents, arranged and combined substantially as set forth.

No. 12,393.—ROBT. J. MORRISON, assignor to ROBT. J. MORRISON and EDWIN A. MORRISON.—*Improvement in Grass Harvesters.*—Patented February 13, 1855. (Plates, p. 9.)

Claim.—Constructing the cutter teeth or blade and teeth, and the guard fingers, of three several plates of metal, V, W, V, all of similar form, and lying closely upon each other; the middle row of teeth being sharpened and stationary, while the upper and lower ones are vibrated for the purpose of causing whatever slipping there may be in gathering in the stalks to be cut, to come upon the fingers mainly, and thus protect the sharp edges of the cutters, as set forth.

No. 12,463.—FISK RUSSELL.—*Improvement in Mowing Machines.*—Patented February 27, 1855. (Plates, p. 9.)

By arranging the wheel C with respect to the wheel B, as seen in the engravings; the wheel C is made to support the frame work near to the cutters, and it can be made of the same diameter as B, and the shaft E and cam-wheel F can be employed without any interference of wheel C with them.

The inventor says: I do not claim the supporting of the frame of a mowing machine on two or more wheels.

But I *claim*, when two wheels only are employed for the support of such frame, the specified arrangement of the secondary supporting wheel with respect to the main driving and supporting wheel and the driving shaft, such arrangement consisting in placing the axis of the secondary supporting wheel aside of and not in line with that of the primary wheel, and disposing the secondary wheel back of or on one side of the driving shaft, so as to operate essentially as described.

No. 12,499.—JOHN H. MANNY.—*Improvement in Grain and Grass Harvesters.*—Patented March 6, 1855. (Plates, p. 9.)

The nature of this improvement will be plainly understood from the accompanying engravings.

Claim.—Supporting the stalks of grass or grain to be cut by means of rods or wires on one side of the sickle, while they are supported on the opposite side by means of the edges of the finger in the usual way, substantially as set forth.

Also, the construction of the shanks, or rear part of the fingers, in such form that the shanks will pass or overlap each other, and mutually support each other, and stiffen the finger bar, substantially as set forth.

Also, the manner described of connecting the rods to the fingers and to the cutter bar, and of adjusting them so as to support and brace the point of the finger with such degree of force as may be required, substantially as set forth.

No. 12,559.—Fisk Russell.—*Improvement in Mowing Machines.*—Patented March 20, 1855. (Plates, p. 10.)

The driving wheel has an internal gear *h*, into which engages the pinion D on driving shaft E.

The knives O have two holes *h*, equi-distant from the fulcrum *f*; the holes *h* receive the pins *k*, extending upwards from the slide-bar K. The knife can be reversed, when the other of the holes *h* will be fitted over pin *k*.

Claim.—Arranging the secondary supporting wheel C and the cutter frame in front of the driving shaft, when such driving shaft and the driving wheel are arranged and connected by gears as specified, the same serving to lessen the side draft of pressure on the horses, or draught animals, in comparison to what it would be, were the secondary wheel and the cutter frame disposed back of the driving shaft, when arranged with respect to the driving wheel, as specified.

Also, the combination of two knives, so that they shall project in opposite directions from one centre plate or bar, in order that either of the knives may be used in connection with the guard teeth, and either be made to serve as a lever to the other, whenever circumstances may require.

No. 12,570.—Walter A. Wood.—*Improvement in Grain and Grass Harvesters.*—Patented March 20, 1855. (Plates, p. 10.)

The conical shape of the wheel N is clearly shown in the top view, figure 2. The space between the line *x* (where the cutters end) and the side board Q, (next to the driver's seat and driving wheel, not shown in the figure,) is left for the reception of the bundles raked there from the platform by the operator.

The inventor says: I am aware that a conical track-clearer, separate and independent of the bearing wheel, has been used in mowing machines; this I do not claim.

But I claim making the inner face of the supporting wheel conical, for the purpose of clearing the track for the next or return swath of the machine, as described.

I do not claim a reserved space in general on the platform, between the end of the cutting point and the frame.

But I claim the forming of a quadrangular space on the platform, between the end of the cutting point and the frame of the machine, sufficient to hold as much grain as will make a bundle or sheaf, before it is raked from the machine, as described.

No. 12,584.—Andrew Dietz and John G. Dunham.—*Improvements in Grain and Grass Harvesters.*—Patented March 27, 1855.—Antedated January 2, 1855. (Plates, p. 10.)

By this arrangement motion is directly transferred from the driving wheel to the cutter bar.

Claim.—First. Constructing the cams C and D upon driving wheel A, of a length exactly corresponding to the cutting range of a single stroke of the knife during the advance and return of the cutter bar, substantially as and for the purpose set forth.

Second. The difference in the relative depths of the cams C and D, in combination with the linked levers B and *b*, arranged and operating substantially as set forth.

Third. Arranging the highest elevation of each cam upon the wheel A, at a point between the highest elevation and lowest depression of a cam upon the other side of the wheel, substantially as set forth.

No. 12,714.—Jarvis Case.—*Improvement in Grain and Grass Harvesters.*—Patented April 17, 1855. (Plates, p. 10.)

The internal spur of the driving wheel A takes into spur wheel *e* on line shaft B, which latter carries on its other end the bevel wheel C, which last, by means of pinion *d*, operates the sickle bar J. The head iron N can be adjusted higher or lower, in vertical slideways *n n*, so as to adapt the sickle bar to a higher or lower cut. The anti-friction wheel *o* is pivoted in *o* to a bar P, which can also be adjusted in vertical slideways *p p*. A spring R rests against the bent top part of said bar P. The ends of the spring are attached by screws *r r*^{1} to the main framing S. By more or less tightening the screws *r r*^{1} the spring S can be made to bear more or less upon bar P, thereby causing the finger bar to bear on the ground with more or less weight, or none at all, if desired. The anti-friction wheel is to obviate side draught, and to relieve the finger bar from strain, as above stated. The arrangement of the line shaft, above the centre of the driving wheel, is intended—1. To produce a perfect balance of all the parts. 2. To have all the centres of the gearing in one plane with the axle of the driving shaft, without which it would be impossible to operate the sickle by means of eccentric *f* and sliding pinion shaft E, without destroying the adjustability of the head iron. 3. To give the anti-friction wheel the advantage of a large diameter, and to give sufficient vertical play to the adjustable head iron.

Claim.—1. Placing the line shaft directly above the vertical centre of the spur-gear of the master wheel, in the manner and for the purpose herein described; and,

2. The adjustable anti-friction wheel in combination with the spring R and adjustable set screws *r r*^{1}, in the manner and for the purpose herein described.

No. 12,721.—Eliakim B. Forbush.—*Improvement in Grain and Grass Harvesters.*—Patented April 17, 1855. (Plates, p. 11.)

The gear key D is just large enough to sit astride shaft L *y*, and just thick enough to fill the space between the hub of the bevel wheel C and the outside journal box. It is held to its place by a projecting mortice on the key D *o*, and a tenon *a b* on the journal cap. By taking out this key D, the wheel C can be thrown out of gear.

The main platform timber S S (fig. 7) lies parallel with the finger-bar E B, and extends farther inwards towards the driving wheel A than the finger-bar, and connects with the main frame of the machine near the driving wheel, by means of the slotted hanger H. This arrangement is intended to bring much of the weight of the platform upon the driving wheel, and, on account of the connection to the finger-bar, to prevent, to a certain extent, the finger-bar and knives from bending or springing when cutting.

The upright part of clamp F *e* locks into the foundation or runner part F *o* at *n*, (figs. 2 and 9,) and, when the bolts *t r* are fastened, the finger-bar is held as in a vice, without bolts passing through it. The bottom of the runner F *o* has a slight rib *r s*, (figs. 8 and 9,) which rib becomes indented in the finger-bar, so as to prevent the finger-bar from slipping in the clamp, when in use, if by any cause the compression should become too slight to hold it securely.

A second angle is also made in the brace-bar *c r*, by which an opening is made behind the cutters, and between the brace-bar *c r* and the plate part *h m* of the guard (figs. 5, 8, and 1). This open work construction of the guards is to facilitate the escape of any fine grass, &c., which may be drawn in between the cutters and the guards. It is also intended to allow the brace-bars of the separate guards to come together, so that, when a full set of guards are on the finger-bar, they mutually brace and support each other, one of the outside guards bracing against the clamp, and the other against the outside shoe.

The inventor says: To the connecting rod and coupling boxes herein described I make no claim herein.

Claim.—1. I claim the combination of the gear key D with the gearing, substantially as set forth.

2. I claim the extension of the platform timber S S beyond the finger-bar, so as to connect it to the main frame of the machine near the driving wheel, with the view of giving strength and stiffness to the platform, and bring its weight as much as possible on the main frame near the driving wheel, substantially as herein set forth.

3. I claim, as improvements upon the clamp, the locks *n* and *r s*, substantially as herein described.

4. I claim the improvement of the second angle *c r* in the brace-bar of the guard finger, substantially as herein described.

No. 12,745.—Philo Sylla.—*Improvement in Grain and Grass Harvesters.*—Patented April 17, 1855. (Plates, p. 11.)

In this machine the sickle bar can be raised and lowered without inclining the guard fingers, but carry them level with the ground, in which position a sickle always cuts best, or at any given inclination, and at any desired height from the ground. Lever E is hinged at F to cross-bar A, and the front end of lever E is hinged in H to the rear edge of sickle-bar G. Lever I is pivoted in *a* to the rail D. The front end of lever I is hinged in J to the front edge of sickle bar G, at the corner diagonally opposite to hinge H, so that the sickle bar may be raised or lowered without the guard fingers, fastened to the sickle-bar, changing materially the angle they form with the ground. The construction of the reel *o* with a journal N on one end, and a short driving shaft Q on the other end, and without a long central shaft, is apparent from the figure *s*. This arrangement is to do away with the difficulties attending central shafts, as the grain frequently gets wound around them, unless using very large reels.

Claim.—1. Hanging the sickle-stock G to the ends of the levers E and I, which carry it, by means of the hinges H and J, or their equivalents located at the diagonal corners of said stock, substantially as described, for the purposes set forth.

2. Making the reel with a journal at each end, and without a shaft through its centre, as described.

No. 12,756.—Jearum Atkins.—*Improvement in Platforms of Grain Harvesters.*—Patented April 24, 1855. (Plates, p. 12.)

The cut grain falls across the ribs *a* of platform A, leaving a small space between the straw and the surface of the platform. As the rake moves from position fig. 3 to position fig. 2, the rake passes around the straw; and the ribs serving to elevate the cut grain or straw from the surface of the platform, the teeth of the rake pass under the straw, and enable the rake effectually to gather the same.

Claim.—The bars or ribs, or their equivalent, on the platform of reapers in rear of the knife, in combination with a rake actuated by hand or by machinery, and moving above the platform; the ribs being either straight or curved, but parallel, or nearly so, to the travel of the teeth of the rake.

No. 12,768.—Abner Whiteley.—*Improvement in attaching Wheels to Harvesters and other machines.*—Patented April 24, 1855. (Plates, p. 12.)

To adjust the wheel *a* to different heights, the stud *e* of axle *b* is inserted into one of the holes 1, 2, 3, of bar F, and the nut *g* is screwed in, thereby forming an attachment, plainly represented in the fig. 3. The operator can effect this adjustment when standing outside of the machine, without any danger in case the team should start.

Claim.—The simultaneous attachment of the wheel *a* to or on the axle *b*, and the axle *b* to the plate *f*, by means of the bolt *g*, in combination, respectively, with the stud *e* and washer *c*, as described.

No. 12,769.—Abner Whiteley.—*Improvements in Harvesters.*—Patented April 24, 1855. (Plates, p. 12.)

The arrangement, referred to in the fifth claim, consists in furnishing the sickle-bar *h* with a groove U extending through the divider Z, and extending to the first finger *b*—for the end of the sickle to play out of the divider, and return in, so as to cut with a short sickle, and permit

the grain-wheel S to occupy the position described in the third and fourth claims.

The finger *a*, referred to in the sixth claim, serves to remove part of the grain that accumulates in the corner, to the next space to be cut.

The teeth *d* are formed, as indicated in the seventh claim, in order to retain the thickness of the plate and a close shear-edge. (See fig. 2.)

The alternate spaces *e* and *f* in the rear of the sickle-bar and teeth, (referred to in the eighth claim,) are for the purpose of permitting any grass or grain, that may accumulate on top of the teeth, to pass back and drop out; as while the bar rests against the shoulder of one finger, the space is open at the other: the sickle *h*, working obliquely in the fingers, is inclined to work all rubbish back, where it can drop out.

The cone *t* on knee-lever O (ninth claim) operates the lever Y to latch the rake K. Said lever O is provided with a slot to permit it to slide freely on shaft N, and, when moved by the knee to the right, it throws the end of lever Y out from the shaft N, lever Y being pivoted on M, and causes the end of lever Y to project far enough to catch the rake K, and retain it until lever O is removed to let the rake discharge the sheaf.

The guides R R, (tenth claim,) provided with springs on their outer sides, are for the rake K to return on after delivering the sheaf, and prevent it from swinging back and coming in contact with the falling grain, said guides closing in behind it after it has passed between them; thus it has to move up the rear of the guides, until it gets too high to catch the falling grain as it passes into the reel again.

These reel-rods L L^1 L are connected to shaft N by arms M M M, the fourth one is connected by angular arms E to shaft N. Reel-rod L^1 is made heavier than the others, in order to balance the rake K.

The inventor says: I am aware that grain has been reeled down, cut, carried over the platform, and discharged in a continuously straight line, *parallel to the line of draft;* and I am aware that curved and bent platforms, and platforms oblique, not only to the line of draft, but also to the reel and finger-bar, have been used to discharge the grain behind the master-wheel, or otherwise remove it from the standing grain.

But I *claim*, 1. The above described arrangement of reel L M, cutting apparatus and platform J, *all* oblique to the line of draft, or reel acting obliquely over any platform, or any other substantially equivalent device, whereby the grain is at once reeled down, cut, and conveyed over the platform in a *continuously straight line*, and at the same time delivered at a sufficient distance from the standing grain to permit the passage of the horses between it and the cut grain, when cutting the next swath.

2. So placing the reel, as above described, that the reel-rods will strike the grain, when they enter it, *outside* of the line *x y*, passing through the point of the divider Z, and parallel to the line of draft.

3. Placing the grain-wheel S in a plane intersecting the line of draft, so that it may deliver or counteract the side-draft, as above set forth.

4. Placing the axis of the grain-wheel (when so located in a plane intersecting the line of draft) in a plane Z Z, which passes vertically through the centre of the master-wheel A, so that it may, at the same time, give ease in turning at the corners, as above set forth.

5. The combination of the metal groove U and the sickle *k*, (the length of which is that of the cut of the machine,) for the purpose of enabling me to place the grain-wheel opposite the end of the sickle, and, at the same time, with its point of bearing on the ground, within the space cleared by the divider, as set forth and described.

6. The longer and divergent finger next to the divider, substantially as and for the purposes above set forth and described.

7. The sickle-tooth *d*, serrated on the smooth side and bevelled on the other, substantially as and for the purposes above set forth and described.

8. The alternate spaces in the rear of the sickle-bar and teeth, combined with the shoulders on the fingers, against which the sickle-bar works, for the purpose of alternating the bearings, as and for the purposes above set forth and described.

9. The cone *t* on the knee-lever O, substantially as described and for the purposes above set forth.

10. And, finally, disclaiming the broad device of guides to return the rake in a different path from that in which it advanced, I claim the combination of the rake K, swinging from one arm of the reel, with the spring-plate guides R, by which, when the rake has delivered the grain at the end of the platform, it is prevented from swinging back and coming in contact with the falling grain, as described.

No. 12,824.—T. N. Lupton.—*Improvement in Grain Harvesters.*—Patented May 8, 1855. (Plates, p. 13.)

The grass or standing grain passes between the upper fingers P and the lower fingers Q; and as the lower fingers are placed in a line between the upper fingers, and the edges of the two sets of fingers slightly overlap each other, the grass or grain is bent over and brought within the sweep of the revolving cutters *d*, and cut as shown in fig. 2. X is the reel.

The inventor says: I do not claim the endless R, nor the inclined apron S, as they have been previously used; nor do I claim the device for giving motion to the working parts, as that is common to the generality of harvesters.

But I do *claim*, the employment or use of the cutters *d*, placed on the rotating shaft M, in combination with the two sets of fingers P Q, the above parts being constructed, arranged, and operating in the manner and for the purpose as herein shown and described.

No. 12,825.—John H. Manny.—*Improvement in Grass and Grain Harvesters.*—Patented May 8, 1855. (Plates, p. 13.)

An auxiliary divider Q, larger than the fixed divider F, is arranged on top of the latter and attached to it by a pin *c*, so that it can be

removed when desired. The small fixed divider is to be used without the auxiliary divider, wherever its size is adequate to the division of the grass or grain of moderate growth. Wherever the grain is lodged and entangled so that a wider separation of that which is to be cut from that which is to be left standing is necessary, the auxiliary divider is brought into use. The rear end of the upper horizontal part of the auxiliary divider abuts against the front end of the shield board *h*.

Claim.—The combination of a removeable auxiliary divider with a fixed divider, substantially as herein set forth.

No. 12,888.—Benjamin S. Nicholson, administrator of the estate of John F. Nicholson, deceased.—*Improvement in Grain Harvesters.*—Patented May 15, 1855. (Plates, p. 13.)

The platform K, over which the cut grain passes, extends obliquely to the back corner of the frame, immediately behind the shafts L, for the animal to draw the machine by; thus the grain is deposited on the ground behind the machine, and in a line out of the track of the horse in its return.

Claim.—Making the space K, through which the grain passes, in the form of a rhombus, for the purpose of depositing the grain in a line, out of the track of the horse, as described.

No. 12,907.—Jonathan Haines.—*Improvement in Grain Harvesters.*—Patented May 22, 1855. (Plates, p. 13.)

The platform is connected with the finger bar by hinges *a*. By suspending the platform (by means of chain G) near the corner opposite to corner H, this latter will sink lower than the suspended one, and thus give a winding or sloping direction towards H, which is the point from which the grain is raked from the platform, and consequently facilitate the raking to that point. By extending the platform beyond the cutters next the driving wheel D, it admits of the gavel being first raked on to said extended point D, whence it is slid off immediately in the rear; the dragging platform having pressed down the stubble for the purpose, so that the gavel shall lie on top of the stubble.

Claim.—So hinging the platform C to the finger-bar F and frame A, as to facilitate the raking, break down the stubble, and leave the gavels in better condition to be gathered by the binders, substantially in the manner above set forth and described.

No. 12,963.—Francis Peabody.—*Improved Grain Harvester.*—Patented May 29, 1855. (Plates, p. 13.)

The horses are placed at the side of the driving wheel, to prevent the side drag; the cutter board D is attached to the bottom of the mould-board H; the parts which transfer the motion from the driving

wheel to the cutter bar (to wit, the friction rollers *d* sliding along the undulating side of the driving wheel) operate within the space enclosed by the mould-board, and are thus protected from being impeded by the grass already cut. The cutters can be raised or lowered by screwing or unscrewing the nut *m*, thereby depressing or elevating the rear end of the frame B; the spiral spring *i* serves to keep the end of frame B close up to the nut.

Claim.—Placing the horses at the side of the driving wheel, as described, when the cutters are placed in front thereof, in the manner and for the purpose set forth.

Second. I claim the mould-board H, in combination with the device employed for the purpose of vibrating the cutter bar, when this device is placed immediately behind the mould-board, and is connected with the cutter by attachments either to the centre or to both ends of the same, whereby a steadier motion of the cutter bar is produced, and the parts which transmit the motion from the driving wheel thereto are covered and protected from being clogged by the grass, in the manner set forth.

Third. I claim the described spring regulator, constructed and operating in the manner substantially as described, for the purpose of adjusting the distance of the knives from the ground, as set forth.

No. 12,980.—Courtland Wilson and Wm. Moore, jr.—*Improvement in Mowing Machines.*—Patented May 29, 1855. (Plates, p. 13.)

One end of the cam lever *e* is furnished with clamps *i* and friction rollers *h*. The object of these clamps is to clasp the sides of the cam *p*. The stop *K*, when turned down, causes the clamps *i* to come nearly together and clasp the sides of the cam *p*. The springs *i* assist in fastening the clamps *i* in their places, when the stop *K* is turned down. In fig. 2, the stop *K* is represented turned up, so as to allow the clamps to spread, so that they will not operate on the cam *p*. Fig. 1 represents the stop turned down.

Claim.—The application of the spring prongs or jaws $i\ i^1$ and clamp *K*, substantially as and for the purposes set forth.

No. 12,999.—Andrew Deity and Jno. G. Dunham.—*Improvement in Reaping and Mowing Machines.*—Patented June 5, 1855. (Plates, p. 13.)

The inventors say: We are aware that the cutter bar has been worked by the action of cams on the surface of the driving wheel, by means of rollers set in levers, when such rollers clamp the wheel between them, as in our former patent of March 27, 1855, and also when the lever extends across the face of the wheel; but in the former case the mechanical arrangement is necessarily somewhat complicated, and in the latter case the great length of the levers, from their points or centre of oscillation, renders them liable to vibration, and tends to spread the machine, and thus interferes with and prevents the proper and effectual transmission of motion to the cutter bar, and an additional lever is also

necessary to connect the one extending across the face of the wheel with the cutter bar, thus complicating the whole arrangement; and we, therefore, do not now claim either of the above modes or ways of working the cutter bar.

But we *claim* the use, for the purpose of transferring motion from the driving-wheel to the cutter bar, of a short lever B, the centre of of oscillation of which is over the cam flange itself; the rollers being but a cam and a half apart, or its equivalent, the whole arranged substantially as described. (See engravings.)

No. 13,004.—M. G. HUBBARD.—*Improvement in Grain and Grass Harvesters.*—Patented June 4, 1855. (Plates, p. 13.)

As this machine has no bed for the cutter to slide on, the cutter bar must be made stronger than usual. It is made of angle iron, its back being bent upwards; against this back elevation the cutters *h* abut, and are held steady by a single bolt *i*, so as to be readily removed when necessary.

The inventor says: I *claim* the employment of the fingers to each knife or sickle blade, for the purpose of dividing the cutting force expended at each stroke of the cutter bar, and also preserving more perfectly the cutters from injury, by keeping stones, &c., from coming in contact therewith.

I do not claim the general device of making bars of angle iron, for the purpose of lightness and rigidity; but the making the cutter bar of angle iron, for the purpose of attaining at the same time both the above advantages, and a shoulder against which to abut the knives, so that a single hold to each will securely hold them, substantially as and for the purpose set forth.

No. 13,102.—JOHN RICHARDSON.—*Improvement in Producing Intermittent Acceleration of Motion in Harvester Rakes, &c.*—Patented June 19, 1855. (Plates, p. 14.)

When the projection *a* on drum H passes beyond the contact with the wheel V, the drum H and chain-wheel J (which transmits motion to the crank shaft L actuating the rake) are driven with the ordinary velocity of the shaft F, by means of the rack and pawl I *b*. But when the projection *a* meets the wheel V, (having an India rubber or similar yielding periphery,) the pawl slips over the ratchet; and the drum, ratchet, and chain-wheel being then loose on shaft F, they are free to turn with a velocity due to the circumference of the wheel V.

The inventor says: I am aware that an accelerated motion has been given to grain rakes or harvesting machines; this I do not claim.

But I *claim* a device for producing an accelerated motion, whether in rakes or for other purposes, said device consisting of the cam *a* on the drum H, and the latch and pawl I *b*, and friction wheel V, arranged and operating substantially as set forth.

No. 13,147.—STEPHEN HULL.—*Improvement in Attaching the Raker's Seat to Harvesters.*—Patented June 26, 1855.

The raker's seat is fastened on the bar *g*, near the inside of frame *k*, for the purpose of causing the weight of the raker to rest as much as possible on the frame *k*, outside of the driving wheel, for the purpose of relieving the cutters or finger bar of all unnecessary weight. The platform *i* rests on said bar *g*.

The inventor says: I do not claim to be the original inventor of the raker's seat, nor of any of the different parts of the machine, irrespective of the manner in which they are combined and fastened together.

But I *claim* the placing or fastening of the raker's seat on the bar *g*, by means of a bar of iron or steel, or any other equivalent device, near the inside of the main frame, in such a manner that the weight of the raker, when on his seat, will rest on the bar, substantially as set forth.

No. 13,149.—JOHN H. MANNY.—*Improvement in the Cutters of Harvesters.*—Patented June 26, 1855. (Plates, p. 14.)

A series of angular notches *b* are formed on the under side of the sickle at its rear edge; the side 1 of each notch is inclined at an angle of about twenty degrees to the side of the sickle; and the side 2 of the notch is at right angles to the sides of the sickle. While the blade is vibrating in one direction, the inclined side of the notch will tend to rise upon and pass over a fibre or other obstruction, while on its vibration back in the opposite direction, the vertical or square side of the notch will catch and pull along the fibre entangled upon the finger; in this way the fibres that tend to entangle the blade and guard fingers are kept constantly moving along until they are carried out by the motion of the sickle. The clearing hook *c*, at each end of the sickle, draws out and discharges the fibres from the apertures which form the bearings for the end of the sickle in the divider and guards, and thus prevent the clogging of the ends of the sickle.

Claim.—Constructing the cutters of harvesters with clearing notches, of the form described.

Also, the combination of clearing hooks with the cutters of harvesters, substantially as set forth.

No. 13,150.—JOHN H. MANNY.—*Improvement in the Guard-Fingers of Harvesters.*—Patented June 26, 1855. (Plates, p. 14.)

The neck of the lower part of the guard finger is placed obliquely, in order to diminish the tendency of grass, &c., to lodge. The engravings represent a bottom view of the fingers.

Claim.—Forming the fingers with an oblique neck *c*, arranged substantially in the manner and for the purpose set forth.

No. 13,159.—Gardner A. Bruce.—*Improvement in Harvester Reels.*—Patented July 3, 1855.

The bars *b* of the reel, in consequence of swinging on pivots *c*, enter or descend into the grass vertically, and yield in a measure during the action upon it.

I *claim* constructing the bars *b* of the reel E as shown, viz: having the pivots *c* at the end of said bars placed at the edges of the ends, and fitted loosely in holes at the ends of the radial arms *d*, so that the bars may, by their own gravity, remain in a vertical position as the reel rotates, for the purpose as set forth.

No. 13,160.—Sylvester Colburn.—*Improvement in Grain and Grass Harvesters.*—Patented July 3, 1855. (Plates, p. 14.)

The cutters D work between the plates *h* and the under surface of *a*. The springs *g* keep the upper edges of the plates *h* in contact with the edges of the cutters, and thus prevent clogging and keep the cutters sharp.

I *claim* the employment of the elastic plates *h*, fitted within the fingers B, and acted upon by springs *g*, arranged substantially as shown, for the purpose set forth.

No. 13,173.—Wm. H. Hovey.—*Improvement in Grain and Grass Harvesters.*—Patented July 3, 1855. (Plates, p. 14.)

When the sickle bar E receives a reciprocating motion, and the cutters *f* work on the pivots *g*, the edges of the cutters act against the edges of the plates *d* and cut similar to shears, while the clearers *i* work in the recesses *c*, in consequence of their bar F being attached to the cutters by the pivot *j*. The clearers keep the recesses *c* free from grass, and prevent the choking or clogging of the sickle. The two sectional figures are on a larger scale than the plan.

Claim.—The employment of the "clearers" *i* attached to the bar F, and working in the recesses *c* of the fingers *b*, for the purpose of preventing the choking or clogging of the sickle as shown; the bar F being connected to one or more of the cutters *f* by pivots *j*, by which motion is communicated to them.

No. 13,176.—James Little and Wylie Little.—*Improvement in attaching the Connecting-Bar to the Cutters of Harvesters.*—Patented July 3, 1855. (Plates, p. 14.)

Claim.—Connecting the pitman or connecting rod G to the sickle bar F, by means of the cylindrical projection *i* on the end of said bar, and the loop *j* at the end of the connecting rod, as shown; whereby the pitman may be readily connected to, and detached from, the bar F, and at the same time a durable connection or attachment of the bar and pitman obtained.

No. 13,181.—Samuel Rockafellow.—*Improvement in Mowing Machines.*—Patented July 3, 1855. (Plates, p. 14.)

By operating the arm S, the lever Q will raise or depress the side piece *a*, and also the finger bar K and cutters attached to it. Arm S may be secured at any desired point by pawl V, the lower end of which bears upon segment guides V V, on the frame A of the machine.

Claim.—Raising and depressing the finger bar K, and consequently the cutters *e f*, by means of the vertical bars M M, having wheels O O at their lower ends, arm P, attached to the cross-piece N of the bars M M, lever O and shaft R, with its arm S attached. The above parts being arranged substantially as shown and described.

No. 13,205.—Jonathan F. Barrett.—*Improved Method of Raising and Lowering the Cutters of Harvesters.*—Patented July 10, 1855. (Plates, p. 14.)

When it is desirable to raise the cutters above the ground, the driver (sitting on seat I) depresses with his foot rod *h f*, thereby lifting the front end of lever M, and elevating the cutter bar K.

Claim.—Connecting the front of the frame with a lever M, arranged and operated substantially as set forth, for effecting the elevation of the cutters for the passage of obstacles, by the driver's foot, as specified.

No. 13,226.—Isaac Irvine Hite, assignor to Washington F. Pagett. *Improvement in Harvesters.*—Patented July 10, 1855. (Plates, p. 14.)

The raker, instead of walking alongside of the machine, takes his place in or on the stand or seat B, which is attached to the harvesting machine at the rear edge of the platform A.

Claim.—The combination of a raker's seat or stand with McCormick's machine for cutting grain and gathering it upon a platform.

No. 13,246.—Abner Whiteley.—*Improvements in Grain and Grass Harvesters.*—Patented July 10, 1855. (Plates, p. 15.)

For mowing, one *(u)* of the two bolts that connect the tongue *a* to the frame C is taken out, thus constituting the other bolt a fulcrum or joint for the tongue and frame to turn about. By moving lever *f* into any one of the notches of plate *e*, (the shaft of wheel A being the fulcrum on which frame-lever *c* works, and the frame-lever *c* being fastened to the front end of frame C by link *g*,) the front edge of the finger bar H, which carries the fingers and cutters, can be raised or lowered, and thus the angle of the cut be changed, while the team is in motion.

To adapt the machine to reaping, the bolt *u* is to be thrown in, thereby forming a stiff connection between tongue and frame, which

will allow the wheel A to ascend or descend without affecting the finger bar and cutters; the heads of the boxes *t* of the wheel A playing up and down in the slots in the plates S, to suit the unevenness of the ground. The circular part of said slots retains the cog-wheel *o* in gear with the pinion; but when the frame is so elevated as to cause the heads of the boxes *t* to pass into the reverse part of said slots, then the pinion will be thrown out of gear.

The inventor says: I *claim*, first. So constructing the machine, that when the joint between the tongue and frame is flexible, the latter may, while the team is in motion, be raised and lowered in a sector of a circle whose centre is the finger bar, and thereby enable the operator at once to change the angle of cut; and this I claim, irrespective of the mechanical device by which the motion is produced.

Second. The frame-lever *c c*, provided with means of fixing its position at will, and linked, as described, to the main frame C C, in combination with the guiding slotted plate S S, as a means, when used with the flexible joint between the tongue and frame (for mowing) of oscillating the frame about the finger bar as a centre, and thus varying the angle of cut; and when used with a rigid joint, (for reaping,) of raising and depressing the frame and finger bar.

Third. The combination with the links *g g* of the receding curve in the bottom of the slots in plates S S, in which the axis of the driving-wheel plays, or of their equivalents respectively; for the purpose of enabling the driver to throw the cutter pinion out of gear, substantially as described.

Fourth. Suspending the main frame C C and its attachments from the driving shaft, substantially in the manner set forth and described; in order that, whether used in reaping or mowing, the driving-wheel and the finger bar may be independently adjustable, and the wheel may rise over obstructions, or descend into depressions, without altering the angle of cut, or otherwise affecting the cutters,

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No. 13,285.—David Watson.—*Improvement in Harvesters.*—Patented July 17, 1855. (Plates, p. 15.)

Figure 1 represents a plan of the machine. *l* is the cutter reciprocating between the fingers *m*, the arrow indicating the line of motion of the harvester. This oblique arrangement of the cutters allows them to be much longer than when arranged at right angles with the line of motion for the same width of cut. Consequently, each finger has to gather a less quantity of straw, which is then severed with greater ease.

The inventor says: I do not claim the diagonal arrangement of a series of rotary cutters, or the diagonal cut of a certain portion of one or more rotary cutters.

But I *claim* the arrangement of a reciprocating cutter or cutters, diagonally to the line of motion of the machine, substantially as specified.

No. 13,330.—Jesse Urmy.—*Improvements in Grain and Grass Harvesters.*—Patented July 24, 1855. (Plates, p. 15.)

By raising or lowering the pinion *r* so as to make it gear with one of the ranges *p* of cogs on driving wheel C, the revolutions of the vertical shaft of *r*, and, consequently, the reciprocations of the rake R (connected to said shaft by a rod *m* and eccentric arm *n*) will be more or less rapid. The dividing board *f* is horizontally hinged so that its inner edge can be more or less turned from a vertical towards a horizontal position, thereby gathering the grain more or less closely.

The inventor says: First, in combination with the driving wheel placed inside the gearing as described, I *claim* the angular tongue *i* for preventing side draught, and at the same time allowing the horses to walk on the side of the standing grass or grain.

2d. The described use of the balanced dogs b^1 b^1, under the driver's feet, for throwing the cutting apparatus in and out of gear.

3d. Making the parting and gathering board *f* hinged and adjustable, as set forth.

4th. Regulating the size of the shears by means of the several ranges of gearing *p p* within the driving wheel, in combination with the adjustable pinion, as set forth.

No. 13,433.—Robert J. Morrison.—*Improvement in the Cutting Apparatus of Harvesters.*—Patented August 14, 1855. (Plates, p. 15.

The lids *d*, resting upon the moving cutting blades *b*, remove all accumulations thereon, and rise and fall independently of each other.

Claim.—The hinging of the lids and allowing them to rest, severally and independently, upon the moving cutters, in the manner and for the purpose substantially as set forth.

No. 13,438.—Fisk Russell.—*Improvement in Harvesters.*—Patented August 14, 1855. (Plates, p. 15.)

The front end of lever G works the knives, while the rear end carries a fork I, that is free to turn in the end of the lever, and embraces the serpentine edge of the cam wheel F, and supports two friction rollers, between which the cam edge works.

Claim.—So arranging the rocker frame I that it may rotate in the end of the lever G, while said rocker frame is operated upon by the serpentine cam wheel, which it embraces, essentially as specified.

No. 13,480.—Charles Bradfield.—*Improvement in Harvesters.*—Patented August 21, 1855. (Plates, p. 15.)

The cutters are hung immediately underneath the axle, and receive their vibrating motion by means of bent lever K, pitman *j*, and crank *i*, on shaft 2, which latter receives rotary motion from pulley D, (on main driving shaft,) by means of friction band *g*.

Claim.—The arrangement of the pulleys D E *f*, on and near the axle, and the finger and cutter bar underneath the axle, when the cutters are operated from said pulleys, through the intervention of the endless belt *g*, cranks, pitman, and connecting rod, as set forth.

No. 13,504.—Robert Beans.—*Improvement in the Mechanism for changing Harvesters from Reapers to Mowers, &c.*—Patented August 28, 1855. (Plates, p. 15.)

The cutting knife is attached to the lower end of lever *o*. A connecting rod P passes from the crank to the upper part of lever *o*, and, by attaching it at a greater or less distance from the centre, the operator will be enabled to give the cutting knife more or less sweep.

Claim.—The combination of the lever *o* and connecting rod P, with any means of altering the height of the frame above the cutter-bar, for the purpose of retaining the same relations between the stroke of the knives and the teeth or fingers, although the distance between the head of the cutter-bar and the crank be varied in so doing, as set forth.

No. 13,508.—John Thompson.—*Improvement in Grain and Grass Harvesters.*—Patented August 28, 1855. (Plates, p. 15.)

The axle *b* is extended across the machine at such height that the grain or grass may be gathered and discharged under the axle. The large wheels are intended to render the draft easy, especially in rough land.

I *claim* discharging the grain from the platform, between the platform and the driving-wheel, and under its axle, when the same is done in connexion with a pair of wheels whose axle extends across the machine, as described.

No. 13,512.—Henry Waterman.—*Improvement in Reaping and Mowing Machines.*—Patented August 28, 1855. (Plates, p. 16.)

The cutter-bar is connected at each end by pivot-joints to arms *a a*, which vibrate about fixed centres *b*; thus the cutters receive an advancing and retreating curvilinear motion, which secures the advantage of a draw-cut, and keeps the spaces clear between the knives and the fingers. When sticks, or the like obstructions, get between the fingers and knives, the spring of the fingers admits of their being easily dragged out by the retreating motion of the knife.

During the operation of the machine the grain accumulates upon the lowermost cradle of the reel *p*, and when a sufficient gavel is attained, the driver depresses the check-pin *t*, so as to allow the reel to revolve, when the weight of the gavel will cause the reel to make part of a revolution, and the gavel drops upon the field. As the grain is laid across the swath it is turned, so as to lie in the direction of the swath, and be out of the way of the horses, by means of a deflector,

which is composed of a flexible strip a^1 of metal and of a side C, made in sections free of each other, so as to accommodate the flexure of strip a^1 as it passes over irregularities upon the surface of the field.

The inventor says: I do not claim the advancing and retreating curvilinear motion of the cutter-bar.

But I *claim* the combination of the two sets of knives described, with the curvilinear motion of the cutter-bar.

I *claim* the elastic fingers, in combination with the curvilinear motion of the cutter-bar.

I *claim* collecting and depositing the grain by the revolving cradles, by the weight of the grain laid upon them by the reel.

No. 13,517.—Collins B. Brown.—*Improvement in Mowing Machines.*—Patented September 4, 1855. (Plates, p. 16.)

The bolts *j j* prevent any lateral play between the finger-bar F and bar D, and the screws *k* prevent vertical play. By constructing the frame B of two metallic side-pieces, and attaching the bar D and draught-pole to the lower end of the frame, a strong and simple framing is obtained.

Figure 3 represents a section, on an enlarged scale, of the connexion between D and F.

I *claim*, first, attaching the finger-bar F to the bar D of the frame, by means of the plates *i i* placed each side of the bars near their ends, which overlap each other, the plates being bound or pressed against the sides of the bars, by means of screw-bolts *j j*, which pass between the two bars,—the ends of the bars having screws or screw-bolts *k k* passing vertically through them.

2d. I *claim* constructing the frame of the machine of two metallic sides *d* d^1, between which the driving-wheel A is placed, and attaching the bar D to the lower ends of said side-pieces; and also the draught-pole or tongue E, as shown.

No. 13,523.—Jonathan Haines.—*Improvement in Grass Harvesters.*—Patented September 4, 1855. (Plates, p. 16.)

The nature of this invention will be understood from the claims and engraving.

The inventor says: Adjustable seats, or seats that can be adjusted, have been used; but to do this the machine must be stopped, and the adjustment when made is permanent: this I do not claim.

But I *claim*, first, the hanging of the cutter bar to the main frame by means of the longitudinal *k* and transverse rods *m*, so that said cutter bar may be free to rise and fall to the undulations of the ground, while it is prevented from all lateral motion.

I also claim the use of a driver's seat when mounted on ways or rails, so that the driver can, at pleasure, throw his weight forward or backward, to aid in balancing or relieving the cutters, as the variable character of the ground or condition of the grass may require.

No. 13,524.—A. E. KROGER.—*Improvement in Harvesters.*—Patented September 4, 1855. (Plates, p. 16.)

As the finger bar is attached to the lower ends of the rods *c c*, which are allowed to slide in holes in the front bar *a* of frame A, and as these rods are encompassed by springs d^1, either end of the finger bar and sickle may be raised, according to which end of the finger bar may meet with an obstruction.

I *claim*, attaching the finger bar D to the front bar *a* of the frame A, by means of the rods *c c*, which slide through the ends of the bar *a*. The rods *c c* being encompassed by springs d^1 d^1, as shown.

No. 13,545.—JOHN E. HEATH.—*Improvement in Harvesting Machines.*—Patented September 11, 1855. (Plates, p. 16.)

The friction roller *m* on cutter bar *n* is operated by the cam-groove in the driving wheel *f*, so as to give the cutter bar (which is hung in stirrups *q r*) a reciprocating motion. The roller *m* turns loosely on a pivot projecting from the cutter bar, at an angle of about 45 degrees. The bar *x* presses upon the upper sides of the teeth *t*, which are immediately above the fingers *u*. Bent arms *w* extend backward from bar *x*, and are fastened to the frame *e* by set-screws. By means of these set-screws the pressure between the fingers and teeth can be regulated.

I *claim*, first, suspending the reciprocating bar *n* by means of the stirrups *q* and *r*, near the ground, in front of or behind the driving wheel, in or near the same plane as the finger board, in combination with the angular friction roller, the whole being arranged and operated in the manner and for the purpose set forth.

Second. The adjustable pressure bar *x*, constructed and arranged as described, in combination with the cutter teeth *t* and fingers *u*, for the purpose specified.

No. 13,565.—WM. BURGESS.—*Improvement in Mowing and Reaping Machines.*—Patented September 18, 1855. Patented in England, August 16, 1854. (Plates, p. 16.)

This invention consists in applying one or more Archimedean screws A to the platform, or other convenient part of reaping and mowing machines, for the purpose of delivering the cut crop to the side of the machine, motion being communicated to such screws from some running part of the machine.

The inventor says: I am aware that a "spiral or screw" has been employed for the purpose of clearing the track, in order that the wheels may operate upon the ground; and I make no claim to such a device.

But I *claim* as my improvement, in addition to reaping or mowing machines, combining the Archimedean screws with the platform thereof for the purpose of delivering the cut crop off from the same, substantially in the manner as described.

No. 13,828.—JOHN REILY.—*Improvement in Harvesting Machine.*—Patented November 20, 1855. (Plates, p. 17.)

The cutter guard G has a slot *k* moveable upon pin *l*, so that the guard may be drawn back by the operator on seat S^1 during the turning of the machine to prevent the beating down of the standing grain. Spring *s* causes the protrusion of said guard when rod *m* is released.

The grain guard consists of an oblique standard *p*, to the lower portion of which is jointed arm Q, having a tendency towards the standard by reason of a spring *q*. To the upper end of arm Q is jointed the handle *s* of guard board *t*. As the raker leans forward to remove the grain from the platform, his foot pressing upon stud *r* on arm Q, the grain guard board *t* is thrown foward in the position shown in fig 2. During the raking, the newly cut grain falls against board *t*, as shown in dotted lines in fig 2. As the raker rises after clearing the platform, the spring *q* carries the board *t* into position of fig. 1, the grain resting on it falling upon the platform. In this manner the falling grain does not interfere with the rake.

Claim.—First, the retracting guard G, in combination with the spring *s* and rod *m*, when constructed, arranged, and operated from the raker's seat, in the manner and for the purposes specified, and not otherwise.

Also, the grain guard P, when constructed, arranged, and operated in the manner and for the purposes specified, and not otherwise.

No. 13,933.—JOHN W. HAGGARD and GEORGE BULL, assignors to GEORGE BULL, JOHN W. HAGGARD, and ANDREW NEWSTETER.—*Improvement in Harvester Rakers*—Patented December 11, 1855. (Plates, p. 17.)

Belts H K passing over pulleys N N and over shaft F, receives motion from the latter. O is a platform for the support of the falling grain. The plate T is attached to both belts, and bar J slides in open brackets upon plate T. The rake teeth for collecting the grains project from bar J. Pin R prevents J from performing but a part of a revolution, and spring I presses bar J into slot V; so that when the belts are reversed in motion, the pin Z is brought under the edge of the frame plate O^1 at V, thus giving to J a part of a revolution, so as to incline the rake teeth S to nearly a horizontal position, until the belts have passed to the opposite end at V, when, by means of spring I, the rake bar J and teeth resume their vertical position for raking.

Claim.—The plate O^1 having its inclined and parallel planes on the same sides, in combination with the pin Z, bar J, spring I, and pin R, the whole being constructed, arranged, and operating, as described.

No. 12,269.—GEO. A. BROWN.—*Hay-Making Machine.*—Patented January 23, 1855. (Plates, p. 17.)

The spur gear *j* on the driving wheels gear into pinions *a* on each end of the picker shaft *c*, thus directly transmitting the motion from the

driving shaft to the picker. The pinions are so arranged with a dog *c* and a ratchet wheel *b* (keyed to the picker), that in turning about when only one driving wheel revolves, the dog may be raised to let the pinion turn loose without acting on the picker.

Claim.—The construction of a machine in manner and form as described, or in any other manner or form substantially the same, applying the power directly from the driving wheels to the spreading apparatus, thus saving the loss of power caused by friction in a series of wheels, using coiled or spring teeth, and the application of such machine to the purpose of spreading and turning hay.

No. 12,728.—Francis Peabody.—*Hay-Making Machine.*—Patented April 17, 1855. (Plates, p. 17.)

The end pieces B of the horizontal rake C form runners, which slide upon the ground and guide the rake. The rake-fingers C, etc., gather up the mown grass, and present it to the revolving scatterer H. The scatterer has a rapid revolving motion, opposite to the motion of the rake, as is apparent from figure 3; and thereby the grass is all thrown behind the machine, where it distributes itself evenly over the ground. The central driving wheel, in combination with the runners, is to allow the machine to be easily turned in any direction; and the runners being tilted up by any obstruction in the ground, will thereby protect the fingers against being broken.

Claim.—1. The within described machine for making hay, consisting essentially of the rake for gathering the grass, in combination with the revolving scatterer, constructed and operating in the manner substantially as herein described.

2. Revolving the scatterer in a direction contrary to that in which the machine moves, for the purpose herein set forth.

3. The employment of a single wheel to carry and actuate the hay-maker, when this wheel is placed in the centre of the machine, in the manner and for the purpose set forth.

No. 13,908.—John K. Harris.—*Improvement in Machines for Raking and Loading Hay.*—Patented December 11, 1855. (Plates, p. 18.)

The crank *s t*, in its revolution, will come in contact with the long end of lever *m*, and, by elevating it, will cause the forks K to assume the position shown in broken lines. The hay, previously gathered by the forks in their passage through the rake-teeth E, will now be lifted from the ground, and clasped firmly against the front tie-piece *h* and wires *q*. The continued motion of the crank will then cause the pitcher frame *g* to be elevated until it acquires a vertical position, when lever *m* will be tangential to the circle described by the crank. The further motion of the elevator being now resisted by spring *y*, the crank will pass the fulcrum *l* of lever *m*, and, by pressing against the opposite end, will cause the forks K to fly back, (see position indicated by dotted lines), thus discharging the hay on the wagon. The crank being now disengaged from lever *m*, the elevator will descend until lever *m* is caught by the stirrup *z*, when the forks K are suddenly forced through the spaces between the rake-teeth so as to gather the hay. The above described operation will then commence again.

The inventor says: I do not claim any form of attachment to the wagon, or the manner of forming the spring of the rake-teeth, or any continued endless belt motion, with an ordinary rake attached behind, to save the hay, passed over by the endless belt elevator.

But I *claim* the pitcher or elevator, in combination with the rake, for the purpose of taking the hay from the rake in regular successive intervals of time, and in separate parcels, and elevating and delivering it on the wagon, substantially in the manner and for the purpose as described.

No. 13,460.—John Locke Hardeman.—*Improvement in Hemp Cutters.*—Patented August 21, 1855. (Plates, p. 18.)

The hemp is sustained and brought up against the scythes *b* by the curved arms *m* of the horizontal reel. The arm *a* extends from the frame, and supports the bars to which the scythes are attached by hinges *c*. The sides of the scythes are turned up so as to form the support of the blades. By thus having the scythes hinged to the arm, they can readily be taken off for the purpose of sharpening the blades. A curved guard *f* is affixed to the under side of the scythes, so as to prevent the blades from entering the ground.

The engraving represents a top view of the machine.

Claim.—1. The side reel, constructed and applied for hemp, grain, or other articles of like nature, such reel having curved arms, be the curvature more or less.

2. The cleaning shears, substantially as described.

No. 12,374.—Thomas D. Aylsworth.—*Improvement in Hop Frames.*—Patented February 13, 1855. (Plates, p. 18.)

These frames are so arranged, that the portions upon which the vine entwines may be loosened at their upper ends, and taken or laid down to gather the product, and then returned to their proper positions on the frames with great facility.

Near the top of the training cords there is an inverted cup-shaped piece *d*, concave on its lower surface, for the purpose of turning downward the top of the vine when it reaches that point, to prevent it from entwining the supporting wires *c*, in which case the cord D could not readily be unhooked and taken down.

The inventor says: I do not claim the training of hop or other vines on wires or cords, as this has been done before.

But I *claim*, in combination with the permanently arranged supporting cord or wire C, the training cords or wires D, leading from the ground to said supporting wire, and connected thereto by a spring

hook, or its equivalent, so as to be readily connected to, or detached from, the supporting wire, for the purpose and in the manner set forth.

I also claim, in combination with the training cord D, the inverted cup *d*, for turning down the top of the vine, and preventing it from entwining the supporting wire, substantially as set forth.

No. 12,610.—JOSEPH WALKER.—*Improvement in Hulling Cotton Seed.*—Patented March 27, 1855. Patented in England, July 20, 1854. (Plates, p. 18.)

The construction of the concave D, and how it can be adjusted by set-screws E G, so as to suit seeds of different sizes, will be understood from the engravings.

Claim.—Supporting and adjusting the concave bed by means of grooves cut within, or other equivalent devices affixed to the side frame, in such manner that the side concave shall be eccentric to the axis of the hulling cylinder, for the purpose specified.

No. 12,908.—C. B. HORTON.—*Improvement in Hullers of Buckwheat.*—Patented May 22, 1855. (Plates, p. 18.)

The grain enters the stones by spout M, and, after having been hulled between them, passes through inclined spout O into suction pipe I, where the current of air created by fan *j* carries the hulls, dust, and lighter grain, in the direction of the arrows, while the hulled grain falls down by its own gravity. The light grain will finally pass out at Q, and the chaff, etc., at R.

The inventor says: I am aware that conical stones have been used for the grinding of grain; therefore, I do not claim that as my invention.

But I do *claim*, the arrangement and combination of the fan *j j j j* with the suction spout I I, the discharge openings R Q, and the stones B and C, substantially in the manner and for the purposes set forth.

No. 13,556.—WILLIAM WILBER.—*Improvement in Cotton-Seed Hullers.*—Patented September 11, 1855. (Plates, p. 18.)

The rollers D E and breast plate F serve to carry and chaff the seed; the seed is then crushed between cylinder G and concave H, and breastplate J, which latter, when worn out, can be removed and replaced by another; the material is then mangled and loosened up by the teeth *c d*, and beaters *b*, on cylinder L, and then comes on to the screens. The various screens are graduated as to their meshes, and have a vibrating motion. The first blast coming from fan R is light, and acts through the fine screen *e*, and carries off light matter. The agitation of the screens is all the while sifting the pure from the impure particles, and allows the latter to pass through the screens into proper receptacles below. The heavier portions pass along the inclined screens until they are acted upon by the more powerful blast from fan-blower T, the blast passing up through screens *i* and *f*. The pure material drops down on to the chute V, and the impure or mixed pass onward to be operated upon by a third still more powerful blast from a fan W, (not represented in the engraving,) the pure material dropping on to chute X, whilst the lighter portions are blown out at the side of the machine; the last blast acting across the way of the material.

Claim.—The arrangement of the hopper B, revolving toothed cylinders D E, breastplate F, crushing and grinding cylinder G, concave bed H, with removable extended bed-plate J, and toothed cylinder L, revolving in its toothed case K^1, in the manner and for the purpose set forth.

I also claim the series of graduated blasts R T W, and screens *e f g h i j k*, for the purpose of separating the oleaginous from the other impurities of the seeds, they being arranged and operating substantially in the manner and for the purpose set forth.

No. 13,713.—ROBERT ANDERSON and JOHN E. ANDERSON.—*Improvement in Rice-Hulling Machines.*—Patented October 30, 1855. (Plates, p. 19.)

To the supports D are secured (by means of adjusting screws E) ribs F, to the underside of which ribs are secured strips of India rubber G, which will afford an elastic pressure to the rice in passing between the ribbed surface of the hulling cylinder B, and the India rubber surfaces. Springs may be adjusted around the set screws E, so that as the set screws are drawn back, the springs lift the rubbers.

The inventors say: We are aware that India rubber has been applied in hulling machines, and that segmental concaves, supported by spiral springs, are well known in this class of machines; also, that it is common to apply adjusting screws to the concave, when constructed in one piece; we do not claim either of these features.

But we *claim* the adjustable segmental concave, faced with India rubber, in combination with the spiral springs, and a ratchet-faced hulling cylinder, in the manner described for the purpose specified.

No. 13,992.—CHARLES MILLER.—*Improvement in Hulling Machines.*—Patented December 25, 1855. (Plates, p. 19.)

This improvement consists in providing an ordinary clover-seed huller, with adjusting slides *c d*, by means of which the seed can be retained in or discharged from the machine at the option of the operator, so as to avoid running the seed more than once through the machine; which is frequently the case in other hullers when the seed is damp.

Figure 1 represents a longitudinal, and figure 2 a cross section of the machine, the hulling cylinder B being removed in the latter figure, so as to show the slides *c d*, which can be drawn out (see position in dotted lines) by means of rods F F.

Claim.—The application of the block *e e*, and adjustable slides *c*, *d*, by means of which the machine can be regulated so as to retain the seed in the huller, until it is perfectly shelled.

No. 12,508.—H. LUDINGTON and S. R. LUPTON.—*Improvement in Lime Spreaders and Seed Planters.*—Patented March 13, 1855. (Plates, p. 19.)

A supply of compost is put into the reservoir C, and the fountain G is filled with lime or compost, and the machine being set in motion, the cylinder and spike shaft revolve; the lime, in a pulverized form, passes off through the bottom of the expanding sectional hopper, and is distributed over the soil. When lumpy portions of the compost have accumulated on the grating, it can be elevated by means of cord *i*, into the position represented in figure 1, when the lumps will fall to the ground.

The inventors say: We claim the construction of an expanding sectional hopper E E hung by hinges or otherwise pendent, and formed with concaves on the inner sides, which concaves have formed thereon diagonally arranged ridges or sloping irregularities *a a a a a a*, substantially as described.

Second. We claim the construction of a drum cylinder or roller F F with series of ridges or sloping irregularities *p p p*, formed or arranged diagonally across its circumference or periphery, together with longitudinal troughs or gutters *s s s s*, at intervals between the ridges as shown. This cylinder being also combined in action or operation with the hopper E E and the revolving spike shaft H, as set forth.

Third. We are aware that there are such devices as tilting-tables, dumping-beds and cart bodies, and sloping or sliding planes, for the purpose of precipitation; none of these, however, do we claim, as they are not equivalent forms of construction to ours, for they do not embrace the two-fold principles of our device; nor is it a fixed sieve or permanently arranged grating that we claim; but, instead, we claim constructing a feeding or supply fountain, having the combination of adjustable hinged frame grating, actuated by cords or equivalents, and to answer the two-fold purpose of holding the compost mass, and preventing the escape of lumps, &c., and admitting also of being elevated or depressed, or thrown forward at pleasure, for the purpose of relieving the grating and hopper or fountain of lumps and other obstructions, in the manner and for the purpose set forth.

No. 12,480.—RENE CHAS. DEMOLON and GEO. ALEX. CHAS. THURNEYSSEN.—*Improvement in Treating Fish for Manure and Oil.*—Patented March 6, 1855.—Patented in France, January 13, 1851. (Plates, p. 19.)

The raw fish is placed in a boiler heated by steam, no water being added. The fish, when sufficiently boiled, is put into a press, and the

oil extracted from it. It is then brought under the action of grating machinery, and the particles are finally exposed to a current of hot air. The particles, when dried, are still more reduced by proper grinding apparatus to produce the powder ready for use.

We claim the reduction of fish, or the remains of fish, to a dry powder for manure and other purposes, substantially as specified.

No. 12,152.—ALEXR. ANDERSON.—*Improvement in Seed Planters.*—Patented January 2, 1855. (Plates, p. 19.)

The hopper F being filled with potatoes, the apertures *f*, in the upper part of apron D, will receive potatoes of suitable size, and these potatoes will be carried along as the cogs of wheel O gear into the apertures in the lower part of the apron. Those potatoes which are so large as to project over the surfaces of the blocks *d*, after having been received into the apertures, will be cut off when reaching the knife G. The blocks *d* of the apron passing around roller *a*, the potatoes drop through the spout L into the furrows.

The inventor says: I do not claim cutting potatoes for planting by means of a horizontal reciprocating knife. What I *claim* is the peculiar construction of my seed planter, by which the apertures *f f* are made to perform the double function of carrying a graduated amount of seed to the discharge spout, and also of receiving the teeth of the wheel O, by which motion is communicated to the endless apron, as set forth.

No. 12,231.—JARVIS CASE.—*Improvement in Seed Planters.*—Patented January 16, 1855. (Plates, p. 19.)

The slide I is vibrated in the following manner: the wire S passes through the handles F F, and is so arranged between arms *h h* and H, that when the operator bears down on the thumb-lever *x*, the weighted lever *g* turns the rocker G back, and arms *h h* (on rocker G) press down on the elastic wire S, so that, when the thumb-lever is relieved, the wire and the weight of the weighted lever throw the rocker forward, and arms H (on rocker G) press upward on the wire, and again throw the rocker back, which causes the vibratory motion. These rapid vibrations of the slide, which agitate the seed in the aperture as well as above the aperture, are intended to fill the aperture more readily than is usually done.

u is a brush-stock, which is secured at each end by means of screws, and is hollowed out on the underside; *v* is the brush which passes through the brush-stock, and projects down, or nearly down, to the cut-off plate *t*, and directly over the angle in said plate. The object of the brush is to aid the cut-off plate, by brushing all superfluous grains from aperture *i*, before the seed comes in contact with the cut-off plate.

The use of leather, or other elastic substance, for the cut-off plate, is intended to allow it to rise and let the seed pass under it without being injured.

Claim.—1st. The agitation of the seed-slide I by means of a rocker G, wire S, and levers *g* and *x*, for the purpose of filling the seed-hole with a uniform amount of seed, as set forth.

2d. The elastic cut-off plate *t*, in combination with brush *v*, arranged and constructed in the manner and for the purpose described.

No. 12,256.—ELIJAH MORGAN.—*Improvement in Seed Planters.*—Patented January 16, 1855. (Plates, p. 19.)

B is the V-shaped bottom of the hopper A. The bar D is placed so as to form recesses *a* between its sides and the sides of the hopper. Bar D is grooved on the underside, in which groove slides the reciprocating bar E. The lower edge of E is V-shaped, and fits nicely to the bottom. The seed passes through recesses *b* in the bar, and through apertures *c*, out of the box.

Claim.—1st. The combination of the stationary protecting-bar and the reciprocating feed-bar, when the latter operates within a groove in the former, substantially in the manner described.

2d. The combination of the V-shaped forms of the bottom of the hopper and the bottom of the reciprocating bar, when said bar is provided with openings from both sides, which meet and vibrate over the holes *c*, in the bottom of the hopper, substantially as described, and for the purpose set forth.

No. 12,260.—STEPHEN L. STOCKSTILL and PETER H. HUMES.—*Improvement in Seed Planters.*—Patented January 16, 1855. (Plates, p. 20.)

This feeding apparatus is located below the hopper which contains the seed grain, and consists of a plate *a*, with a bevelled-edged opening 1 through it, forming a mouth-piece. The plate *c* resembles in form a plane-bit, with the slot continued to the edge; and this, by its retraction or impulsion forward, can be made alternately to open or close the aperture in plate *a*. Below *c* is another sliding-plate *b*, with an aperture 2 through it of a triangular shape, so as, by its motion in or out, to limit the size of the passage through which the seed passes. The ratchet-teeth, on feed-wheel *d*, carry forward the seed and discharge it on to the spouts *e* e^1. The edges of the triangular aperture through plate *b* converge lengthwise, so that, as it is slid back, the passage may become narrowed and diminished in area. From the middle of the feed-wheel projects a flange *f* through the plates and into the hopper, for the purpose mentioned in the claims.

Figure 1 represents a top view; fig. 2 a longitudinal section; and fig. 3 a cross section.

Claim.—1st. The converging openings of the guage-board, permitting the graduation of the amount of feed, without narrowing or circumscribing the passage with respect to the size of grain, which is thus preserved from cutting or injury.

2d. The dividing ridge or flange around the perimeter of the feed-wheel at its mid-width, enabling the same wheel to score two exactly equal rows, and, at the same time, serving to stir the grain, and to shift out of the way any tailings or other obstructions that would intercept the discharge.

3d. The bevelled or flaring axial mortise through the feed-wheel, preventing any unevenness of the axle from wabbling or clogging the wheel, or disturbing the feed.

No. 12,294.—ISAAC WILLIAMS and ISAAC W. BAUSMAN—*Improvement in Cotton Seed Planters.*—Patented January 23, 1855. (Plates, p. 20.)

The inventors say: We are aware that one or more shafts, with teeth, have been placed within the hopper, and that a single cylinder, with a series of spirally set teeth, has been employed in the throat of the hopper of seed planters; we therefore do not claim these devices.

But we *claim* the use and combination of two cylinders, placed one above the other, not in the hopper, but in the throat below the hopper, one furnished with a row of long teeth, and the other with a row of short teeth, the teeth on each cylinder being placed helically around it, for the purpose of separating and distributing or scattering the cotton seeds in the manner described. (See engraving.)

No. 12,307.—JOHN BLACKWOOD.—*Improvement in Seed Planters.*—Patented January 30, 1855. (Plates, p. 20.)

The inventor says in his specification: "A gain is cut on each side of the hollow stock, making a double tenon on the beam to fill said gains; just below the cross piece there is a mortise for the slide, bevelled so that the end of the slide will strike the beam one foot before the stock; the bottom of the hopper is made with the same bevel, so that the slide, marked *a a*, runs along it under the corn, and where it passes through the partition (marked with dotted line *x*); the mortise is made half an inch above the slide, to prevent the corn from passing out too fast. A stiff brush is secured above the slide to keep back any superfluous grains that may lodge on the cup." This cup *y* is alternately brought over the hole in the stock, so as to drop the seed. At the bottom of this hole or tube there is a valve *c*, which receives the seed as it falls from slide *a*.

Claim.—The additional hopper to catch the seed which falls off of the slide after it passes the brush, substantially as described.

No. 12,308.—JOB BROWN.—*Improvement in Seed Planters.*—Patented January 30, 1855. (Plates, p. 20.)

The inventor says: I do not claim, separately, the distributing plates I, for they have been previously used.

But I *claim* the combination of the cups F, placed obliquely on a rotating cylinder, in combination with the distributing plates I, the above parts operating in the manner and for the purpose shown and described. (See engraving.)

No. 12,447.—Robert Romaine.—*Improvement in Seed Planters.*—Patented February 27, 1855. (Plates, p. 20.)

J is the digging cylinder provided with teeth M; *n* is the seed box, and the seed passes out between the brushes *t* and grooved roller O; the roller *r* serves to carry the weight of the end of the levelling box *m* as it passes over the pulverized soil.

The inventor says: I am aware that a seeding apparatus has been arranged to follow a toothed cylinder, and also to precede either a toothed cylinder or roller; therefore, I do not claim either.

But I *claim* the rotary-toothed cylinder or digger, followed immediately by the seed sower and roller, as described.

No. 12,465.—Andrew J. Barnhart.—*Improvement in Seed Planters.*—Patented February 27, 1855. (Plates, p. 21.)

The seed being placed in the upper part of cylinder A, the rod B is first drawn upward, and then turned from right to left, in order to bring plate *f* over aperture *c* in disc *a*, so as to cut off the communication between aperture *c* and the space above it. As the plate *f* is turned, the loose disc *b* is also turned, and aperture *d* brought under aperture *c*. In turning the rod, the pin *m* acts against pins *l l* on plate F, and the edges of the eyes *h*, in the projections *i* at the upper end of the cylinder, are forced from recesses *k*, and rod B is pressed downward, and cylinder D forced into the ground, and then withdrawn by drawing up rod B, D being filled with earth and a hole formed in the ground. The eyes *h* catch into the recesses *k*, (by force of springs *j*,) and hold D in place. B is now turned from left to right, and aperture *d* is brought over *c*, and the corn in *d* falls down and around D into the hole made in the earth. B is now forced down, the spring G assisting, and piston C forces the earth out of D into the hole in the earth, thereby covering the corn which was dropped therein.

Claim.—The combination of the discs *a a b*, moveable cylinder D, and piston C, the above parts being enclosed, or working within a cylinder or case A, and arranged substantially as shown and for the purpose set forth.

No. 12,554.—Ebenezer Morse.—*Improvement in Seed Planters.*—Patented March 20, 1855 (Plates, p. 21.)

The inventor says in his specification: Put the seed in at the top of the box, take hold of the handle *r* with the back of the hand toward the back board B, then raise and depress the back board by raising and depressing the back part of the hand, by which means the seed will be received into the seeding recess *g*, and passed beneath the bottom of the box into the depositing tube. It will be seen that if the end of the depositing tube *a* is plunged into the earth with the seed therein contained, and the back board raised in its progress upward, the cam *n* will not have acted upon the arms *o* of the scrapers *j*, until the end of the depositing tube has opened (as seen at fig. 2) and dropped its seed; and it will also be seen, that as the back board is further raised, the cam will act upon the arms of the scrapers, causing their projecting oblique lower ends *k* to approach each other (see fig. 3) and cover the seed with earth; and that by depressing the back board the earth will be stamped upon the seed, and the seeding tube supplied with seed for the next hill.

Claim.—The scrapers J J, the cam *n*, and sliding back board B, as arranged, combined, and operating conjointly with the seed box A, for the purpose of depositing seed in hills, covering it with earth, and pressing the earth upon the seed.

Also, the oscillating motion of the horizontal handle connected to the front and back part of the seed box, by a hinge joint at each end of the handle, substantially in the manner described.

No. 12,557.—Daniel H. Phillips.—*Improvement in Seed Planters.*—Patented March 20, 1855. (Plates, p. 21.)

The operation of spring lever *f*, in combination with seed box *y*, will be understood from the engravings. In the position of the roller *g*, represented in the engravings, only one single cog *w* operates the lever *f*, which answers for corn planting. For grain planting the roller is reversed, when the spring lever will be acted upon by the cogs *u*.

The inventor says: I do not claim opening the seed-delivering slide by a cog or projection on the carrying wheel or roller, striking against a lever to operate the slide; neither do I claim closing the seed-slide after the roller has ceased to operate it by the action of the spring.

But I *claim*, first, the employment of a spring lever *f* to open and close the seed slide in such a manner that while it serves to open the slide, by the direct action of the revolving wheel or roller, as specified, the same lever, by its elasticity, closes the slide after the discharge has been made, as set forth.

Second. Providing both ends of the carrying and levelling roller, which operates the seed-slide lever with cogs or projections so arranged, that by reversing the roller, as described, a slower or quicker movement is given to the delivering slide, according to the description of grain to be planted.

No. 12,561.—Benj. M. Snell.—*Improvement in Seed Planters.*—Patented March 20, 1855. (Plates, p. 21.)

The striker *a* on wheel K, when acting against the end of slide *b*, forces the latter in, thus dropping the seed.

The inventor says: I do not wish it to be considered that I claim novelty in the devices of my plough, when considered separately.

But I *claim* the construction of a plough wherein a double share D is used to open the soil in combination with a seeding tube H, hopper G, striker *a*, wheel K, operating in the manner set forth, for the purpose of depositing seed in the prepared soil, without the objection of an open furrow.

No. 12,603.—Hiram Moore —*Improvement in Seed Planters.*—Patented March 27, 1855. (Plates, p. 21.)

The grooves *a* in the distributing wheels K, have the same width as the opening in the seed box I. The partitions *c* prevent the grain from slipping in said grooves and running out, when the seeding machine is not in motion; and also regulate the quantity to be given out. The seed is dropped upon dash board H, from which it rebounds, and scatters with regularity by its own action.

The inventor says: I do not claim a grooved and distributing wheel, nor a seed scattering board, individually.

I *claim* grooved seed distributing wheels K K, provided at the bottom of the grooves with partitions extending about one-third of their depth, in combination with the dash board H, in the manner and for the purposes set forth.

No. 12,608.—Myron Ward.—*Improvement in Seed Planters.*—Patented March 27, 1855. (Plates, p. 21.)

Figure 1 represents a bottom view, and figure 2 a side view of this apparatus. Figure 1 represents only about one-half of the apparatus, the other half being exactly alike.

D is one of the two wheels of this seed planter, and F the compressors mentioned in the second part of the claim. T is one of the two shears provided with slots *t*, and adjustable by means of thumb screw *s*.

Claim.—The adjustable slotted share, for the purpose of removing obstructions, and at the same time allowing the fine earth to pass through the slots, which share is made adjustable by means of a thumb screw and plate in rear.

Also, the short compressing blocks on the periphery of the wheel, which compressors crowd the earth laterally over the seed, and at the same time indicate the place of the hill, by which means the grain can be planted in check rows.

No. 12,618.—Chester B. Borden, Benj. S. Borden, and Aaron R. McLean.—*Seed Planter.*—Patented April 3, 1855. (Plates, p. 21.)

S is a spout which conveys the seed down to the blade of the hoe.

Claim.—Attaching to the handle of an ordinary hoe a chamber or box B, which contains the corn or seed to be planted, said chamber or box being provided with a slide D, having a slot or recess *h* in its lower end, which slot or recess may be increased or diminished in size, by adjusting the small slide E.

The slide D being arranged as shown, so as to be operated by the finger of the operator, and the spiral spring H, for the purpose of depositing the seed or corn in the holes or furrows in the earth made by the hoe, as shown and described.

No. 12,641.—Ives W. McGaffey.—*Improvement in Seed Planters.*—Patented April 3, 1855. (Plates, p. 22.)

Hopper E contains the seed, and C the manure. The manure descends on to the loosely suspended tilt apron K that is hung upon a horizontal axis *e*, and is so constructed and furnished with a weight *f*, and so operated by roller F, that while its own weight keeps it closed, the roller F (by means of peg *g*) opens it at the proper interval, (see dotted lines,) thereby discharging the manure together with the seed which has been carried round by the rake fingers *b* on roller F, and deposited on the same apron with the manure.

The inventor says: I am aware that a swinging fertilizer discharge valve, in connexion with a seed planter, of itself, is not new.

Also, that a tilt apron abruptly operated by cams, to discharge accumulated seed let on to it by a separately driven slide or valve, has before been employed; but the relative arrangement, construction, and operation of these parts has been different; as substantive devices, therefore, or otherwise than as arranged and operating in connexion, I do not claim them.

I *claim* the combination of the fertilizer tilt apron K, with the seed distributing roller F, constructed, arranged, and operating together, substantially as specified.

No. 12,672.—Jason W. Corey.—*Improvement in Seed Planters.*—Patented April 10, 1855. (Plates, page 22.)

When the seed is to be dropped, the rod F is pulled backward, and, being looped to the coiled spring E, pulls the spring back, carrying with it the regulating slide K, in the aperture of which the seed is to be dropped.

The inventor says: Disclaiming all devices separately considered, except the adjustable seed or slide box D, which I claim as constructed, arranged, and described,

I *claim* the arrangement of adjustable slide K, adjustable seed guage *n*, coiled spring E, and connecting rod F, together with grooved roller I, slotted arms J J, front share G, adjustable clod mover *p*, and covering shares H H, as set forth and operated.

No. 12,783.—Presley Raines.—*Improvement in Corn Planters.*—Patented May 1, 1855. (Plates, p. 22.)

If the handles *j* are elevated, the platform *g* slides back and drops the seed which was upon it into drill spout *h*. At the same time the lifter *d* descends to take another charge of seed. The handles being allowed to drop, the platform is re-inserted, the lifter *d* ascends and drops the seed, through the hole *f*, upon the platform. Simultaneously with this movement the plunger *k* is protruded, so as to leave an annular opening between its flaring surface *l* and the corresponding flaring vent of the drill spout *h*, thereby allowing the seed within the spout to drop out. The flaring foot is intended to scatter the seed suitably, and to pulverize and depress a suitable bed for the reception of the seed.

Claim—The combination of elevator, sliding platform, and flaring plunger, substantially as described, operated simultaneously by the elevation and depression of the guiding handles.

No. 12,811.—George W. Brown.—*Improvement in Seed Planters.*—Patented May 8, 1855. (Plates, p. 22.)

The circular plates *d d* connected by a rod *e*, and simultaneously vibrated by a hand-lever D, are arranged underneath the bottom of the hoppers C, which bottom has an opening *c*. Connected to the under side of the plates *d*, and simultaneously vibrating with them, are valves *f*, which are arranged in the hollow tubular rear part of the runners A, which form the furrow, by means of the sharp edge *a*. The covering wheels J J are hung in arms G G and H H. The inside arms H have cam wedges *h*, on which rests cross-beam L. By fastening this cam to one or the other of the holes 1, 2, 3, the front part of the machine, and the runners with it, will be raised or lowered, and, consequently, the depth will be adjusted at which the seed are planted. The driver, by shifting his position on seat K, forward or back, may cause his weight to add to the raising or holding down of the front part of the machine.

Claim.—In combination with the hoppers and their semi-rotating plates *d*, the runners A, with their valves *f*, and their adjustment by means of the levers and cams and the driver's weight, for the purpose of carrying and dropping seeds by each vibration of the lever D, and to regulate the depth of the planting, as described.

No. 12,867.—A. H. Morrel.—*Improvement in Cotton Seed Planters.*—Patented May 15, 1855. (Plates, p. 22.)

w is the seed-distributing wheel.

In rear of hopper D is the coverer H, consisting of a blade *e*, handle *k*, and gauge *g*. The handle rests on cam G, secured to crank-shaft I, and is attached by its extremity to the sliding-bar J, to which the crank-shaft I imparts a reciprocating motion. Consequently, as the main shaft A revolves, the coverer has a reciprocating motion across the furrow, simultaneously with a vertical motion produced by the cam G, which causes the blade *e* to enter the earth, when the slide J is in the position shown in figure 1, and, after covering the seed, maintain an elevated position during its backward motion.

Claim.—The combination of sliding bar J, coverer H, cam G, and eccentric shaft I, or their equivalents, arranged and operating substantially as hereinbefore set forth.

No. 12,895.—L. W. Colver.—*Improvement in Seed Planters.*—Patented May 22, 1855. (Plates, p. 22.)

The figure represents one of the wheels A¹, which are arranged on the axle *a*. The weight of the hopper E, and the machine generally, holds the wheels A¹ into the ground, whilst the springs F allow each wheel to follow the inequalities of the ground, without raising or lowering any other of the wheels. The seed passes from the hopper, through the flexible tube H, into metallic tube I, on the bottom of which is arranged the divider J. This divider terminates in a point, and gradually widens towards its rear, next to the covering wheel L. Thus it acts as a shoe, holding the furrow (cut by the flange K) open for the reception of the seed.

Claim.—Hinging the pieces A, which support the wheels A¹, at the point B, this being also the point of attachment of the arms D, and interposing between A and D a spring F, so that said two pieces may radiate from nearly the same centres; said springs tending to hold the wheels into the ground, whilst each one of the series may yield to any inequalities in the ground, without affecting the others, as set forth.

Also, the arrangement of the sword or divider, such as described, upon the tube I, and projecting it forward, in close contact with the flange on the wheel, so that it may enter the ground with said flange, and spread and hold open the furrow for the reception of the seed, as described.

No. 12,924.—Edgar M. Stevens, Joseph B. Crosby, and Joseph W. Pearson.—*Improvement in Seed Planters.*—Patented May 22, 1855. (Plates, p. 23.)

The feed rollers D D are covered with India-rubber, or any similar yielding material, to prevent the seed from being bruised between the rollers. To spread the grains, which will be in close proximity with each in the direction of the length of the roller, (too close for seed to be sown,) the distributor C is introduced.

Claim.—The application of elastic surfaced feed rollers in sowing machines, in connexion with an expanding tubed spreader, constructed and arranged substantially in the manner and for the purpose set forth.

No. 12,958.—Thos. S. Minniss.—*Improvement in Seed Planters.*—Patented May 22, 1855. (Plates, p. 23.)

H are half tubular projections, (consisting of half tubes secured in the wheel B by means of plugs, so that they can be secured at any projection desired,) that dip the seeds from hopper D, and discharge them into tube G, a portion N of which spreads out against the side of the wheel to receive them. When seed is to be planted in hills, all the elevators H are to be driven into it, and one is to be drawn out far enough to contain a sufficient quantity for a hill. The sifting box E is hung on straps I, and receives a shaking motion from the staples around the wheel. The spout F, discharging directly over the seeding tube, can be set at any inclination so as to discharge fast or slow, and is intended for such seeds and light fertilizers as are to be buried with the discharges from the hopper.

Claim.—The wheel B, with the sliding or expanding elevators H H H H through its side, in combination with the sifting box E, and the spout F, constructed and arranged substantially in the manner and for the purpose set forth.

No. 12,990.—Lucien A. Butts.—*Improvement in Seed Planters.*—Patented June 5, 1855. (Plates, p. 23.)

M is the hopper; *m* is the valve opened and closed, as illustrated by dotted lines, the valve being connected to a rod *n*, and controlled by a helical spring *o*; as the seed bar *h* moves upward, the rod *n* strikes against arm N, which forces down the valve opening, and allows the seed to drop through the tube o^1 towards the ground, the spring *o* closing the valve when the bar *h* descends; during the ascent of the bar, the space within the tube o^1, above the valve *m*, will be filled with seed out of hopper M, which is afterwards dropped, as above described. By adjusting the shield *i* and the valve higher up or lower down, the said space for the reception of the seed, and consequently the quantity of seed to be dropped, will be increased or decreased.

Claim.—Raising the seed to be planted up in a cup or cell, vertically, or nearly so, above the height of the grain in the hopper, and then tripping a valve in the cup or cell, and allowing the seeds contained therein to drop through a tube towards the ground, substantially as described.

No. 12,995.—Charles H. Dana.—*Improvement in Seed Planters.*—Patented June 5, 1855. (Plates p. 23.)

The operation of this seed planter will be understood from the claims and engravings.

Claim.—The arrangement of the hinged vibratory mouthed piece *p s s*, at the lower end of the staff B, with the projecting portion of the front slide *b* of the seed box, and with the incision plate *f* descending therefrom, in such a manner that a downward sliding movement of the said staff upon the seed box, will close the said mouth-piece upon the incision plate, and form an incising planting receptacle for depositing the seeds in the ground; and an upward sliding movement of the said staff upon the seed box will force open the said mouth-piece, and leave the seeds in the extreme bottom of the incision formed by the said planting receptacle, substantially as set forth.

I also claim the arrangement by which I positively insure the opening of the mouth piece *p s s*, of the planting receptacle, at each upward movement of the handle B, viz: by means of the projecting portion *j* of the plate *i*, which is secured to the seed box, or its equivalent, operating substantially as set forth.

No. 13,077.—Uriah Bebee.—*Improvement in Corn Planters.*—Patented June 19, 1855. (Plates, p. 23.)

Two shafts J, attached to standards E, serve as handles to the hoes K, which dragging behind the machine fill the holes made by the planters B, and cover the seed in the earth, the forward ends serving as levers to raise wheels A when required to adjust the planters. The two supports L attached by staples to shafts J, forward of the axletree F, serve as fulcrums.

I *claim* the shafts J and supports L, combined, and arranged, and operated in the manner and for the purposes set forth.

No. 13,151.—Oren Stoddard.—*Improvement in Corn Planters to be operated by hand.*—Patented June 26, 1855.—(Plates, p. 23.)

The nature of this improvement will be understood from the claim and engravings.

Fig. 3 represents the position of the parts of the machine when the plunger C is down.

The inventor says: I do not claim any of the described parts separately, or irrespective of the arrangement shown.

But I *claim* the arrangement of the follower or plunger C, dropping or sliding plates *d*, and agitators or distributors formed by the levers D D, provided with cross arms *i* and rods *j*, the parts being operated as shown, and for the purpose as set forth.

No. 13,185.—Wm. Stinson.—*Improvement in Corn Planters.*—Patented July 3, 1855. (Plates, p. 23.)

Corn boxes R are fastened to each spoke C, and have doors E for filling them. Hinged to the boxes are spades F, kept shut by spring I. In each of the boxes there is a trough K divided into several compartments, and at the bottom of each compartment is a hole of the size of a kernel of corn; a roller L, over which fits the concave bottom of the trough, is provided with corresponding holes, each sufficiently large to hold a kernel of corn. The roller axles are provided with cranks M. working through slots in the rim A, and operate the rollers by striking

against a pin on the wheel frame B; each roller making a semi-revolution backwards and forwards, at every revolution of the wheel, brings each time the roller holes to correspond with the trough holes, and consequently a kernel of corn will be discharged and (as the wheel turns and the spade opens) drop out.

The inventor says: I am aware that spades similar to mine have been used; but I *claim* the arrangement of the seed rollers and corn box in the spoke of the wheel, in combination with the spade, as set forth.

No. 13,326.—Pierpont Seymour.—*Improvement in Seed Planters.*—Patented July 24, 1855.—(Plates, p. 24.)

The seed box *b* extends from side to side; one side of this box is stationary, and the other side, or the lower portion thereof at least, is movable to or from the stationary part; the two ends of the seed box, and the partitions therein, are attached firmly to the stationary side thereof on one side, while on the other they are furnished each with a spring b^1; the movable part of the box is thus forced off from the other, so as to open a space the whole length of the bottom. This movable portion of the seed box is jointed, or attached to the ends of the seed box and partition by the angle irons or plates *c*, which extend down, covering the springs abovenamed, and prevent clogging, and also serve to maintain the side at a proper level, and not to let it fall as it opens; a series of bolts *d* pass through the two sides, being affixed to the moving side; on the stationary side, these bolts are connected with a series of wedges *e* connected together and sliding endways, so as to open or close the seed box to any desired degree, to regulate the delivery of seed. The grain-teeth bar *h*, the vibrating plate *f*, and other moving parts, are worked by a cam on the hub of the wheel in the ordinary way. The apparatus, for raising one or all of the drill tubes *m*, consists of a shaft *n*, on which is affixed a series of bent levers O and connecting rods *p*, instead of the usual chains, which latter are liable to be tangled. Fig. 1 represents only one end of a top view of the apparatus.

Claim.—First. The combination of the movable side of the seed box with angular hangings *c*, spring *b*, fig. 3, and inclined planes or wedges *e*, or their equivalent, for the purpose of opening and closing said box, and thus regulating the quantity of seed, or substance to be delivered.

Second. I *claim* the slide plate *f*, to prevent the seeds from clogging, as described.

Third. The combination of the angular levers *o*, having their fulcrum or inclined standards, or its equivalent, with the rods *p*, linking them to the drill tubes *m*, in the manner and for the purposes set forth.

No. 13,387.—Robert W. Fenwick and Reinhold Boeklen.—*Improvement in Corn Planters.*—Patented August, 7, 1855. (Plates, p. 25.)

The tube K is to prevent the entrance of dirt, and also serves for operating the slide, as it yields as the planting tube descends, and

consequently turns the slide, and remains stationary as it rises, and thereby causes the slide to assume its original position. The position of the swinging slide D, at the time the planting tube A is being thrust into the ground, is represented in dotted lines in figure 1.

The inventors say: We claim nothing new in the loose covering, interior ring, or tube K, separately considered, at the bottom of the planting tube; and are aware that a conical valve at the bottom of the planting tube, connected with a seed delivery slide for operation together by a lever or handle, distinct from any thrust or pull imparted to the tube itself, and employing a much more complicated and different arrangement of operating gear, has before been used.

We *claim*, the combination and arrangement, as shown, of the swinging seed slide D, valve H, and tube K, for the purpose set forth.

No, 13,401 —Silas G. Randall and James H. Jones.—*Improvement in Seed Planters.*—Patented August 7, 1855. (Plates, p. 25.)

The nature of this invention will be understood from the claim and engravings.

The inventors say: In that class which open the soil and deposit the seed, by dropping rather than by forcing, a device has been used with a round bivalvular point entering the ground, and dividing in such a manner as to displace the earth, and drop the seed; also another device, by which a solid naked wedge pierces the soil, and the seed, on its withdrawal, is dropped into the opening; also another device by which the piston, protruding below the drill, is driven upwards by the pressure of the earth, and receiving the seed in a cavity in its side, on lifting the machine, is pressed down by a spring, and discharges the seed against the earth, while the piston fills the hole in the ground; we therefore do not claim any of these.

But we *claim* the use of a sheath B, and a tongue C filling it, so combined with a lever D and forcing handle G, that by means thereof, or their equivalents, the sheath and tongue may be struck into the ground as one solid piece, after which the tongue may be raised, leaving the sheath in the earth as a lining, until the seed is deposited through the lining, substantially as described.

No. 13,419.—Andrew J. Barnhart.—*Improvement in Corn Planters.*—Patented August, 14, 1855. (Plates, p. 25.)

By the movement of the single handle F, a hole is made in the earth, the corn deposited therein and covered.

The inventor says: I am aware that a box, or cylinder and plunger, have been previously used for the purpose described. A patent has been granted to me in which such device was used, though differently arranged and operated from the way shown.

I do not *claim*, therefore, the box and plunger for the purpose shown, irrespective of the mode of operating the same.

But operating the box D and plunger E, by means of the rods *i j* attached to an oscillating arm *k*, which is placed on the shaft of the dis-

tributing roller C, whereby the box and plunger are made to move simultaneously in opposite directions, as shown, and for the purpose set forth.

No. 13,551.—FREEMAN PLUMMER and GILMORE B. ROLLINS.—*Improvement in Seed Planters.*—Patented September 11, 1855. (Plates, p. 25.)

The forward end of the frame is supported by wheel *n*, which has projecting from one side of it one or more pins *o*, which, striking the tappet *p*, temporarily advances the rod *q*, which, in its turn acts by means of links *r r* and rods *s s*, to vibrate the plates *h g*, so as to drop the seed. Immediately upon the escape of the tappet, the spiral spring *t* pushes back the rod *q*. The rods *s* are made extensible.

We *claim* links *r r*, in combination with the adjustable rods *s s*, when constructed and arranged in the manner and for the purpose set forth.

No. 13,683.—EBENEZER MCCORMICK.—*Improvement in Seed Planters.*—Patented October 16, 1855. (Plates, p. 25.)

In order to furnish a guide to the driver when to deposit the seeds, the ground is cross marked by first passing the machine over it at right angles to the direction in which the rows are to be planted. During this part of the operation, the drag B (connected to the machine by a link *a*, and kept in position by two guide rods *b*) is let down on the ground, and the drill-teeth R are raised away from the ground. The machine is then arranged for planting by hoisting out of the way the drag B, and letting down the drill-teeth sufficiently for depositing the seed at the required depth.

When planting, the driver causes the seed bar to move and deposit the seed at each moment when crossing one of the marks made by the drag or wheels.

In the engravings only part of the front part of the machine is shown.

Claim.—So arranging the drag B with its link and guides, and the wheels A A, with regard to a seeding and covering apparatus, such as described, as that they shall be guides and markers for directing the dropping of the seed at stated intervals, as set forth.

No. 13,694.—FRANCIS G. WYNKOOP, assignor to HENRY L. EDSON.—*Improvement in Seed Planters.*—Patented October 16, 1855. (Plates, p 25.)

The operator takes the machine by the handle (at the upper end of the machine not shown in the engravings) and forces the spades C C into the ground till the bars of the spades rest upon it, then forces down the slide G, which turns cylinder A, and discharges the seed, contained in N, into tube L; this movement of slide G will also open the spades which are hung to the frame I by rods D, and pivoted to L, which latter is fastened to slide G; thus the seed will be allowed to drop out of the

tube L. The spades are then drawn out of the ground while open, which causes the soil to fall over the tops of the blades P P of the spades through the opening in their sides, completely covering the seed. The operator then draws back the slide G.

Claim.—The construction and arrangement of the spades C C with the tube L, when attached to and operated upon by the slide G, for the purposes above set forth.

No. 13,706.—DANIEL B. NEAL.—*Improvement in Seed Planters.*—Patented October 23, 1855. (Plates, p. 25.)

The slides *a*, for dropping the seed, play on the bottom of the seed boxes immediately under steel springs *n*, which springs completely cover the slot in the slide when drawn out for dropping the seed. The slides and shovels *c* are worked simultaneously from the posts *m*. The shovels swing on central pivots, and play closely to the slots in the slides *a*. The slots 1 in the slides serve to receive the seed. The guage slides *b* can be set so as to diminish or enlarge the size of the slots, to adapt the machines to seeds of different sizes.

The guage slides can be adjusted by unscrewing the posts *m*, and are then held in their proper position by again tightening the posts. T are the drill teeth.

Claim.—The arrangement of the shovel *c*, the slotted and grooved slide *a*, and guage slide *b*, when constructed and operated in the manner and for the purpose set forth.

No. 13,794.—THOMAS R. MARKILLIE.—*Improvement in Corn Planters.*—Patented November 13, 1855. (Plates, p. 25.)

The weights I have marking points *l* and arms *p*, said arms moving upon guides *q* and *r*. When a weight or marker I has passed guide *q*, it falls to the hub of the wheel upon a lever, which lifts the seed slide *f*; and when it has passed guide *r*, it falls to the rim of the wheel on another lever, which lifts the stopper weight *m*, which allows the seed to drop to the groumd.

Claim.—The reciprocating weighted markers I, acting substantially as described, to perform the double function of operating the planting apparatus and marking the hills, as specified.

No. 13,820.—D. W. HUGHES.—*Improvement in Hand Seed Planters.*—Patented November 20, 1855. (Plates, p. 25.)

The two positions of the instrument, represented in the engravings, will explain the nature of the improvement.

The inventor says: I do not claim separately, or in itself, the perforated slide D working in a seed box for distributing seed; for that is an old and well known device.

But I *claim* the seed box C and perforated slide D, when attached to the blades A A, connected by a joint *a*, arranged substantially as shown, for the purpose specified.

No. 14,003.—Ancil Stickney.—*Improvement in Hand Seed Planters.*—Patented December 25, 1855.—(Plates, p. 25.)

As the planter is lifted, plunger B slides up till cup F is filled with seed and comes above the upper edge of plate G, when the seed falls out of the cup and is conducted by D down into the angular space between C and N, and under the lower end of B. When the planter is struck into the ground, the wedge C N enters as far as I, when B descends and crowds the lower end of jaw C open, and expels the seed; the spring E prevents the seed in the box running out through F, when F is above G.

Spring M prevents the plunger from sliding downwards upon the seed box, in operating the machine, until after the lower edge of C N has entered the ground to the proper depth.

Claim.—In a seed planter having a wedge-shaped planting receptacle, whose hinged side is closed by the action of a spring, combining the plunger of said planter to any suitable portion of the seed box, by means of a spring of sufficient thickness, to prevent said plunger in operating the planter from sliding downwards on the seed box, and opening the planting receptacle, before said receptacle has penetrated to the desired depth into the ground, to deposit the seed contained in it, substantially as set forth.

No. 12,241.—Arnton Smith.—*Improvement in Ploughs.*—Patented January 16, 1855. (Plates, p. 25.)

The inventor says: I do not claim any of the separate parts of my plough as new, and I am aware that the ploughs have been united somewhat like mine; but so that both must advance together, and one must, when raised alone, rotate upon and affect the other, whilst my separate ploughs may move freely.

Therefore, I *claim* the manner of coupling plough 1 with plough 2, by means of hinged slide-rods D, bar E, and rod F, for the purpose of allowing each plough a somewhat free and independent motion, and yet bring the plough under the control of one hand of the ploughman, and in some degree control both ploughs, as set forth.

No. 12,310.—Alfred Doe.—*Improvement in Ploughs.*—Patented January 30, 1855. (Plates, p. 26.)

The body J, with the point L, and shares M, can be vibrated on pivots *e* and *i*, from position represented in figure 1, in full lines, into the position represented in dotted lines, and can be raised up on the opposite side of standard F, to the position represented in figure 2. The front standard F has an enlarged projection Q, with two sockets for the pivots of the furrow boards R and S. Furrow board R is designed for level land or side-hill ploughing, and has an arm T hinged to the stand U, so that it can be turned to either of the positions represented in the engraving. The left hand furrow board is just the reverse of the one described, (the right hand one,) and is applied to

the opposite side of the plough with its appurtenances, for level land and side-hill ploughing. The left hand furrow board can be removed, and a sub-soil furrow board S put in its place, the rear end of which is made to stand higher and further from the beam than the common furrow board; and its lower end is curved as seen at *r*, so as to raise the sub-soil furrow up, and carry it out and turn it upon the top of the common furrow just ploughed, when the plough runs in the opposite direction.

Claim.—First. Two separate furrow boards, arranged to vibrate perpendicularly, independent of the point and share, so as to turn, alternately, right and left furrows on level or inclined land, with equal facility; operating in combination with a swivel point and shares arranged to vibrate under the land slide, with the body or front portion of the furrow board, substantially as described.

Second. In combination with the swivel point, shares, body, and one of the furrow boards mentioned in the above claim, I claim a sub-furrow board, arranged to vibrate perpendicularly, so constructed as to turn a sub-soil furrow in one direction, upon the top of the furrow just ploughed in the opposite direction, thereby making it serve as a common plough in one direction, and a sub-soil in the other, substantially as described.

No. 12,381.—George Esterly.—*Improvement in Ploughs.*—Patented February 13, 1855. (Plates, p. 26.)

The mould board and share are bolted on the edges of the form lay, the rebates D E forming supports or guards to the same, and the edges of the mould board and share are in contact with the edges of ledge B, the ledge being between them. The use of a wider or narrower ledge B will allow to insert mould boards and shares of various thicknesses. The portion A is raised sufficiently to correspond to the thickness of the mould board and share.

The inventor says: I am aware that a standard has been cast with wings to support the shares and mould board.

But I *claim*, casting the standard G with raised portions A, land side H, and form lay K, all in one piece, to be employed either with or without projection B, as set forth.

No. 12,387.—John W. Hazzard and Geo. Bull.—*Improvement in Rotary Ploughs.*—Patented February 13, 1855. (Plates, p. 26.)

This improvement consists, 1st, in arranging the ploughs on rods H, passing horizontally through the lower end of a vertical revolving shaft D, so that they shall travel in the path of a horizontal circle. By thus arranging the ploughs, the ploughing up and pulverization of the soil is to be effected by simply passing over it once; 2d, in having each of the rods H, which support the ploughs, turn slightly on a fulcrum pin *f* at the centre of their length, in the path of a vertical circle, and combining therewith an inclined semi-circular way K, (*i* K and *h* K repre

sent the inclined parts of said way,) for the end of said rods to move under, and to be depressed as the ploughs revolve. Thus the ploughs enter the soil when they come alongside or *commence* to pass round in *front* of the vertical revolving shaft, and are thrown out of contact with the same when they commence to pass round to the back of said shaft; and by this means the inventor means to avoid all liability of the ploughed soil being disturbed by the ploughs in passing behind the shaft; 3d, in employing a gang of circular cutters J on the ends of the arms H which support the ploughs, which cutters revolve together with the ploughs as well as on their journals. These cutters are to cut up and pulverize all weeds and other obstructions which might tend to choke up the ploughs.

Claim.—The arrangement and combined operation of the ploughs I I I I, cutters J J J J, and semi-circular way K, substantially as and for the purposes described.

No. 12,398.—Ira Reynolds.—*Improvement in Ploughs.*—Patented February 13, 1855. (Plates p. 26.)

The share *m* is reversible; the rear portion, being left straight and flat, forms the nut for the screw tap *n*, and is so arranged that when the share is reversed the screw tap *n* will fit either side, while the straight flat portions will correspond with the face of the mould board.

The coulter consists of two blades *j j*^{1}, both exactly alike. It is fitted with its apex into the inclined notch of the plate K, and has two other bearings, one in the notch *l* and the other on the surface at the point *s*. As soon as fitted in, and when forced back by the operation against the earth, it secures itself firmly in place on the three several bearings.

The inventor says: I am aware that plough points have been constructed with oblique shoulders, a corner of which was made to bear somewhat like the shoulders in my plough point.

But I *claim*, first, the laterally extending shoulder *r*^{1} *r*^{1}, drawn back against and somewhat between the two shoulders *r r*, in order to hold the point securely in place, and prevent the breaking of the shank *t* near the shoulder, in the operation of ploughing, substantially as set forth.

Second. I claim the arrangement of the within described reversible steel share, as secured to the face of the mould board, by means of a screw bolt inserted from the lower side, the female screw being formed in the steel share, as set forth.

Third. I claim the reversible self-fastening coulter, constructed, secured, and arranged in manner and for the purposes set forth.

No. 12,466.—David Russell.—*Improvement in Spade Ploughs.*—Patented February 27, 1855. (Plates, p. 26.)

A A^1 are bars which are secured to the double crank *a a* at their upper ends; the bars are secured by means of four connecting rods *b* to a stationary crossbar *c*, the rods *b* working freely on joints. The

lower ends of bars A A^1 are provided with cutters *d d*, which are set at a proper pitch to enable them to enter the surface easily.

The inventor says: I am aware that upon a revolving horizontal cylinder both movable and fixed spades have been arranged to dig up the soil; therefore, I do not claim such devices.

But I *claim* the cutter bars A A^1, said bars being provided with cutters at their lower ends, and operating in the manner and for the purpose set forth.

No. 12,627.—Thos. J. Hall.—*Improvement in Ploughs.*—Patented April 3, 1855. (Plates, p. 26.)

The cutter B swivels in the beam A, and is supported by an arm near its edge so as to follow the direction of the point of the beam.

The inventor says: I do not claim a cutting wheel in connection with a plough, as this has been done repeatedly.

But I *claim* so hanging the cutter to the beam that it may swivel therein, in combination with the supports at the edge of the wheel, substantially as set forth and described.

No. 12,650.—Noah Warlick.—*Improvement in Ploughs.*—Patented April 3, 1855. (Plates, p. 27.)

This plough can be adjusted to cut at an angle more or less oblique to a horizontal plane by loosening set screw *e*, and inserting a block between the beam and front prong, as shown by dotted lines in fig. 1. By removing pin *g* and bringing hole *j* opposite hole *f*^{1}, the plough is made to cut at an angle less oblique

The inventor says: I do not claim the whale lance-shaped point separately.

But I *claim* the whale lance shaped point D, having a notch in its upper side to receive the lower end of the coulter, in combination with said coulter and the Y shaped adjustable double brace C C^1, as set forth.

No. 12,791.—Thomas J. Hall.—*Improvement in Gang Ploughs.*—Patented May 1, 1855. (Plates, p. 27.)

The cross-beams E E^1, which slide in guide grooves D, in the uprights C C, can be raised or lowered by means of cords *a*, shaft *a*, and crank *c*, and secured at a desired height by pawl and ratchet *e d*. The plough-beams F are pivoted to the front cross-beam E, and rest with their rear ends (weighted with adjustable weights G) in open mortises cut in the rear cross-beam E^1, so as to be free to rise with the plough attached to it, should it be thrown out of the ground. At both the front and rear of the plough-frame A B are two levers L M, having their fulcra at *n*, the inner points of the levers being kept in contact by a spring *m*. The outer ends of the levers have pins *o*, which pass through holes in the uprights C, into the cross-beams E E^1, to hold

them in place after they have been adjusted by means of the cranks and cords as above said.

The inventor says: I do not claim a gang of ploughs, nor do I claim the hanging of the ploughs to hinged or pivoted beams; these being well known.

But I do *claim* the arrangement of the ploughs and pivoted beams, with the adjustable cross-beams, so that the ploughs may have a convenient permanent adjustment, in connexion with their self-adjusting property in the plough-beam, as set forth and described.

No. 12,838.—E. C. Tavenner and O. Nesmith.—*Improvement in Ploughs.*—Patented May 8, 1855. (Plates, p. 27.)

The mould-board J not being cast in one piece with the standard *a a*, the mould-board, when worn out, can be replaced by a new one.

The fend-off K is formed of a grooved piece, conforming to the shape and lapping around or resting on each side of the front edge of the coulter L, and is connected with the standard *a* by a stay-rod *m* and nut *f*. The shank S of the coulter does not pass *through* the draft-beam *o*, but is adjustably attached to the land side thereof by stirrup and nuts *g g*. The fend-off is intended to obviate the clogging of the coulter, because of the convex surface of the fend-off, which prevents the soil from hugging or sticking fast.

The inventors say: We do not claim the lip piece *b b*, toe piece S, or grooved rest piece *c*.

But we do *claim* the land side plate *a a a a*, in combination with the fend-off or cleaner K K, constructed and arranged substantially in the manner and for the purpose set forth.

No. 13,082.—L. G. Evans.—*Improvement in Ploughs.*—Patented June 19, 1855. (Plates, p. 27.)

By means of nuts h^1 *g* the position of all the parts below the beam may be adjusted, either to make the plough run shallow or deep, or to give it more or less land, as desired. The mould-board *d* is made adjustable by means of screws *e* e^1, having pivot nuts *p* p^1, the latter being attached to the upper part *f* of the land side, and the screws *e* e^1 to the mould-board. The other end of the mould-board is secured to the standard *h* by means of set screw *l*.

I *claim*, connecting and arranging the mould-board *d*, land side *m*, and coulter *c*, in such a manner that they are together capable of a vertical and lateral adjustment, in addition to the particular adjustment of the mould-board, as described.

No. 13,191.—Nicholas Whitehall.—*Improvement in Ploughs.*—Patented July 3, 1855. (Plates, p. 27.)

The driver, seated on seat W, can regulate the action of the ploughs A, by means of operating the handles O. The dotted lines represent the ploughs and handles when depressed.

The inventor says: Disclaiming all the devices separately considered, I *claim* the arrangement and connexion of the handles O O, arms M M, plough-beams C C, and seat W, for the purpose of operating ploughs, in the manner and for the purpose set forth.

No. 13,228.—Adonijah Peacock and Simeon Peacock.—*Improvement in Attaching Cast Point to Steel Mould Boards of Ploughs.*—Patented July 10, 1855. (Plates, p. 27.)

The inventor says: We *claim* nothing new in the form of the solid cast metal point which we use, except the recess or shoulder at B C, fig. 1, for the purpose of attaching the steel part of the mould board to the cast point; the balance of the point being similar in principle to the point of a cast mould board in common use, with all its bolts and screws.

We *claim* nothing new in the steel mould board which we use, except cutting the point off at B C, fig. 2, which is generally done at a distance of from six to eight inches from A, fig. 1, for the purpose of attaching to the cast point at B C.

We *claim*, in the manufacture of mould boards for ploughs, the use of a solid castmetal point, as described, in connexion with steel or other wrought metal mould boards for ploughs when united therewith, as described, or any way equivalent thereto, so as to form of the two parts a mould board, the greater part of whose surface is steel or other wrought metal, and the point or front part of solid cast metal as a wearing point.

No. 13,493.—Jno. L. Gill.—*Improvement in Ploughs.*—Patented August 28, 1855. (Plates, p. 27.)

Figure 1, view of the plough from the mould board side.
Figure 2, view from the land side.
Figures 5, 6, and 7, views of the single parts of the ploughs.
Figure 4, view from the underside of the share.

The inventor says: I am aware that a combined steel and cast-iron mould board has been used, and also that a cast standard has been used; these I do not claim. Neither do I claim any of the parts used separately.

But I *claim* a plough composed of a steel mould board, cast-iron share, sheath, and land side, when the several parts are arranged as set forth.

No. 13,653.—Harrison Norton.—*Improvement in Ploughs.*—Patented October 9, 1855. (Plates, p. 27.)

The nature of this improvement will be understood from the claim and engravings. Fig. 1 represents two positions of the parts referred to in the claim, one in full and the other in dotted lines.

Claim.—Attaching the share E to the mould board C and "land side" D of the plough, by a hinge or joint, and moving said share by means of the bar G and lever H, or their equivalents, substantially as shown and described.

No. 13,865.—THOMAS A. CHANDLER.—*Improvement in making Plough Mould Boards.*—Patented December 4, 1855. (Plates, p. 28.)

Roller B moves on eccentric journals C C¹. The curved clamp plate D has the shaft E¹ E¹ secured to it; the journals E¹ E¹ are parallel to journals C C¹. Lever G is jointed to D in H. The cam end of lever G presses against roller B; by which arrangement of the lever with the clamp plate, the clamp plate is operated in securing the steel plate to the roller, and relinquishing it in the process of being formed into a mould board. The press plate J moves upon journals K K; these journals and the edge of the plate are parallel to the face of roller B and its journals; L lever attached to J; L lever attached to journal C. The steel plate, properly heated, is placed on roller B, the edge of which is passed under the clamp D, and held by the action of lever G, on plate D; the press plate J is then pressed on the heated plate by lever M; then by turning the roller (by means of lever L) backward and forward, according to the width of the plate being formed, it is bent into the shape of a mould board. By placing the steel plate more or less obliquely to roller B, a longer or shorter curve may be given to the mould board with the same sized plate.

Claim.—The forming eccentric roller B, clamp plate D, with the cam lever G, and the press plate J, when constructed, arranged, and operated, substantially in the manner and for the purpose set forth.

No. 13,822.—AARON A. MARCELLUS.—*Improvement in Potato Digger.*—Patented November 22, 1855. (Plates, p. 28.)

The plough A enters below the potatoes and brings them on its broad share, when the teeth of the revolving rakes *a* draw them up the separator and deliver them into one of the buckets *d* of the receiver *o*. As soon as the bucket is full, so as to overcome the weight of lever E, the receiver will make part of a revolution, and the potatoes fall to the earth in a heap.

The separator C, which has a slight vibratory motion, is composed of rods united by a cross-bar at front and rear; the rods are so bent as to form an undulating surface, to break up the earth more perfectly.

Claim.—In combination with the revolving rakes, the undulating surfaced separator C and receiver O, when arranged in the manner and for the purposes set forth.

No. 12,169.—EMILE SIRRET.—*Improvement in Rakes.*—Patented January 2, 1855. (Plates, p. 28.)

The rake is made in two sections D D, which are united together by collars *a a* on the ends of the vibrating treadle E E, and at their ends by thin plates *b*, in such manner that either one or both of them can be turned a short distance so as to adapt the teeth to the undulations of the ground. When the driver, for instance, depresses the front end of the treadle E, (which turns on fulcrum *d*,) the rear ends, with the collars and the rake, will be depressed thereby, (by means of the resistance of the hay,) elevating the teeth into the position shown in figure 1, in dotted lines, which will prevent their front end from running against the hill.

The jointed treadle F G turns on fulcra *d g*, and serves for discharging the hay as fast as the rake collects a bundle. When the operator depresses its front end, the back forked F end will assume the position shown in figure 1, in dotted lines, and bear upon the hay collected, and hold it down to the ground until the rake teeth revolve from under it, which will occur as soon as the driver depresses both treadles E and F G; the weight of the hay, and the power applied, causing the rake teeth to take into the ground, and the forward motion of the horse, with the resistance offered by reason of the teeth passing into the soil, causing the rake head to revolve, and the lower set of teeth to revolve backward from under the hay, and allow it to fall to the ground in a bundle. As soon as the hay is discharged, the treadle F G and the rake are caused to assume their common position ready for another operation by a spring *h*.

Claim.—The inventor says: I am aware that the treadle E is not new; and, therefore, I make no claim to it. But what I do claim as my invention, and desire to secure by letters patent, is:

1st. A revolving rake, having the head made in two sections, and arranged and operating essentially as herein described.

2d. In combination with the same, the employment and arrangement of the jointed forked treadle F G, substantially as and for the purpose set forth.

No. 12,396.—S. N. STILLMAN and W. F. STILLMAN.—*Improvement in Garden Rakes.*—Patented February 13, 1855. (Plates, p. 28.)

To secure the teeth C in the head A of the rake, circular holes are bored in it on its under side about two-thirds the way through; the larger ends of the teeth are inserted in these holes, and circular wedges D are dipped in glue and driven into the holes.

Claim.—The new manufacture of garden rake described, viz: a rake having curved metal teeth inserted and fastened into the head, as set forth.

No. 12,547.—ALEXANDER H. GASTON and JOSEPH SMITH.—*Improvement in Rakes and Elevators.*—Patented March 20, 1855. (Plates, p. 28)

The apparatus is attached to the wagon W by means of arms E K. The rollers *x x* spread the belts at the bottom of the machine for raking. The hay, being elevated by the rakes L, is caught by the revolving forks P, and thrown on the wagon.

Claim.—The endless belts D D and rakes L, in combination with the rollers X and revolving forks P P, for the purpose of raking and loading hay, as set forth.

No. 13,596.—THOMAS N. LUPTON.—*Improvement in Rakes for Reaping Machines.*—Patented September 25, 1855. (Plates, p. 28.)

The gear wheels *k g* transfer motion to crank *e*, whilst wheel *j* (on the axle of wheel *k*) works the wheel *h* on collar *f*, and a pinion fast on the collar gears into a pinion attached to the sleeve socket L, thereby revolving the latter. The collar *f* is attached to the slide socket *q*, so

that the latter revolves together with *h*. The pitman *s* is pivoted to the sliding arm *r* in *z*. The bevel gear *n p* actuates the rake, which latter is caused (by means of the described arrangement of parts) to maintain a parallel position relative to the sides of the machine and the grain platform, while it sweeps across the platform.

The inventor says: Being well aware that cranks, pitman rods, and gear devices have been employed as elements, in part, of the mechanical construction of grain harvesting machines, I do not claim such devices separately.

But I *claim* the construction of an automatic rake, having a revolving tubular or sleeve socket L, with a revolving extension or reciprocating piston rod *m*, a slide socket *q q*, with a sliding arm *r r*, and a geared rake device W W, in combination with the collar *f f*, the whole being constructed and operated substantially as described.

No. 12,632.—Wm. J. Keeney and James R. Tarbox.—*Improvement in Rakes and Hay Elevators.*—Patented April 3, 1855. (Plates, p. 29.)

Figure 2 illustrates the working of the spring prongs K[11], which, when resuming their original position, after every passage of slot N, throw the hay resting on them against apron F, or on the wagon being loaded. The axle P is, at the place where pinions Q Q are fixed upon it, elongated into hub U, and furnished with clutch W, which, if wheels A and B revolve in the direction of the arrow, falls into the notches X cut into hub U, thus carrying axle P and pulleys L and the endless rake in its revolution, while one or both of the wheels revolving in an opposite direction, the clutch slides over the inclined planes of the notched hub, leaving axle P and the endless rake at rest.

Claim.—The combination of the apron F, endless belt M M, and elastic clearers K[11], either alone or in connexion with two driving wheels, clutches, and a rake placed behind for the purpose of raking and elevating hay, as set forth.

No. 12,750.—Henry Chatfield, assignor to Henry Chatfield and Theodore L. Snyder.—*Improvement in Rakes.*—Patented April 17, 1855. (Plates, p. 29.)

a are the tines, *g* their heads provided with square holes, *d* the square bolt, *c* the head of the shank provided with a similar square hole, *b* the washers.

This arrangement allows to replace broken teeth, and to increase or lessen their number.

Claim.—Constructing the teeth on tines of a rake or fork separately with square or an equivalent form of apertures through the heads thereof, and uniting them by a single bolt accurately fitting and passing through all the said apertures and through a similar aperture in the shank of the instrument, the teeth or tines being kept at suitable distances apart by washers or blocks placed upon the bolt between them, or by enlarging the heads thereof for the same purpose; the whole being secured firmly together by a nut screwed upon the end of the bolt, or in any other suitable manner.

No. 13,490.—Oliver C. Green.—*Improvement in Harvester Rakes.*—Patented August 28, 1855. (Plates, p. 29.)

The fender-board L prevents the grain from passing back of the grain platform, and its upper edge, being bent over, serves as a guide or way for a friction roller at the end of an arm *m*, fastened to the rake. During the movement towards the driving-wheel D, the said friction roller passes on the under side of said guide-way, thereby confining the rake to its work and preventing it from being raised above the grain. Immediately before the rake commences its return motion, the friction roller ascends the incline M, and passes then (during the return motion of the rake) along the top edge of said guide-way, so as to keep the rake sufficiently high to prevent its coming into contact with the grain. The head-block G of the rake slides on way *b*, and is moved from the driving-wheel by means of the device S O Q.

The inventor says: I am aware that the delivery of grain at right angles to the line of draft of the team has been accomplished by means of a rake travelling across the platform, in conjunction with a second rake turning in a segment of a circle; and, therefore, I do not claim the described delivery of grain, irrespective of the means by which it is accomplished.

But I *claim*, in rakes to harvesters, the combination of the rake I, sliding-head G, way or guide B, fender-board L, and inclined plane M, or severally of their equivalents, operating in the manner and for the purpose set forth; so that with a single rake I accomplish the raking of grain across the platform, and the delivery thereof, in the manner substantially as set forth.

No. 13,033.—Wm. P. Greenleaf.—*Improvement in Fastening Scythes to Snaths.*—Patented June 12, 1855. (Plates, p. 29.)

The toe D is placed in one of the holes B; the scythe is then turned back so that notch C fits over that part of bolt E that is between the bolt-head and the snath. By turning the nut H the scythe is fastened.

The inventor says: I do not claim separately any of the parts or devices used by me in it.

But I *claim* the mode of fastening scythes to snaths, by the employment of the ferrule *a d*, at the end of the snath, the bolt E, the nut H, the notch C in the shank of the scythe, the toe or claw D of the scythe, and the perforated guide plate G, constructed, formed, shaped, arranged, and operating, as described and set forth.

No. 13,496.—Benjamin F. Joslyn.—*Improvement in Scythe Fastening.*—Patented August 28, 1855. (Plates, p. 29.)

It will be seen that the shank B can be firmly secured to the hoop C, by simply forcing the point of screw E against the end *e* of lever D.

I *claim* the arrangement of the lever D, as applied to a hoop *e*, as set forth, as a means of securing the shank of the scythe to the end of the snath.

No. 13,697.—Cyrus Clapp.—*Improvement in Scythe Fastening.*—Patented October 23, 1855. (Plates, p. 29.)

The fastening of the scythe *g* to the snath A, by means of ferrule *b*, and other parts referred to in the claim, will be understood from the claim and engravings.

Claim.—The fastening of scythes to snaths by means of the concave socket *d d*, (figure 4,) and section of a ball *e e*, (figure 1,) to which the scythe *g* is attached, and the centre bolt *f*, as described; the whole being arranged substantially as and for the purposes specified.

No. 13,105.—James Selby.—*Improvement in Seed Drills.*—Patented June 19, 1855. (Plates, p. 29.)

The inner ends of two reciprocating slides meet at the centre of the hopper, which is provided with a partition. The slides E have apertures *c* arranged in pairs, and between each two is a pin *d*, which pins project through the openings *e* in the bottom of the hopper D. Slides *f* are underneath E. The shaft H and crank *j*, when rotated by means of gearing F G, imparts a reciprocating motion to the slides E, by means of connecting rods *l*. The crank can be elongated or shortened, and fastened by set screw *k*. The seed passes through *e* and *c*, in quantities regulated by placing the slides *f* further in or out, so that the narrower or wider parts of *f* will be underneath the apertures, and consequently allow of the escape of a greater or smaller quantity. I are the usual tubes for conveying the seed to the ground.

Claim.—Distributing the seed by means of the transverse slides *f*, in combination with the reciprocating slides E, operated by means of an adjustable crank formed by the sliding bar *j*, as shown and described.

No. 13,135.—Moses D. Wells.—*Improvement in Seeding Machines.*—Patented June 26, 1855. (Plates, p. 30.)

By the vertical adjustment of the agitator B, the teeth *f* will be caused to protrude more or less through the seed escape slot *a*, and thereby a greater or less quantity of seed will be allowed to escape. At the extremities of the agitator, and held in place by the pins *m*, are sliding plates *p*, moving with the agitator, and keeping the slot at its extremities always covered; the pins *m* passing through the openings in the plates *p*, permitting the vertical movement of the agitator.

The inventor says: I make no claim to the serrated agitator, when susceptible of a longitudinal movement only.

But I *claim* the serrated agitator, adjustable vertically within the slot *a*, substantially as described, for regulating the discharging capacity of the machine, as set forth.

I also *claim* the supplemental slider *p*, arranged and operating as described, for enabling the agitator to preserve a constant reciprocation under all changes of discharge capacity, as specified.

No. 13,373.—Lucian N. Bigelow.—*Improvement in Seeding Machines.*—Patented July 31, 1855. (Plates, p. 30.)

The hopper F is arranged above the screen D^1, and has an aperture G through the whole length of its bottom. By means of the slide H, placed under the hopper, and the rod I, which can be shifted in the notches K on standard J, the quantity of grain falling into the screen can be regulated or entirely confined in the hopper. A similar slide L underneath the screen serves to regulate the quantity of grain falling from the screen on to the ground.

I *claim* the use of a screen, for the purpose of sowing grain broadcast, so arranged with a feeding hopper and slides, as to regulate the quantity of grain to be sown, when acted upon by trip-hammers, to secure its uniform and proper distribution, in the manner set forth.

No. 13,530.—C. Stephenson and G. Stephenson.—*Improvement in Seeding Machines.*—Patented September 4, 1855. (Plates, p. 30.)

The seed falls from hopper H, through slide I, over deflecting plate *l*, and upon the concave bottom of box E. The shaft L, having a reciprocating motion, works the tube L^1 up and down, thereby conveying seed from the concave bottom to the seed tube F.

We *claim*, distributing or conveying the seed from the box E to the conveying spout F by means of the tube L, with plate a^1 attached; the tube being secured within a shaft L, which has a reciprocating rotary motion.

No. 13,664.—H. R. Smith.—*Improvement in Seeding Machines.*—Patented October 9, 1855. (Plates, p. 30.)

As the machine is drawn along, the wheels H I revolve in the direction of the arrows, and the recesses *b* (which can be made of desired capacity by slides regulated by set-screws *d*) take the seed from the hopper F and carry it round, (in contact with the wheel I,) until it drops on to the guard J and down the seed tube G.

Claim.—The combination of wheels H I with the hopper F, when arranged substantially as shown for the purpose specified.

No. 13,781.—E. Darwin Curtis.—*Improvement in Seeding Machines.*—Patented November 13, 1855. (Plates, p. 30.)

When the seed is to be sown broadcast, the valve *i* is placed midways between the two prongs of the distributing tube I; but when the seed is to be sown in drills, the valve is turned to close o e of the prongs, as represented in the engraving.

The inventor says: I do not claim the distributing tube made with forks or branches, for the better distribution of the seed in sowing broadcast, as such has been done; nor yet, of itself, irrespective of its construction, arrangement, and operation, substantially as specified,

the combination of a leaf or flap-valve with a distributing tube for governing the discharge of the seed.

But I *claim*, providing the forked distributing tube with a wedge-shaped flap-valve *i*, arranged in relation to the forks as and for operation in the manner and for the purposes substantially as specified.

No. 13,893.—Moses D. Wells.—*Improvement in Hand Seed-Sowers.*—Patented December 4, 1855. (Plates, p. 30.)

The seed distributer consists of bar B, having at intervals, corresponding with the slotted openings in the bottom of the hopper, the cross section of a double inclined plane, with the ridge slightly below the upper surface of the bar; this bar being reciprocated in guides beneath, and in contact with the bottom of hopper A, so as to close the slots where the double inclined planes are from under them, and open such portion thereof for the discharge of seed as the inclined planes pass under.

If desired to limit the discharge of seed, then the bar B is not permitted to move far enough to carry the entire inclined plane under the slot; lever C being stopped by a pin *g* in one of the holes *i* of strap I.

Claim.—Effecting the seed discharge, and regulating the amount of the same, by means of the double inclined planes *f* of bar B reciprocating without the hopper, the adjustment and operation being substantially as described.

No. 13,986.—Reuben Hurd.—*Improvement in Seeding Machines.*—Patented December 25, 1855. (Plates, p. 30.)

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I do not claim the employment of an endless belt or elevator, with its cup or buckets for taking the seed from the hopper and depositing it, by the inversion of the buckets, down a conveying tube to the hollow share; as such, under a different construction, arrangement, and operation of parts, has before been done.

But I *claim* the arrangement, substantially as shown and described, of the elevator or belt, with its buckets or seed cups *m*, with the conveying spout M, and seed box F, the latter being provided with a spring-valve Q, or movable bottom, opening upwards; and the said cups or buckets passing through said bottom, exclusively in or during the upward travel of the elevator, as specified.

No. 12,760.—Palmer Lancaster.—*Improvement in Implement for Shearing Sheep.*—Patented April 24, 1855. (Plates, p. 31.)

The object of this improvement is rapidity of operation, and prevention of mincing or cutting the wool twice, or cutting the animal.

The handle C, which is attached to sliding frame B, is moved back and forth, and thereby the shears are worked in the manner apparent rom the illustration.

Claim—.The construction of the implement as herein shown and described, viz: Having a series of cutters *f* work over a series of stationary cutters *h*, the cutters *f* having a vibratory movement given them by means of the reciprocating frame B, rake D D¹, pinions F F¹, with pawls *d d* attached to them, and spur-wheel G, pinion H, and crank pulley I; the pinions F F¹ being placed loosely on the shaft E of the spur-wheel G. The above parts being arranged as shown, and operating in the manner and for the purpose as set forth.

No. 12,341.—John Bean and Benjamin Wright.—*Improvement in Smut Machines.*—Patented February 6, 1855. (Plates, p. 31.)

By having the air go through the smut-scourers and revolving-screens, it assists the purifying operations. C is the screen-case of the separator; the grain, after it has been passed through the separator, is placed in receiving box R, to be operated upon by smut-cone P. M N are the revolving-screens.

The inventors say: We de not claim the leading of a draught through the smut-scourers and revolving-screen, irrespective of the manner of effecting the same.

But we *claim*, supplying air to the fan E of a separator, the shoe of which is arranged in connexion and at right angles with a smut machine, by causing said air to pass through the smut-scourers and revolving-screens of said smut machine on its way to the fan, as described, and for the purpose set forth.

No. 12,254.—John A. Pitts.—*Improvement in Straw Cutters.*—Patented January 16, 1855. (Plates, p. 31.)

K is the bar over which the straw passes out, and against the side of which the knives *g* cut shear fashion. The end *h* of said bar is curved so as to fit over the shaft *f* of the cutter wheel I, and is placed between the hub of it and a collar *i* on said shaft, to keep it from traversing on said shaft. The other end *k* of the bar bends around so as to clasp the rim of the wheel, and can be properly adjusted by set-screws *n n*, which bear against the said rim of the wheel,

Claim.—So combining the cutting-wheel and bar, as that the edges of the cutters must always pass the bar at a fixed adjustable distance whether the tendencies to force the cutters from the straw be great or not

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No. 12,331.—George L. Squier.—*Improvement in Straw Cutters.*—Patented January 30, 1855. (Plates, p. 31.)

The inventor says: I do not claim, separately, the circular cutters or knives, for they have been used for analogous purposes.

But I *claim* the combination of the circular cutters or knives *b b*¹ and finger plates E, with the fingers *d* attached to them, when said cutters and finger plates are secured the proper distance from each other on their shafts B B¹, by means of the rods D D¹ and nuts *c c*¹, as shown and described.

No. 12,407.—James H. Bennett.—*Improvement in Straw Cutters.*—Patented February 20, 1855. (Plates, p. 31.)

This improvement consists in so arranging a flat spring G over the front part of a vertical slot C, and arranging and bevelling the knife E, that when the knife-lever D is lowered, the knife will be caused to bear upon the side of said spring, and the under side of the lever against the top of the spring. Thus, as the knife is lowered, lateral pressure is exerted upon it, and it is kept close to the guard plate *c* in order to perform a perfect cut. After the cutting is performed, the spring, by its upward pressure, aids in raising the knife-lever.

Claim.—The use and arrangement of the double-acting spring, in combination with the arrangement and bevelled shape of the knife, substantially as and for the purpose set forth.

No. 12,683.—Walter Lackey.—*Improvement in Straw Cutters.*—Patented April 10, 1855. (Plates, p. 31.)

A flange or flanges A A are arranged between the heads B B, the edges of both to correspond with each other; they are so placed as to pass close by the stationary knife C, which is adjustable by screws *i*. D D are the feed-rolls.

The inventor says: I do not claim the self-feeding flanges working against a stationary knife, as described by A. S. Macomber in his patent, granted November 5, 1850; nor do I claim the particular form or arrangements of the parts.

But I *claim* the use of the heads B B when made to correspond with the flange or flanges, to facilitate the setting of them, and prevent their striking over the stationary knife or bed.

Also, the flanges, in combination with the heads, working against the stationary knife, as above set forth.

Also, the combination of the flanges, heads, stationary knife, and feed-rolls, as described, or any other substantially the same.

No. 12,694.—Ira Rose.—*Improvement in Straw Cutters.*—Patented August 10, 1855. (Plates, p. 31.)

Shaft G, and with it cam H, being revolved, the yoke I, and with it knife D, receive a vertical reciprocating motion. The same cam H imparts intermittent motion to arm J, which is alternately drawn back by spring L. Arm J rocks the shaft K, which, by means of lever M, pawls, and ratchet-wheels N, transfers an intermittent motion to the feed-rollers C C.

The inventor says: I do not claim the feed rollers, neither do I claim the knife; for these are well known and in common use.

But I *claim* the combination of the cam H, yoke I, and lever J, with the rock shaft K and pawls M M, the above parts being constructed, arranged, and operating in the manner and for the purposes as herein shown and described.

No. 12,696.—David Russell.—*Improvement in Straw Cutters.*—Patented August 10, 1855. (Plates, p. 32.)

Figures 1 and 3, representing the moving parts in two different positions, illustrate fully their mode of operation.

Claim.—1st. Knives A A, in combination with the double crank B and lever C, thereby giving to the knives an oscillatory reciprocating motion, by which means I obtain two shear cuts of the knives at each revolution of the double crank B, as herein described and claimed.

2d. The cam-lever K and crank B, in combination with the lever J and pawls *b b*, ratchet H and feed-rollers G G, for the purpose of feeding the straw or other material to the knives, as set forth.

No. 12,699.—Thomas C. Simonton and Loren J. Wicks.—*Improvement in Straw Cutters.*—Patented April 10, 1855. (Plates, p. 32)

Cylinder C being rotated, the knives D D, as they rotate, cut the straw as it passes between their edges and the under surface of bed F, which moves forward by the pressure of the knives as they bear against it, and is alternately drawn back by spring G between each two cuts. The knives and bed, by their operation, give the proper feed motion to the straw. The feed motion may be modified, so as to cut the straw longer or shorter, by adjusting throat-piece I.

The inventors say: We do not claim the adjustable throat-piece I, for that has been previously used; neither do we claim separately the cylinder C, with knives D D thereon, for they also have been used.

But we do *claim* the combination of the cylinder C, with the knives D D attached to its periphery and vibrating bed F, constructed, arranged, and operating in the manner and for the purpose as herein shown and described.

No. 12,974.—Francis Fitzpatrick.—*Improvement in Straw Cutters.*—Patented May 29, 1855. (Plates, p. 32.)

B is the rock-shaft, and R the knife, attached by means of arms *c*; *a* is the straw-box.

Claim.—Arranging the rock-shaft B, on which the arms and knife are so placed as to give a draw cut in front of the straw-box, and distant therefrom so that the tendency of the knife to push away from or leave the straw shall be resisted or met by the ends of the arms in a line parallel to the thrust, and thus be held up to the straw, whilst the mouth of the straw-box is unencumbered by any machinery to prevent the feeding up of the uncut, or delivery of the cut, straw, as represented.

No. 13,137.—Henry Peckham.—*Improvement in Straw Cutters.*—Patented June 26, 1855. (Plates, p. 32.)

The knives G and H are hung upon pivot I, so as to be swung or carried around it by means of pivots J J (at the opposite ends of the

knives) traversing in slots K L in the rotating disc M. The knives cut the straw as they pass by the face-plate F.

Claim.—One or more knives hung on a pivot, in combination with a revolving disc, or its equivalent, carrying one or more slots, so as to operate the knife or knives, substantially as described and for the purposes set forth.

No. 13,215.—Lyman Clinton.—*Improvement in Straw Cutters.*—Patented July 10, 1855. (Plates, p. 32.)

The nature of this improvement will be understood from the claim and engravings.

When the knives are in the position represented in dotted lines, they commence to act on the straw, draw it out, cut it, and discharge it.

The inventor says: I do not claim, as new, placing knives or cutters on revolving winged arbors, irrespective of the peculiar arrangement herein shown of the grooves or rebates at the edges of the wings.

But I *claim*, placing knives or cutters F on the wings *b* of two revolving arbors or shafts C C, when the edges of said wings have rebates *e* cut in them, so as to form lips or ledges *d* opposite the cutting edges of the knives or cutters, for the purpose as shown and described.

No. 13,385.—Dewitt C. Cumings.—*Improvement in Straw Cutters.*—Patented August 7, 1855. (Plates, p. 32.)

The knives 7 cut upward against the under edge of plate 6. The feed-rollers 5 5^1, in pressing the material between them, loosen the dirt, which, on its passage from the rollers to the cutting edges, falls beneath the machine, instead of being mixed up with the cut straw as in other straw cutters.

The roller 5^1 receives its motion from pinion 5^3 by means of an universal coupling 4, which will allow the roller 5^1 to accommodate itself, in its spring bearings 9 9, to the varying quantity of feed from side to side of the feed-box. The pinion 5^3, being hung in a yoke 8, will always remain in gear with pinion 5^2.

The inventor says: I do not claim the upward cut in itself, as that has been done before.

But I *claim*, first. The upward cut, when the material is fed in by a distinct device for that purpose, by which the dirt is separated from the straw or other material to be cut, passing out beneath the feed-rollers, instead of collecting on the stationary guard or cutting-plate, substantially as and for the purposes specified.

Second. Operating the moveable feed-roller by means of a spur-wheel hung in a vibrating frame or yoke, with a universal coupling for connecting its axis with that of the roller, when said roller is supported on spring-bearings independent of each other, substantially as and for the purposes specified.

No. 13,509.—John A. Thompson.—*Improvement in Straw Cutters.*—Patented August 28, 1855. (Plates, p. 32.)

The disc cutter A, the shaft of which is attached to the gate E, rises and falls with the gate, and at the same time receives a rotary motion through the pinion C on the disc shaft and the rack D fastened to the stationary frame R of the straw cutter. Thus the disc cutter rises to allow the straw to be fed in, and then descends, passing through the straw with a rotary motion, which gives to it a drawing cut.

I *claim* giving the cutting disc of a straw cutter a combined rotary and reciprocating motion, in the manner set forth.

No. 13,718.—Luther B. Fisher.—*Improvement in Straw Cutters.*—Patented October 30, 1855. (Plates, p. 32.)

Frame *i* being operated by crank *c*, one end of knife *h* will alternately be higher than the other end of it, and *vice versa*. (See position represented in dotted lines.) The straw is fed forward by the side motion of the knife, which is caused by the pin *k*, at one end of the knife working in an oblique groove in the side piece *q*. The object of rock-shaft *p* is to cause both pieces *n n* (to which the lower knife *m* is secured) to vibrate equally as they move with the knives.

Claim.—Ear *k*, in combination with angular groove *q*, pieces *n n*, and rock-shaft *p*.

No. 13,807.—Loren J. Wicks.—*Improvement in Straw Cutters.*—Patented November 13, 1855. (Plates, p. 33.)

The curvilinear motion of the knife E, which makes it self-feeding, will be understood from the claim and engraving.

The inventor says: I do not claim the elastic or self-adjusting throat, as that has been heretofore used; neither do I claim the adjustable throat to govern the length of the cut.

I *claim* hanging the knife to a crank shaft J and to a pivoted pitman H, for the purpose of giving it the curvilinear motion described.

No. 13,849.—John A. Krake.—*Improvement in the Method of Hanging the Screens of Winnowing Machines.*—Patented November 27, 1855.—(Plates, p. 33.)

The screen *a* is hung on arms A A, and the screen *h* on arms B B. This method of hanging the screens, which will be understood from the engravings, admits of a side to side motion, and no other. The spaces at the sides of the upper shoe *a* and the sides of the machine are closed with a thin casing *p* extending horizontally from the front edge of the apron C to a point directly above the rear edge of the same. The shoe *a*, in its motions from side to side, works close to and above these casings, thereby preventing the escape of the blast from the fan as it passes along the upper apron to and through the screen, where light substances are separated from the grain.

Claim.—The peculiar arrangement and combination of parts described, by which the action of the screens is confined exclusively to lateral vibratory motion, for the purpose specified.

No. 12,158.—Levi Dederick.—*Improvement in Ox Yokes.*—Patented January 2, 1855. (Plates, p. 33.)

Beam B connects two neck blocks A (of which the engraving represents only one); C is the centre bolt, and D the flanged thimble, which is screwed into the neck-block, together with the bolt C, and secured by wood screws *a*. The bolt passes up through the beam and receives a key E on the upper side of the beam; thus the surface of the block, which rests directly upon the neck of the ox, is left whole and smooth.

The inventor says: I am aware that a patent has been granted to Albert Vose for a semi-revolving neck-block; but my mode of fastening the block I regard as an improvement upon that invention.

Therefore, what I *claim* is the flanged thimble for securing the centre bolts of separate vibrating neck-blocks from the upper side, and thus avoid perforating the wood on the underside, which rests upon the neck of the ox, as described.

No. 12,925.—John Tucker.—*Improvement in Ox Yokes.*—Patented May 22, 1855. (Plates, p. 33.)

The boxes, in which the bows are placed, approach towards and recede from the centre of the yoke, by sliding freely upon a rectangular frame which is attached to the centre box of the yoke; the boxes in which the bows are placed being severally guided by a geared rack operating upon a pinion in the centre of the yoke.

Claim.—The blocks in which the bows are set, constructed so as to slide up on the rods *d d* etc., as above set forth, in lieu of having them slide upon the under side of the beam to prevent injury, as set forth.

No. 13,472.—Jno. Woodward.—*Improvement in Horse Yokes.*—Patented August 21, 1855. (Plates, p. 33.)

E and E' are the hame connexions; A the beam.

The inventor says: I do not claim a horse yoke, consisting of two eveners or horizontal bars, a connecting or vertical bar, two sets of harness and hame connexions, arranged at the upper and lower ends of the harness; such being represented in the patent of Elijah H. Dantforth, granted July 28, 1846.

I *claim* contructing and arranging the hame connexions with respect to a single beam, whereby such hame connexions may be attached to the middle of the hames instead of at their ends, and thereby render but one bar or bearer necessary to connect the harness and the pole of a carriage.

II.—METALLURRGY.

No. 12,237.—John S. Addison.—*Improved Gold Washer and Amalgamator.*—Patented January 16, 1855. (Plates, p. 34.)

The engraving, in combination with the claims, fully explains the nature of this improvement.

The inventor says: I do not claim the employment of a trunk into which the ore, dirt, or silicious matter, containing the metal to be extracted, is fed, to meet an ascending column of water, as described; nor the operating of the scraper by a water-wheel driven by the entrance water, either of itself or connected with other devices.

But I *claim*, first: Placing such a trunk I above a box D, which forms a receptacle for the gold or other metal separated in the trunk, and which contains a proper quantity of quicksilver for amalgamating the said gold or metal, and also a water-wheel G, which is driven by the entrance into the said box of the water which is to form the upward current in the trunk, for the purpose of giving motion to a scraper H to agitate the quicksilver to promote amalgamation, all substantially as described.

Second. I *claim* the arrangement around a trunk into which the pulverized ore, quartz, &c., is fed, to meet an ascending current of water which flows through and over the trunk of one or more troughs K M to contain quicksilver, and a corresponding number of over-hanging rims J L situated above them in such a manner, substantially as described, that the flow of water, ore, etc., over one rim falls into the middle of the quicksilver in the trough below it, and keeps the same properly agitated to amalgamate with it the whole or some portion of the gold or metal contained in the overflow, as fully set forth.

No. 13,645.—Samuel Gardiner, Jr.—*Improved Amalgamator.*—Patented October 9, 1855. (Plates, p. 34.)

The mineral matter (in a pulverized state) is fed with a stream of water between the rollers E E, which, revolving in the quicksilver trough, are kept constantly coated with quicksilver, which, being spread over a large surface, has ample opportunity for collecting the gold from the pulverzed material. The overflow of the water carries the matter over the sides of trough F, and presents it in a thin sheet over the surface of the rollers A, revolving in quicksilver troughs C C. By this means it is expected every particle will be brought into contact with the quicksilver, and all the gold amalgamated; the foreign matter will be washed away by the water overflowing the shelves D. The jets of water, from the cylinders A, are to keep the cylinders clean, and keep the matter from packing between the rollers.

I *claim*, first: The hollow perforated rollers A A receiving water at

their journals, and discharging it in small streams all over their peripheries, and revolving in opposite directions in a trough or troughs of quicksilver, so that their upper parts are constantly approaching each other, and having the auriferous and other metalliferous matter fed above or between them, all substantially as described.

Second. The arrangement of the amalgamating rollers and the distributing rollers and troughs, substantially as shown and described, whereby the matter is fed equally on both amalgamating rollers and on the descending portion thereof.

No. 13,879.—Edward N. Kent.—*Improvement in Amalgamators.*—Patented December 4, 1855. (Plates, p. 24.)

The earthy matters, containing gold or silver, are supplied by means of a current of water passing from pipe *m* into pan H, in which they are stirred up and suspended in the water by the teeth attached to the arms I, and are carried thence by the current of water through the small feeding tubes *l l* into the centre of the large body of water contained in vessel E, and directly in contact with the mercury on the bottom, the surface of which is kept constantly clean by the revolving action of the paddle wheel *h h* on the shaft *k*, (the shaft being revolved by band and pulley,) which also causes an outer current in the space between the wheels and the sides of the vessels into which the earthy matters are thrown by the revolution of the paddle-wheels, thus allowing the heavy metallic portions to fall by virtue of their greater specific gravity, and remain in contact with the clean mercury until amalgamated, while the light earth is rapidly washed away.

The inventor says: I do not wish to be understood as making claim broadly to an apparatus for the separation of gold or silver from foreign substances, which consists of a vessel containing a column of water with mercury at the bottom, and with agitators above the mercury, and in which the substances to be separated are supplied below the surface of the water, and below the discharge.

I do *claim*, the employment of double action paddle-wheels, which rotate on their own axis, and revolve about a vertical axis, substantially as described, within, and in combination with, a column of water in a vessel having the discharge at or near the top, substantially as specified and for the purpose set forth.

And I also *claim*, sustaining the paddle-wheels in the column of water from above, and causing them to rotate on their axis by the weight of the heavy pan resting on the peripheries above, that mercury may be supplied, in combination therewith, at the bottom and below the wheels, substantially as and for the purpose specified.

No. 12,484.—Guy H. Hubbard.—*Improved Auger Handle Fastening.*—Patented March 6, 1855. (Plates, p. 34.)

The ring C is placed with the narrowest parts thereof resting upon the pin E, and the shank D of the tool is inserted, with the notch G entered upon the catch F; then, by causing the ring C to revolve in part around ferrule B, and then causing the inclined edge thereof to operate against pin E, ring C is pressed against the shank, and hence presses said shank firmly upon catch F.

The inventor says: I do not claim the ferrule B, which has been previously employed.

But I *claim* the ring C, constructed, arranged, and operating in the manner and for the purpose set forth, or other manner substantially the same.

No. 13,025.—Anthony Pollak.—*Improvement in Wrought Iron Beams and Girders.*—Patented June 5, 1855. (Plates, p. 34.)

The object of this construction is an increase in strength and stiffness from a given quantity of material.

Claim.—The combination, in wrought or malleable iron beams or girders, of top and bottom T pieces, with flat or plane surfaced longitudinal plates, riveted upon both sides of the stems or vertical portions thereof, substantially as described and for the purposes specified.

No. 13,599.—Richard Montgomery.—*Improvement in Corrugated Beams.*—Patented September 25, 1855. (Plates, p. 34.)

The object of making the sheets (forming the beams) of such a shape, that one or both series of the arches shall be thicker than the straight portions of the said beams, is to make them stronger than they would be if made of uniform thickness and of the same weight.

Claim.—A supporting beam, formed of sheet metal of unequal thickness, bent into a series of folds, substantially as represented and set forth.

No. 12,289.—Abel W. Streeter.—*Improvement in Fastening Centre Bits.*—Patented January 23, 1855. (Plates, p. 34.)

To insert the bit, the cam C is placed in the open space (see figure 2) on a side of the socket at right angles with the catch E; then insert the shank of the bit, entering the notch F upon the catch E, and then, by a quarter revolution of ring D, bring the cam upon the side of the shank opposite notch F and catch E, when the cam, by pressing upon the shank B, will firmly secure the shank upon the catch, and, consequently, confine the same within the socket.

The inventor says: I do not claim the invention of a moveable or revolving ring as a means of operating a bit fastening, the same having been previously employed.

But I *claim* the stationary catch E, in connexion with the cam or bearer C, for the purposes specified; the whole being combined, arranged, and operated, substantially as set forth.

No. 12,262.—John T. Willmarth.—*Improved Dies for making Bolts.*—Patented January 16, 1855. (Plates, p. 34.)

The bar R of square iron, of the size of the head of the finished

bolt, is heated, and entered between the dies *a* a^1, (which are moved alternately towards and from each other,) when they are at their greatest distance from each other. The bar is continually rotated during the operation of the dies upon it.

The advantages of this form of dies are stated by the inventor as follows:

1st. The iron being operated upon both sides of the head at once, the latter is not forced away from the dies, as is the case when operated upon on one side of the head at a time, and thus a determinate quantity of iron is thrown into the shank of each bolt, and the necessity of cutting off the end of the latter, to reduce the bolts to a uniform length, is avoided.

2d. The iron being gradually cut away all round the head, the fibres of the metal are not distorted.

3d. The shank is never out of centre with respect to the head.

Claim.—The dies *a* a^1, constructed as described, or in any manner substantially equivalent thereto, for the purpose of operating simultaneously upon both sides of the head, as set forth.

No. 12,815.—Robert Crichton.—*Improvement in Machines for Making Bolts.*—Patented May 8, 1855. (Plates, p. 34)

The bar R, having been entered between the jaws *a* a^1 and *b* b^1, is held firmly by said jaws *a* a^1. The horizontal heading die J is forced towards the bar R by means of the cam N, which, as it revolves within the sash M, forces the shaft L forward and against shaft K. The die flattens the end of the bar R against the inner side of the forming dies *b* b^1, and forms a rud head. The four lateral heading dies C then move simultaneously toward the head, and form it into a square shape. The die J is then drawn back by means of spiral spring *g*, the spring acting upon it, when the shaft L is drawn back by the cam N. The die J is prevented from being drawn too far back by a stop *h* attached to one of the bearings *e*.

The inventor says: I do not claim the adjustable shaft L, the detached shaft K, the spring *g*, or the stop *h*; these having been known and used separately before.

But I do *claim*, the combination of the adjustable shaft L, the detached shaft K, the spring *g*, and stop *h*, with the sash M, and horizontal heading-tool J, to regulate the quantity of iron in, and thickness of, head, as herein shown and described.

No. 13,241.—Wm. E. Ward.—*Improvements in Machines for Making Bolts.*—Patented July 10, 1855. (Plates, p. 35.)

The bolts pass down between two inclined ways *b b;* the shanks of the bolts, between the ways and the heads, resting on the ways. The foremost bolt, arriving at the semi-circular end *c* of the ways, will hang in a nearly vertical position, with the lower end inclined a little forward, as the weight of the series of bolts on the ways will push the lowest one a little beyond the lowest part of the curved portion *c c* of the

ways. A wing *d* is thus brought, by an end movement, between this foremost and the rest of the series of bolts. Wing *d* is fast on a rock-shaft *f*, which (by means of cams, levers, &c., *i k m n*) receives first an endwise motion, so as to separate the foremost bolt, as already mentioned, and then makes a quarter revolution, so as to bring the wing, with the bolt on it, to a horizontal position. The bolt is then transferred by spring-nippers *w* to the jaws h^1 h^1, which present it to the rolling operation. In the meantime the wing *d* returns to its original position, and is drawn back so as to enter afterwards again between the next bolt and the rest of the series, and to repeat the operation already described. The wing and shaft *f*, while turning back, is drawn back by cam *p*, arms q^1, and *s*, on vertical rock-shaft *r* and collar *t*. The nippers *w* are on arm *x* of rock-shaft *y*, which latter is drawn endwise by weight a^1, to bring the nippers over the bolt, and it is pushed back to transfer the bolt by cam b^1, on cam-shaft *j*, acting on lever c^1. The nippers are moved twice up and down, to first gripe and then deposit the bolt, by the notches 6 and 7, in cam e^1. The bolt is griped by jaws h^1 h^1 jointed to cross-bar i^1 on the end of mandrel *j*. The jaws are opened by springs k^1 and closed to gripe the shank just within the head by a cone l^1, which is slid back on the mandrel for that purpose by spring m^1 interposed between the mandrel and cross-bar. A shoulder on the cone is acted upon by a lever n^1, (jointed to adjustable rod o^1.) which is operated by a tappet p^2 on wheel p^1, so that the jaws will spring open as the nippers present the bolt; and as the tappet passes instantly to cone, is immediately pushed back by spring m^1 to gripe the bolt as the nippers rise and leave it. The square mandrel j^1 is fitted to slide and turn with rock-shaft q^1. The mandrel is turned a quarter revolution by weight v^1 acting on lever u^1, link t^1, and arm s^1 on shaft q^1, and turned back by cam w^1 acting on u^1, &c.; all this for the purpose of presenting the several angles of the bolt to the rollers, to reduce the end of the bolt to the required cylindrical shape. The mandrel and jaws are drawn towards the segment rollers (that the bolt may be brought to the required position for being rolled) by means of the mechanism y^1 x^1 z^1 c^2; the bolt held by the jaws having been introduced between the segment rollers g^2 g^2, it is free to be moved back by the rollers as they act on it. The mandrel and jaws are drawn back by cam e^2 acting on friction roller f^2 on rod z^1. The rollers consist each of a segment groove to reduce the end of the stem of the bolt to a cylindrical form. This machine being intended to make bolts, in which that part of the shank next to the head is square and the rest cylindrical.

I *claim*, in the before described machine, the mode of operation substantially as described, for drawing or rolling, to a cylindrical shape, the end of the stem of square bolts, by means of the segment rollers, in combination with the jaws, or equivalent therefor, on the sliding rotating mandrel, operated by an arrangement of mechanism such as described, or any equivalent therefor.

I also *claim* the mode of operation, substantially as described, for taking the bolts from the feeding-ways, or any equivalent device by which they may be supplied, and bring them to a horizontal, or nearly horizontal, position, by means of a vibrating wing, which enters back

of the bolt to be separated, and then vibrates to bring it to a horizontal, or nearly horizontal, position, in combination with the transferring pincers, or any equivalent therefor, by which they are transferred to the jaws; the required motion being imparted by an arrangement of mechanism substantially such as described, or any equivalent therefor.

No. 13,117.—Marvin S. Otis, assignor to Chas. Rumley.—*Improvement in Machines for Boring Cylinders.*—Patented June 19, 1855. (Plates, p. 35.)

H is a carriage for carrying the cylinder back and forth to bring its interior from end to end under the operation of the cutter. On the top of this carriage is a second carriage I in slides *b*, which latter are transverse to the motion of the carriage H. Two plates J are clamped to the cylinder, and one of the plates carries the wrist-pins for the arms K, through the other end of which arms the mandrel E passes, which carries the cutter F. As the centres D, on which the mandrel E is hung, are eccentric with the axis of said mandrel, consequently the cylinder will perform a transverse reciprocating motion during each revolution of the mandrel (by means of the said eccentricity of the mandrel and the arms K). The object of this arrangement is to produce an elliptical bore.

Claim.—The arrangement of the parts substantially as described, so as to produce an alternating transverse motion of cylinder, in combination with a rotating movement of the cutter, or *vice versa*, substantially as set forth.

No. 13,780.—Ransom Cook.—*Improvement in Making Boring Implements.*—Patented November 13, 1855. (Plates, p. 35.)

Dies, figs. 2 and 3, are to be secured in a trip-hammer; figs. 5 and 7 in a press; figs. 8 and 9, the same; and figs. 11 and 12 in a small trip-hammer.

The piece of steel, fig. 1, when heated red hot is first operated upon by dies 2 3, which will produce the shape represented in fig. 4; the dies 5 and 7 will produce the shape fig. 6; the dies 8 and 9 will reduce it to the form represented in fig. 10. The plate is then twisted in the usual manner, and the lips turned as shown in fig. 13. The plate is then reheated, and the lips bent into shape in part around a small rod, when the implement is placed between dies, figs. 11 and 12, and turned around while the hammer is quickly moving, thus finishing the head of the implement. See fig. 14.

The inventor says: I am aware that some dies have been used in the manufacture of augers, but differing entirely from mine, and not accomplishing the same purposes.

I therefore merely *claim* the method described, of forging and shaping the lips and heads of the particular kind of boring implements set forth, by the successive stages of die stamping, substantially in the manner described.

No. 13,218.—Selden S. Hartshorn.—*Improvement in Buckles.*—Patented July 10, 1851. (Plates, p. 35.)

I *claim* the improvement in the manufacture of buckles composed of two pieces, when constructed substantially as described.

No. 13,907.—Sheldon S. Hartshorn.—*Improvement in Buckles.*—Patented December 11, 1855. (Plates, p. 35.)

The nature of this improvement will be understood from the engravings.

Claim.—Constructing the tongue and loop of the buckle in one part, and at one operation, in such a manner that the socket *a* will firmly secure the joint *b* in the other part so as to need no other fastening, as described.

No. 13,695.—Theodore Ackerman, assignor to H. H. Homan, William Muhle, and Theodore Ackerman.—*Improvement in Casting Tea-Pot Spouts and Handles.*—Patented October 16, 1855. (Plates, p. 35.)

This invention refers to the casting the usual hollow trimmings of Britannia and other like ware, which, being fusible over an open fire, is cast in a mould of more refractory metal.

The engravings represent the cope employed to form the base of the spout. The metal *a* is lined with an inner tubing of plaster *c*, whose margin c^1 is formed to agree with the curves of the parting. The effect of this is, that the cold and quickly conducting metallic parting surface of the cope, coming in contact with the stock, imparts to the base of the spout a sharp well-defined edge, of exactly corresponding thickness and contour; because all of the stock which flows against the slowly heat conducting lining runs off with the rest of the unappropriated stock. By this means there is given to the casting a margin closely adapted to the pot body, and requiring the least possible amount of solder.

Claim.—The use of an inner non-conducting layer to the metallic interior surface of the cope or sprue-gate of a tea-pot spout mould, or analogous object, in the manner and for the purpose described.

No. 13,948.—Eber Jones.—*Improvement in Moulds for Casting Bells.*—Patented December 18, 1855. (Plates, p. 36.)

A is the outer, B the inner shell, provided with vents *a*; E is the sweep, and *b* are its journals. The shape of the sweep gives the form to the outside of the mould, and the mould to the bell. *c* is the clay on the inside of the shell; and it will be perceived that every portion of the shell A, which would come in contact with or touch the inner shell, when the two are placed together, is covered with clay; and a precisely similar course is pursued with the inner shell B, where C

also represents the clay. Before the clay is moulded on to the shells, there are no guides or marks by which the two shells are placed together. The guides are moulded with and from the same centre with the bell itself, and the space between the flasks, which forms the bell, must of necessity be uniform.

Claim.—The so making of flasks for casting bells, the bodies of which are made of metal, that the guides, by which they are put together, shall be turned or moulded from the same centres, from which the flasks themselves are coated with the lining or covering of clay or loam; and forming said guiding surfaces, where they are constantly under the ready inspection of the moulder, substantially as described.

No. 12,439.—Ammi M. George.—*Improvement in Machines for Making Chain Links.*—Patented February 27, 1855. (Plates, p. 36.)

The plate F receives a sliding reciprocating motion by means of pitman E, and imparts the same motion to arm (which is made fast to plate F) and to former I, which is attached to arm G by a bolt K. As the former I moves inward, it rotates the dies N N^1, which are geared together by cog-wheels O, and the link is formed around I. When F G and I move outward, the end of lever H (which is pivoted to G in *a*) strikes and ascends the inclined plane Q, and its forked end H^1 H^1 is depressed, and throws the link *f* from the former I.

Claim.—The arrangement of the forked lever H, confined to the arm G, in relation to the inclined plane Q and former I, and operated for relieving the former of the link, as set forth.

No. 13,929.—Edward Weissenborn.—*Improvement in Chain-Making Machines.*—Patented December 11, 1855. (Plates, p 37.)

A detailed description of this machine would occupy too much room to be given in this report. The general features of the improvement can be well understood from the claims and engravings.

The left hand bearing K of roller L being moved away, and the roller L^1 being raised up, the ring *r*, heated to a welding heat, is slipped over the left hand end of roller L, and is moved up to the right hand end of the roller, and hung in its groove; after which the bearing of L is replaced, and the roller L^1 brought down close to it. The ring being then grasped firmly between the two rollers, by whose rotary motion it is caused to revolve between them, and travel along towards the left hand end, and by that means being gradually more and more compressed by the constantly diminishing size of the grooves, is properly welded and finished with a smooth surface.

Claim.—1st. The employment, for welding the rings, of two rollers, grooved spirally in opposite directions, and operating substantially as described.

2d. Arranging one of the end bearings K of one of the spirally-grooved welding rollers, so as to be capable of sliding lengthwise to the roller, substantially as described, far enough to allow the ring to be shipped over the end of the roller.

3d. The manner described, of raising, depressing, and confining the upper roller to allow the ring to be slipped over the lower roller, to wit, by means of the rods n^1 n^1, the yoke N, the springs *n n*, and the cam-shaft P, with the cams n^2 n^2, the whole being arranged and operating substantially as set forth.

4th. The travelling-box R, operating substantially as described, to carry the rings quickly over the end of and up to the back end of the welding roller L, and to come back with the ring at a speed properly corresponding with the velocity of the rollers and pitch of the spiral grooves.

5th. I claim the carrier *x*, operating substantially as described, first, to move forward to receive the ring in its fork, then moving quickly upwards to snatch the ring from the box, and afterwards dragging the ring along the plate which contains the elongating mechanism, till it comes in contact with one of the elongating parts, or its equivalent, and is thereby taken from the fork of the carrier.

6th. The combination of the movable parts *v* v^1 and side dies *w w*, operating substantially as described, to elongate the ring, and, at the same time, close or drive towards each other the elongating sides.

7th. The arrangement of the dies w^1 w^1, round which the link is bent or doubled, substantially as described, relatively to the dies *w w*, by which the elongated sides of the link are forced towards each other; and their attachment to the same, whereby, when the link has received the form shown in figure 4 *a*, it is caused to be in readiness to be bent or doubled by the action of the hooks V V, or other equivalent.

8th. Operating the posts *v* v^1, by which the elongation of the wing is performed by means of a wedge or double inclined piece 21 attached to one of the side dies w^1, acting upon studs 22 attached to the slides which carry the said posts, whereby the approach of the side dies towards each other, and retreat of the posts from each other, are effected simultaneously.

9th. The suspension of the bending hooks at their pivot *z*, and application of a spring to draw their points apart, substantially as described, so that the said hooks will descend in an open state, and will be in condition to receive the link when the latter is sufficiently elongated; but that in ascending and drawing up the ends of the link they will gradually close, as required by the changing form of the link.

No. 12,311.—James Eaton.—*Improvement in Dies for Cop-Tube Machines.*—Patented January 30, 1855. (Plates, p. 37.)

Longitudinally through the centre of the dies there is a dove-tailed groove *a*, and transversely across the centre of the same is the recess *b*. The block *c* is firmly secured to the die within recess *b*, and receives set-screw *d*. The steel step *f* is slidden into recess *b*, and by means of screw *d* is forced out, so as to project beyond the face of the die at *g* an amount equal to the thickness of the tin of which the tubes are made. When worn away it is withdrawn from the slot, and after having been dressed up is again set up to the spindle by the screw *d*.

Claim.—In machines for making cop tubes, the method described, of securing the step to the die, for the purpose set forth.

No. 12,669.—Stephen M. Cate and Edmund Jordon.—*Improved Arrangement of Dies and Stocks for Ornamenting Metal Tubes.*—Patented April 10, 1855. (Plates, p. 37.)

The die stocks E F G H can be turned round their longitudinal axis, to adjust the planes of the rotations of the dies *e* to any desired angle with the axis of the hollow shaft I. This angle is more accurately determined by means of the graduated heads *a* and pointers a^1. When the die stocks are properly set, they are fastened in their position by means of bands M and nuts *d*. The square shanks *b* of the die-holders pass through the central square hollow in the die stocks, and are adjustable therein by screws *c*.

The inventors say: We are aware that a series of stationary dies have been long used to ornament tubes, and that revolving dies have been used for ornamenting articles while in a lattice, and that revolving dies have also been used where the article has been drawn through by a process like that of wire through a "draw-plate," or for welding iron tubes, etc., and that adjustable holders are not new; we therefore do not claim any of the parts, as such, as our invention.

But we *claim*, the combination of the adjustable die stocks E F G H, with the revolving dies *e e e e e* in a self-feeding machine for ornamenting tubes, etc., when the whole is constructed, arranged, combined, and made to operate substantially as herein described.

No. 12,735.—John T. Willmarth.—*Improvement in Dies for Bolt Forging Machines.*—Patented April 17, 1855. (Plates, p. 37.)

The dies *b* b^1, when closed together, form a short cylindrical space *r*, which flares out conically. The diameter of the cylindrical space *r* corresponds to that of the finished bolt. This flaring form is to prevent the edges of the dies, when coming together, from cutting the iron and throwing out a sprue at the sides. The iron, which is to be drawn down by these dies, has already received the form represented in fig. 6, by an operation which formed the subject of a patent previously granted to the inventor. The iron being inserted, as seen in fig. 2, is continually rotated and gradually withdrawn, till the bolt is finished, as seen in fig. 3.

Claim.—The tapering conical dies *b* b^1, constructed and operating in the manner substantially as herein described, for the purpose set forth

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No. 12,265.—Wm. Leighton, assignor to the New England Glass Co.—*Improvement in Door Knobs.*—Patented January 16, 1855. (Plates, p. 37.)

The inside of the hollow glass knob E is coated with pure metallic silver, after which the opening through the shank *e* is sealed up so that the knob will be permanently secured in the cap *c*, (*d* being the cement,) and oxydizing agents are excluded.

The inventor says: I am aware that hollow glass knobs have been lined with quicksilver, and that glass has been coated with pure silver for various uses; but I am not aware that a cheap door-knob has ever been produced, having the color and brilliancy of polished silver, rendered durable and free from liability to tarnishing or abrasion, by protection from the action of chemical or mechanical agents.

Therefore, I *claim* the hollow silvered knob sealed up and protected, as set forth, as a new and highly ornamental manufacture.

No. 12,320.—Wm. H. McNamee.—*Improvement in Locking Spindle Door Latches.*—Patented January 30, 1855. (Plates, p. 38.)

The latch A is inserted in the bored hole in the edge of the door, (represented by the horizontal dotted lines,) the hole being of the diameter of the knob *a* upon the latch, and being sufficiently deep leaving the end *b* or hammer of the latch protruding to make a catch. The spiral-spring pressing against the hammer offers a resistance to the raising of the latch. The spindle C, being moved by knobs attached to it, presses with its widened part (which is just underneath the latch) the latch upward. The projecting arm *e* on the spindle rests against the side of the door, the fork part of the bolt D being across the arm, the handle or arm of the bolt being secured by a hole in the escutcheon rim; the escutcheon being screwed upon the door performs in locking the spindle.

Claim.—The guides *g* and the rim *f* of the escutcheon; the shelf *d* on the face-plate; and the upright stem, enclosed with a spiral wire, working through the shelf piece *d;* the projecting arm *e* on the spindle, and the forked bolt D, the whole combined for the purpose of a latch and lock, as described.

No. 12,675.—Benjamin R. Eames.—*Improvement in Portable Door Fasteners.*—Patented April 10, 1855. (Plates, p. 38.)

The hooked bar B is to be attached to the door frame J, the brace G being in the position represented in fig. 1, in broken lines, during the closing of the door, and thus acting as a gauge for the position of the attaching bar. When the door is closed and lips *l* driven home, G is moved into the position shown in full lines. The grasping of this brace by compensator C (which compensator is a spring) is to prevent its movement about *a* without applying force on the inner side. When the space between door and jamb is wide, the compensator is also inserted between. (See fig. 3.)

The inventor says: I expressly disclaim hooked bars with separate and vertically moving stops and braces; as such form no part of my invention.

But I do *claim* as new, and of my invention, the herein described combination of bifurcated hooked bar B, spring compensator C, and horizontally moving brace G, the compensator and brace movable about

the vertical connexion of said bar, whereby the self-movement of the brace is prevented, while it performs the double function of gauge and brace.

No. 13,473.—Alonzo E. Young, assignor to Himself and Mark Worthley.—*Improvement in Door Knob.*—Patented August 21, 1855. (Plates, p. 38.)

A B are the knobs; D D collar-plates, to be screwed to the door and serving as washers; C shank provided with a male screw *c* and entering a female screw formed in knob A; the clutch consists of disc *e* provided with a hub *f*, and is capable of sliding on the quadrangular shank C, the hole of the disc fitting the shape of the shank; the disc enters a recess *h* in the knob A, and is fastened to it by screws *g*. If there are two or three of these screws *g*, the clutch can be fastened to the knob (by inserting said screws) at every rotary movement of the knob through an arc of 180 or 120 degrees. The turning of the knob, and its screwing or unscrewing consequent thereon, serves to adjust the distance between the two knobs to the thickness of the door. When the screws are in, the two knobs will turn together.

Claim.—The sliding clutch and its attachments applied to the shank and the socket and the movable knob, as set forth.

No. 13,770.—Amos Westcott.—*Improvement in Door Springs.*—Patented November 6, 1855. (Plates, p. 38.)

The spring and lever are made fast to frame A, the upper edge of which constitutes the track over which the grooved wheel F passes, and which frame A is screwed to the door frame B over the door *d d*. The jointed lever C is pivoted at P nearest the hinge-post of the door, and its other end, nearest the lock-post, is furnished with friction wheel F. One end of spiral-spring I is fastened to the frame A, and the other end of it to an arm H pivoted to lever C at D. This arm is secured from being drawn forward by the spring by a dog K connected to arm H and ratchet R, projecting from lever C. The centre of the circular curve of the ratchet is at D. The movable end of lever C is connected by a strap L to a bent bracket M projecting from the door. The strap works upon pulley X, which revolves upon a pivot screwed into the ball W at the frame A. By means of this ball and the set-screw, with which it is fastened, the ball and pulley X can be set at any desired angle so as to have the pulley always horizontal, although the frame A may have a certain inclination. If the door is light, and little resistance to be overcome, the arm H is drawn back so as to be perpendicular; but when the door is heavy, the dog is to be detached and arm H to be turned foward to gain leverage.

Claim.—In this class of door springs adjusting the jointed levers, substantially as set forth, and also adjusting the pulleys, and for the purpose described.

No. 13,383.—James Conner and Thomas Newby.—*Improvement in Machine Drills.*—Patented August 7, 1855. (Plates, p. 38.)

The drawing represents the lever N as confined by trigger S, in which position, it supporting the upper bearing of the vertical shaft K, said vertical shaft is thrown into gear with the cam-shaft M, and a rotary movement will be communicated to said shaft M, causing it to move the drill forward by the action of the scroll-cam. To govern the action of the drill, the machine is to be set so that the said cam-shaft will be thrown out of gear, and the drilling suspended at the required point.

The cam A^1 is so adjusted upon shaft M that it shall act upon the end of spring R at the proper time, moving the trigger S, releasing lever N, and throwing the cam-shaft out of gear, suspending the horizontal movement of the drill-stock, the action of the drill in drilling, and also recoiling the cam-shaft by the action of spring c^1, causing it to assume a position to commence action upon the end of the drill-stock again.

Claim.—The use of the lever N, vertical shaft K, spring and trigger R and S, spring Z, and cam A^1, by which the action of the drill in drilling is regulated or governed in its depth, arranged and operating substantially in the manner and for the purpose set forth.

No. 13,766.—Samuel W. Shryock.—*Improvement in Drilling and Boring Machine.*—Patented November 6, 1855. (Plates, p. 38.)

The stuff to be bored, being placed upon table *n*, is moved upward against the drill *e* with a velocity according to the particular groove of the pulleys G and H in which the band *d* runs. As soon as the boring operation has been completed, the pulley G is uncoupled from its shaft, and the table *n* falls by its own weight.

Claim.—Supporting the rests *n* by rack F and pinion *p* of shaft E, and combining the same with movable and fixed pulleys G and H, as set forth, as that the rests may be moved upward with any required velocity, or be dropped from the drill at the will of the operator during the revolution of the boring-shaft, as and for the purposes specified.

No. 13,845.—Joel P. Heacock.—*Improvement in Drilling and Screw Cutting Machine.*—Patented November 27, 1855. (Plates, p. 39.)

Movement being given to pulley G, the pinion H actuates wheel E secured on mandrel shaft B, and thus the tool M is turned. To advance the tool, the strap Z is tightened on its pulleys Y and X, (by tightening pulley or other means,) causing the cone-pulley S to actuate strap K and pulley P. As soon as P commences to revolve, the nut, cut into its larger end, will act upon the screw-thread C upon the end of shaft B, and the shaft B and tool will advance until the ring N strikes the stop R, as will be described hereafter.

The proportion of drum X and pulley Y is the same as gear H and E; consequently their movement would be alike if uncontrolled, that is, if a pair of plain pulleys were substituted for P and S; but as they are conoid, and the sliding strap K is made to approach the small end of P and large end of S, the speed of P is increased, and thus the feed is given; and it is owing also to this difference of speed that the release or unlocking of feather a^1 is obtained. To retract the mandrel and tool, (the cone P and nut therein being held still by the adhesion of the crossed strap K,) the gear H and E actuate the mandrel, and the male screw thereon, working in the nut, brings back the ring N, until it comes in contact with the end of feather a^1, (said feather passing freely through the spur E as a clutch,) and clamps the feather against the end of cone P, thus locking it and causing its movement. By throwing off strap X there will be no feed given to the mandrel, although the two cone-pulleys still turn by the clamping effect of the set ring; but the moment the strap is tightened, the clamping effect ceases, by the effect of P being proportionally greater.

Claim.—The use of pulleys P and S X and Y, set ring N operating conjointly on the feather a^1, in the manner and for the purposes set forth.

No. 13,310.—Horace Hotchkiss.—*Improvement in Machines for Cutting Files.*—Patented July 24, 1855. (Plates, p. 39.)

The bed *b*, on which the blank *i* is held to be cut into a file, can be slided between dovetail guides (one of them adjustable by set-screws *c*) on the lower bed b^1, which latter can be rotated on the bed-plate at *d*, and retained in any position by set-screws. Bed *b* is slided intermittently along by means of lever *e* on fulcrum e^1, which lever receives motion from eccentric e^2 on driving shaft *f*; lever *e* acting by means of rod e^3 on arm e^4, axis e^5, arm e^6, and pawl e^7, which, taking in succession against the teeth of ratchet-wheel *h* on screw-shaft h^1, drives the screw-shaft round, and by reason of the screw-shaft passing through a screw-nut and bevel wheel h^2 revolving in a bracket fixed to the side of bed *b*; this bed *b* is moved along the guides on bed b^1, so as to present the blank *i* properly to the cutter. The cutter *l* has a slot through it, into which a pin on the holder passes, and upon which the cutter may move as a centre, and thus ensure its edge being placed on a level with the surface of the blank. This movement is of course only a slight one, and limited by guide projections on the holder. The cutter rests against a spring l^1. The cam *o* alternately raises the frame *n*, which slides in guides n^1, and is constantly pressed down by spring n^2. The tension of spring *q* (which is regulated by leverage q^5 q^4 q^3 q^2 q^1 and roller q^1 resting on the pattern *m*) regulates the blow of the hammer *p*, which latter is alternately raised by a cam *r*. The inclination of the cutter and hammer is regulated by means of frame *s*, which carries the guides n^1 and slots s^1 and set-screws s^2.

Claim.—Supporting the file blank upon a compound carriage, having both a rotary and lateral adjustment horizontally, while the cutter is adjusted only in a plane passing through the apex of the cutter and bisecting its edge, and is at the same time perpendicular to the edge of the cutter and to the plane of the file carriage.

Also, placing the cutter in line with the hammer, and in the same adjustable frame therewith, so that when the position of the cutter is changed by an adjustment of this frame, the hammer shall also be adjusted by the same operation to conform to the position of the cutter.

No. 12,594.—Richard G. Holmes and Wm. H. Butler.—*Improvement in Fire-Proof Safes.*—Patented March 27, 1855. (Plates, p. 39.)

The chambers, for holding up the filling, are formed by breaking brick into lumps of such size and irregular shapes as to touch each other and the sides of the safe. They do not present flat surfaces to each other, but touch in points. The interstices *b*, between the lumps *a*, constitute the cells which contain the filling.

The inventors say: We are aware that a compound of alum and clay has been used as a fire-proof filling for safes; also that brick, soft stone, layers of pumice, and other porous substances have been used for an interior fire-proof lining or shield for the like purpose; likewise, that in connexion with various soft porous fillings between the inner and outer cases of the safe, tubes, containing alkaline solutions, have been interspersed; none of such, therefore, do we claim; nor yet, as a more antiphlogistic compound, the combination of an alkali with alum.

But we *claim* a new and useful improvement in alum fillings of safes, or other fire-proof structures, essentially as specified, combining with an alum filling an alkali, in such proportions that the alum, in becoming heated or melted, has a part of its acid neutralized by the action of the alkali, when the said filling is interspersed with, and supported or restrained from settling down by cells *a* of porous or material, or frame work of porous substance arranged substantially as described.

No. 12,133.—Julius H. Kroehl.—*Improvement in Machines for Forming Flanges on Wrought Iron Beams.*—Patented January 2, 1855. (Plates, p. 39.)

This machine is to produce flanges of any desired taper or other shape, as for instance the one represented in figs. 3 and 4, consisting of tapered parts *l k* and l^1 k^1, and a straight part *k* k^1. The bar being introduced between rollers B B^1, it gives motion to rollers C C by being in contact with them, and, by these rollers C C, has its flanges bent upwards over the sides of roller B^1. Cams F F impart proper movement to levers E E, so as to cause the rollers C C to ascend or descend, or to remain stationary, so as to produce the desired shape of the flange.

Disclaimed.—The employment for forming or reducing metal bars of two pairs of rollers arranged as described, when the side rollers C C have no flanges or no movement in the line of their axis, or any of the rollers are otherwise constructed than as herein described.

Claim.—The combination of the wide and narrow rollers B B^1 and the flanged rollers C C, which have a movement in the line of their axis corresponding with the desired form of the edges of the flanges on the beam, for the purpose of finishing or smoothing the said edges, substantially as herein set forth.

No. 13,514.—JOHN DEMAREST, assignor to the J. L. MOTT IRON WORKS.—*Improved Flask for Moulding Bath Tubs.*—Patented August 28, 1855. (Plates, p. 40.)

b represents a section of the tub when cast. The drag *a* is braced by bar *c* firmly secured to the sides of the drag; to the outside of the drag are secured clamps *d d* that extend above the upper edge, and these provided with screws *e e* to clamp the second section or cheek of the mould. The cope *i* is provided with a similar brace *k*, clamps *l l*, and screws *m m*. Thus the upper and lower sections are secured against yielding to internal pressure during the process of moulding and casting; the clamp screws also serving to adjust the mould so that the two sides of the tub will be of exactly the same thickness.

The wings *n*, attached to the cheek *g*, sustain the sand which is rammed in to form the sides of the mould, and are provided with recesses *q*, so that the sand between the several wings shall be united over these curved edges, and bind the whole to prevent caving in.

I *claim*, connecting by means of a brace or braces, the sides of the drag or first section, and of the cope or third section of flasks for casting bath tubs or other large and thin hollow vessels, substantially as described, in combination with the clamps and adjusting screws, or their equivalents, which embrace and act upon the sides of the cheek, or second section of the flask.

And I also claim, recessing the upper edge of the wings on the inside of the cheek, or second section of the flask, back of the inner edge, as specified.

No. 12,282.—DANL. NEWTON.—*Improvement in Metal Folding Machines.*—Patented January 23, 1855. (Plates, p. 40.)

The movable part of the apparatus consists of a square bar *g* with one side circled over, and the other side contains a hollow with bearings 2 at each end. In the hollow are fastened a number of steel fingers *b* slightly bent. The plate 1 has its front edge a^1 bevelled off suitable for turning the fold. On the under side of the plate are fingers *c* exactly the same as those fastened in the hollow, with the ends reversed, so as to go under those in the hollow and bear alike on each other. In the hollow are two springs which bear against the plate 1 to raise it when it is drawn back. On the under side of the plate are fastened two gauges 4 to regulate the width of the fold. They are secured by screws 5. In the left end of the plate is a slot and pin *a* to secure a parallel motion of the plate. The handle 3 is hung by a bolt 8; the end over the plate contains a steel pin, which passes through the handle

and plate, by means of which, on moving the handle to the left, the plate is raised by the aid of the two springs, and by reversing the motion of the handle, the plate is drawn firmly to the metal whilst the fold is turning.

Claim.—The application to folders (for sheet-iron, tin, copper, &c.) of three or more pairs of steel fingers, all of the same shape, one-half of which are fastened to the plate which turns the fold, and the other half secured in a hollow underneath the same, the whole acting together, thereby drawing and holding the plate firmly on the metal whilst the fold is turning.

Also, the gauges attached to the plate, by which the width of the fold is regulated, substantially as described.

No. 12,135.—WESLEY M. LEE.—*Improvement in Machines for Forging Car Wheels.*—Patented January 2, 1855. (Plates, p. 40.)

This improvement consists in making the face of the hammer-die with a series of flutes or swells extending from near the hub towards the rim in curved lines, or in lines tangent to some circle of less diameter than the rim of the wheel; when this is employed in combination with the turning (between each two blows) of the anvil or the hammer-die a portion of a revolution about equal to half of the space between the flutes, so that at the next blow the ridges of the die will strike on the ridges formed on the block of iron by the cavities of the hammer-die by the previous blow. These are the means to facilitate the spreading of the metal towards the periphery of the die-box to form a thoroughly compacted tread and flange.

In the figure the anvil is represented as being provided with cogs *j* all round, into which pinions *k k* gear, by which arrangement the proper revolution of the anvil is to be produced.

Claim.—Forming the face of the hammer-die with flutes or projections, substantially as specified, when combined with the turning of the die or anvil during the operation of forging or swaging, substantially as and for the purpose specified.

No. 12,961.—SILAS S. PUTNAM.—*Improvements in Forging Machines.*—Patented May 29, 1855. (Plates, p. 40.)

D E F G are the four hammers, operated by cranks *h* and *i*, and the pitmans K L (the latter being made to yield at the time of each blow by means of a spiral-spring *q*, the object and operation of which will be understood from the engravings). Crank *h* acts on hammer G by means of pitman K L and forked connecting rod I; crank *i* acts on hammer F by means of the other pitman K L. The object and operation of the four connecting rods H, forming a parallelogram, will be understood without a more detailed description.

The inventor says: I do not claim the combination of an anvil, its hammer, and two lateral hammers made to operate together, so as to enable a bar, during its reduction by the hammers, to be compressed or reduced laterally by the side hammers.

But I *claim*, so combining four hammers together, by means substantially as described, that not only may two of them be approaching towards, while two are receding from one another, but that the momentum of the receding hammers may be brought into action upon the approaching hammers, so as to increase the effect of the blow or blows produced by them as stated.

I also claim two hammers, arranged to operate on two opposite sides of a bar, in combination with two hammers arranged to operate upon the other two opposite sides of each bar, each set operating alternately, and the four hammers acting on the four sides, and producing an equality of reduction of the bar, which cannot be obtained by an anvil to support it and three hammers operating upon the three unsupported sides of such bar.

I also claim, the described manner of constructing each of the connecting rods K L, in order that it may not only allow its crank to continue its movement when the hammers strike together, or upon a bar of metal, but relieve the cranks and connecting rods from the effects of the sudden blows given by the hammers.

No. 13,053.—Wm. R. Thomson.—*Improvements in Heating Wrought-Iron Wheels for Forging.*—Patented June 12, 1855. (Plates p. 40.)

The butts, which form the hub d^1 of wheel *d*, are made in sections, having angular and curved sides, so that when put together and forged into a solid hub, they cannot slip apart or out of place. The sections or hub are heated by a peculiarly arranged furnace, which causes the heat to pass around and through the centre of the hub, from above and below alternately, as may be required; and when heated to a sufficient degree, the sections are welded into a solid hub, by the compressing and swaging action of the dies, conforming to the shape of the hub and spokes.

Claim.—The method of heating hubs for wrought-iron wheels, as described, the same being then forged and swaged, as set forth.

No. 13,434.—Daniel Noyes.—*Improved Forging Machine.*—Patented August 14, 1855. (Plates, p. 40.)

The parts *a* and *b* of anvil B form a right angle with each other, the first being horizontal, and the other vertical. C C^1 hammer-shafts; the hammers F F^1 are pivoted to discs E E^1 on said shafts, F striking against *a*, and F^1 against *b*, and their movements being limited each by two stops *j k;* said movement being only sufficient to allow the hammer to be drawn lengthwise from the anvil by the continued revolutions of the disc after the blow is struck. In order to give a four blow, it is necessary that when the top hammer F strikes, the piece *n* being forged should be in contact with the face *a*, but removed from *b*; and when hammer F^1 strikes, it should be in contact with *b*, but removed from *a*. The carriage employed to carry the piece and give it this movement consists of lever G working on fulcrum *l*, and connected by pitman H to a crank on a shaft revolving at the same speed as the hammer-shaft.

The piece is inserted through a hole in lever G. The motion imparted to the lever G by pitman H will bring the piece alternately to the faces *a* and *b*.

Claim.—1st. Attaching the hammer or hammers of a forging machine each by a pivot to a revolving disc or crank so as to revolve therewith, and controling the position thereof by stops attached to the face of the disc or crank, in the manner substantially herein specified; whereby, after the hammer has been caused to strike on the anvil by the revolution of the disc or crank, it will be, by the continuous revolution thereof, drawn lengthwise off the anvil, to enable its revolution to continue for another blow, substantially as described.

2d. The employment of an anvil with a face forming the interior of a right angle, in combination with the hammers operating at right angles to each, against the said faces, substantially as described.

3d. The arrangement of the movable carriage or rest relatively to the two-faced anvil and the hammers F F^1, substantially in the manner described.

No. 12,770.—John Comstock, assignor to Peter Naylor.—*Improvement in Forge-Hammers.*—Patented April 24, 1855. (Plates, p. 41.)

When the operator presses down the end 8 of the lever *g*, the hammer is moved with a speed proportioned to the tightness of the belt 2; the cam *i* by its length giving a heavy blow, the force of which blow can be regulated by the screw shackle 20, and the spring *w* lifts the hammer again each blow; and when the forging is nearly complete, or requires but slight blows, the workman presses down the end 15 of the lever 13, which slides the cams *i* and *i* 1 along on the shaft *c*, and brings the cam *i* 1 into operation, which, being shorter than *i*, strikes a lighter blow, suited to finishing the forging.

The inventor says: I do not claim a tightening pulley in itself, as this is well known; but I am not aware that a tightening pulley and brake have ever before been used as herein set forth, by which the speed of the blow is regulated by the tightness of the belt, or the same is stopped entirely by the brake, while the motive power still propels the belt. And I am well aware that a hammer has been so set as to be drawn down to give the blow and then raised again by a spring; therefore, I do not claim the same in itself. And I am also well aware that different sized cams have been used for raising a forging hammer; therefore, I do not claim the different lengths of cams in themselves. But I am not aware that two or more cams of varying lengths have ever before been combined with a lever and adjustable screw shackle to pull down a hammer and give the blow, whereby I am enabled to use a definite amount of motion given by a cam to forge articles of various sizes, the screw shackle giving the facility for regulating the point to which the hammer is pulled.

Claim.—1st. The method herein described and shown for regulating the speed of the blows given by a forging hammer by the use of tightening pulley *e*, combined with the brake 11 applied to the fly-wheel *d*, substantially as specified.

2d. The method herein described and shown of regulating the amount which a hammer is *drawn down* to give the blow by rotating cams, by combining with said cams and hammer the adjustable screw-shackle 20 and lever *u*, the whole constructed and combined, substantially as specified.

No. 13,179.—Milo Peck.—*Improvement in Trip-Hammers.*—Patented July 3, 1855. (Plates, p. 41.)

There are two slide valves P and T arranged on cylinder C, within which works a piston fastened to the end of the hammer-rod. The inner valve P is moved up and down by means of arm R, connecting rod S, and a crank on the main driving or sweep-shaft. As the hammer B drops, carrying with it the sweep-shaft, the inner valve rises so as to touch with its lower edge the air-port of the cylinder. The outer valve T (when the hammer strikes) approaches the lower edge of the inner valve, leaving but a slight opening, so that the instant the hammer begins to rise, the inner valve, connected with the sweep-shaft, begins to rise with it; the air is cut off; and, as the hammer rises, the air in the cylinder is compressed between the piston and the cylinder head, till the hammer falls. The air passes in at the slot, shown in the figure, at the side of valve P. The position of valve T (which is set by means of hand-lever W) determines the force of the blow. As the valve T is raised, the hammer rises further before the air is cut off by the valve P, which rises with it; and, of course, there is less air in the cylinder to be compressed. This can be carried so far as to prevent any blow at all; for the outer valve may be raised so high that the upper edge of the inner valve will cut off the supply of air as soon as the hammer begins to fall, thus tending to produce a vacuum; and the further the hammer falls the more complete the vacuum, so that the hammer is arrested before it reaches the anvil.

The inventor says: I do not claim the lifting apparatus described by itself; this has already been secured to me by letters patent, November 25, 1851.

But I *claim*, so controlling the admission and exit of air above the piston, that the force of the blow given by the hammer may be regulated by the condensation and attenuation of the air, as set forth.

No. 13,608.—Peter L. Weimer.—*Improvement in Trip-Hammers.*—Patented September 25, 1855. (Plates, p. 41.)

When the hammer A rises, the pawls F slide into the hub B. When the hammer falls, the pawls F catch into the teeth of ring D, and carry the ring around. If it is desired to diminish the force of the blow of the hammer, the hand-wheel E is to be turned so as to press the friction-brake S W against the circumference of the ring. By tightening the friction-brake sufficiently, the hammer can be gagged. C is the fulcrum of the hammer, the front end of which is not shown in the engraving.

Claim.—The arrangement of the hub, or centre piece B, the pawls F, the interior ratchet ring D, the lined metallic strap S, the hand-wheel E, and the post P; the whole being combined, arranged, and operated, in the manner substantially as specified.

No. 12,443.—Chas. Miller.—*Improvements in Machines for Making Butt Hinges.*—Patented February 27, 1855. (Plates, p. 42.)

The claim, in combination with the engravings, sufficiently explains the nature of this invention. A more detailed description would occupy too much space.

F and F^1 represent the two strips of metal from which the hinges are cut; *x* represents the rod from which the pins are cut; the strips and hinges are represented in fig. 1 by dotted lines.

Claim.—First. The arrangement, as described, in the same line, of the punches *d* and d^1, which cut out two blanks to the proper shape for a hinge, and the bending rollers *m* m^1, which give the preparatory bend to the two blanks to form the joint, whereby two strips or bars of metal, fed at proper intervals of time towards each other, under the said punchers and through the said rollers, are cut into blanks, bent, and put together ready to receive the pin, as set forth.

Second. Connecting together the two cutters *h h*, which cut off the two blanks, and arranging and operating the said cutters so that they will cut off the blanks both at the same time, but not until they have both received the preparatory bend to form the joint, and been put together ready to receive the pin, substantially as set forth.

Third. So controlling the operations of the punches *d* and d^1, which cut out the metal blanks; the rollers *m* m^1, which give the preparatory bend to form the joints; and the cutters *h* h^1, which cut off the partly formed hinge from the strips: that all act during each intermission of the feed movement, but that the cutters act more quickly or earlier than the punches, in order that the preparatory bending operation, which takes place after the action of the cutters, may be effected before the punches are entirely withdrawn from the metal, and that the punches may serve to hold the strips during the said bending operation, substantially as set forth.

Fourth. The arrangement in any way, substantially as described, of a slider V and an intermittently rotating-wheel W, for the purpose of removing the partly formed hinges from where they are put together and cut off, and carrying them and holding them to receive the pin, and have their joints finished, to wit: the said slider V working transversely to the direction in which the strips of metal move to be submitted to the successive operations of punching, bending, and cutting off, and the intermittently rotating-wheel W being placed on the opposite side of the strips to the said slider.

Fifth. The arrangement of the wire feeding and cutting apparatus, and the press which carries the closing die 38, in such a manner, that the horizontal intermittently rotating-wheel W, which receives the partly finished hinges when they are cut off, may bring and hold the hinges severally and successively, first, opposite the said feeding and

cutting apparatus, to receive the wire to form the pin, and afterwards opposite the closing die to have the joint closed.

This I *claim*, irrespective of the particular means of feeding and cutting off the air; as almost any kind of feeding and cutting apparatus may be used; and of the particular method of operating the closing die, which may be operated by any of the means commonly employed for such purposes.

Sixth. The eccentric curved piece 17, arranged substantially as shown in fig. 1, and described, for the purpose of finishing the insertion of the pin in the hinge by pushing into the joint so much of the pin as is left protruding when the pin is cut off; said pushing being effected by the carrying-wheel W carrying the protruding end of the pin in contact with the said curved piece.

Seventh. The general arrangement and combination of the several mechanical devices and appliances, substantially as shown, to form a machine for the manufacture of hinges from bars or strips of metal complete at one operation.

No. 12,853.—Henry E. Canfield.—*Improvement in Double-Acting Spring Hinges.*—Patented May 15, 1855. (Plates, p. 43.)

The lower cylinder C (to which pin E is secured and prevented from turning by the pin G) being made fast in the door frame, the upper cylinder A, and with it the door, would be free to turn on pin E, were it not for the catches H H. By turning the door in either direction, it will bring one or the other of said catches in contact with one or the other of the hooked ends of the springs F, which spring will cause the door to return until the holder K relieves the catch of the strain from said spring, in which position the door is closed.

The inventor says: As I am aware that flat coiled springs, secured in hollow cylindrical chambers, have been before used in making double-acting spring hinges; therefore, I disclaim their invention.

But I do *claim* the attachment to one pin of two flat coiled springs, coiled in opposite directions, in combination with the holder K, or its equivalent.

No. 13,085.—Arasmus French.—*Improvement in Springs for Hinges, &c.*—Patented June 19, 1855. (Plates, p. 43.)

When either or both plates *a* are turned, as represented in figure 2, so that each rod will be in a plane, radiating from the axis of the plates, all the rods will be bent to the greatest extent in the middle of their length, and then the spring will be at its fullest tension, and will, therefore, tend to turn the two plates in opposite directions. Figure 3 represents the spring when applied to a hinge.

The inventor says: I do not limit myself to the form or application specified, so long as the same mode of operation is attained by the substitution of mere equivalents.

But I *claim* the method, substantially as specified, of composing a spring of a series of elastic rods connected at each end to plates, or their equivalents, and at, or nearly at, equal distances from the centre of the plates, and surrounded at, or nearly at, the middle of their length by a collar or ring, so that they shall be held nearer together at the middle than at the ends, substantially as specified.

No. 13,321.—Joseph Plegar.—*Improvement in Hinges.*—Patented July 24, 1855. (Plates, p. 43.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Making a bolt on the pin part of the hinge, and a cup or socket on the upper section of the hinge to receive the bolt, as set forth.

No. 13,355.—Solon S. Jackman.—*Improvement in Machines for Compressing Puddlers' Balls, and other Masses of Iron.*—Patented July 31, 1855. (Plates, p. 43.)

The two fluted cylinders B C are of the same size, but the cog-wheels D and E (one on the shaft of B and the other on the shaft of C) are of unequal size, so that the circumferential velocity of B will be different from that of C. The wheels D E do not gear into each other, but both gear into an intermediate pinion (not shown in the engraving). The ball is thrown into the space between B and C and *a a;* and, by the unequal velocity of both, it is gradually carried down and compressed between the two cylinders, until, passing the line of the centres of B and C, it becomes disengaged.

Claim.—The compressing of puddlers' balls, or similar substances, by means of circular compressers B and C, so arranged that their peripheries shall have different degrees of speed, and their surfaces, in contact with the mass to be operated on, shall cause its rotation on its own axis, and by compression between them reduce the metal into a bloom, in the manner substantially described.

No. 12,227.—Lyman C. Camp, assignor to Phelps, Dodge, & Co.—*Improvement in Machines for Forming Kettles from Metal Dishes.*—Patented January 9, 1855. (Plates, p. 43.)

The mandrel carriage E is adjusted (by turning it around on pivot *a*) to bring the clamp-mandrels H H^1 to such a position as to form the proper angle with the roller shafts M N, and thus secured; and the rollers are adjusted at a proper distance apart by the screws *l*, which act upon the movable bearings *m* of the roller O^1. The roller carriage L is then moved towards the mandrels, till the rollers O O^1 arrive close to the clamps I I^1. The disc Z (represented in a strong dotted line) is then inserted between the clamps and entered between the rollers. (See fig. 2). When the disc is secured, motion is imparted to the machine, and the action of the screw Q will draw the roller carriage from the mandrels. The effect of the movement of the rollers in the line of their axis, is to draw that portion of the disc, which is left outside the clamps, to form the sides of the vessel in a direction

parallel with the said movement; and this drawing, being kept up continuously all round, gives the aforesaid portion of the disc the form of a frustrum of a cone. The combined effect of the rotary and rectilinear movements of the rollers is such as to draw out the metal towards the edges of the disc a sufficient degree to produce the circumferential contraction, without which the conical form could not be produced; and the continuous rolling action upon the metal keeps the particles so compressed together that its texture is not injured.

Claim.—The employment of a pair of rollers O O¹, in combination with a pair of clamps I I¹, or its equivalent, all arranged, adjusted, and operating substantially in the manner described, for the purpose of operating upon a disc of brass, or other metal, to roll out the said disc from a certain distance all round its centre to its edges, and bend or draw the part so rolled to form an angle with the central part, and cause it to be distended radially or towards the edges, and to be contracted circumferentially, thereby forming the said disc by successive stages into a kettle or vessel, or other similar article, with conical or cylindrical sides, without employing a mould or form, as herein fully set forth.

No. 12,186.—Thos. Slaight.—*Improvement in Pad-Locks.*—Patented January 2, 1855. (Plates, p. 43.)

When the lock (fig 1) is to be unlocked, the bits of the key *m* first act upon the tumblers E, and bring the slots *l* (of which each tumbler has one at varying distances from the edges of the tumblers) in line and in range with the stud *j* on the guard-bar D. A bit on the key then acts against the lower end of the guard-bar D, which is thereby turned, and the stud *j* passes into the slots *l* in the tumblers, and the upper end of the guard-bar is thrown above the upper end of dog C; and this upper end of dog C is then thrown back by the action of spring *i* into recess *h*, and the shackle B is free and can be withdrawn. (See fig. 2.)

The inventor says: I do not claim the tumblers E, nor the guard-bar; for they have been previously used.

But I do *claim*, 1st. The employment or use of a dog C, constructed as herein shown, or in an equivalent way, so that the pressure of the shackle upon it, when the end of said shackle is forced into the case, will throw the dog into the recess or notch in the shackle, without the intervention or aid of a spring or any other device.

2d. The combination of the dog C, guard-bar D, with the stud *j* upon it, and slotted tumblers E, arranged as herein shown, and operating in the manner as set forth.

No. 12,240.—John C. Kline.—*Improvement in Door Latch Locks.*—Patented January 16, 1855. (Plates, p. 43.)

By turning the knob (which is fastened on the square pivot G) right or left, the bolt B is drawn back by the action of the arm *l* or *l*¹, and spring E forces the bolt back again when the knob is let loose. Fig. 1 shows the bolt disengaged from the key tumbler, in which case the bolt

can be freely worked by the knob. But by turning the bolt-key *n* the tumbler is brought into position fig. 2, in which nose *g* sets against the shoulder *d* of the bolt, and the part *o* of the tumbler rests against the side of the bolt, and the spring receiver D (being pushed back by the oblique faces between *g*¹ and D) rests against the nose *g*¹ of the key-tumbler. In this position the bolt is prevented from being moved by the knob. Fig. 2 also shows how the night key *q* sets in the notch *c*, whereby the bolt is stopped. The shape of the key-tumbler is such that a key inserted in either of the keyholes will operate it.

Claim.—The arrangement in double keyholed right and left hand locks of the key-tumbler *c*, with its noses or projections *g g* in relation to the spring receiver D and the shoulders *d d* of the bolt, as set forth.

No. 12,403.—Frederick Denzler.—*Improvement in Bank Locks.*—Patented February 20, 1855. (Plates, p. 44.)

If the bolt B is pushed out (fig. 1) through the fallar C, the projection Y at the back of the bolt has moved lever M in such a manner that through the same the catch X, which is connected to said lever M, is pushed against the tumbler-plate, so that its tooth falls into one of the teeth of the tumbler-plate, locking thereby the same to the tumbler N, and the projection P¹ of the tumbler-plate P has come out from between the projections I I of the bolt B. If the fallar J is now turned again so as to allow the slide D to be pressed down by its spring lever K, carrying with it the tumblers N with the tumbler-plates P locked to the same by the catch X, the projection D¹ of the slide D comes against the projection B¹ of the bolt B, and the dog E is moved into the notch *g*¹ of the bolt B, keeping thereby said bolt B fast. The dog H has thereby been likewise moved under the lever F, preventing said lever from being pushed away by the projection *i* on the fallar C, and prevents, consequently, said fallar from being moved. (See fig. 2.)

The lever F turns upon a centre *f* and is provided with a roller *h* bearing against projection *i* on fallar C.

Claim.—The lever F in connexion with its spring lever G, together with the dog H acting upon the lever F, said dog H being actuated by the dog E, for the purpose of preventing the fallar C from being turned.

No. 12,476.—William Ballauf and Frederick Wurth.—*Improvements in Guards for Door Locks.*—Patented March 6, 1855. (Plates, p. 44.)

The object of this invention is to provide a conveniently portable instrument, by means of which the keyhole of any ordinary door lock can be rendered inaccessible, the instrument being removable by the same key which fastens it. The spindle (together with its socket, etc.) is to be screwed within the eye of the keyhole of any usual size, the groove 1 serving to facilitate the engagement of the screw within the keyhole. Except when the key *l* is brought into action, the springs *e* retain the dent 5 (on each tumbler) within the notch 4 in the key.

The front end of each tumbler is confined to a longitudinal motion by the pin *g*. The T-shaped slot 7, working on pin *h*, permits the rear ends of the tumblers to be elevated by the piston *i* to the proper distance, by means of channel 12 on the key-stem. The horizontal portion of the slot then permits the tumblers to be advanced longitudinally by the pressure of end 8 and groove edge 9 of the key, respectively, against the spurs 3 3^1. This action brings the lugs 5 clear of the notches 4 4^1, and into the eccentric channel 10 around the spindle shank. The lugs 5 and spurs 3 3^1 then occupy the channels 10 9 and 11, the latter formed by the opposing and parallel shoulders of the key and spindle. If a key is employed which pushes the tumblers either too far or not far enough, it is impossible to rotate the spindle. The form and action of the T slot is such as to restrain the tumblers from any longitudinal movement, unless at the commencement of the advancing pressure.

The action of the eccentric channels of the spindle and key is to impart to the tumblers a short sliding motion to and fro in the act of rotating the spindle; and all the channels being parallel to each other, the dent and spur on each tumbler have an unrestricted motion in their respective channels. However, should a key be employed whose channels were either more or less eccentric, it would be impossible to rotate the spindle.

The crotch 13 on the key engages (on the advancement of the key) a spud 14 upon the spindle shank, and thus the spindle may be rotated by the key.

We *claim*, 1st. The bit or case G and the bracket K, adapted to the slot of an ordinary keyhole, in combination with the cylindrical socket *b* and tapering screw-threaded spindle *a*, substantially as set forth, adapted to the eye of the keyhole; and which spindle, by means of a suitable key *l*, as described, can be screwed within or unscrewed from the keyhole, the rotation of the screw by any other than the proper key being prevented by the described tumblers *d*, or their equivalents.

2d. The sliding or vibrating tumblers *d*, provided with a locking dent or lug 5 catching within a notch 4 in the spindle shank, and disengaged therefrom by the combined agencies of the channelled and sliding key *l*, elevating pin or piston *i*, longitudinal and T slots 6 7, and stationary pins *g h*, substantially as described, the tumbler, on the withdrawal of the key, relocking by means of a suitable spring.

3d. In combination with the tumblers, substantially as represented, the longitudinal notches 4 4^1, extending on both sides of a transverse or eccentric channel 10, around the spindle shank.

4th. The eccentric and parallel channels 9 10 11, around the spindle-shank and key-stem, acting simultaneously upon both dent and spur of each tumbler, after the manner and for the purposes set forth.

5th. The tapering screw, threaded, and spirally scored spindle in this connexion.

No. 12,526.—WILLIAM WARWICK.—*Improvement in Door Locks.*—Patented March 13, 1855. (Plates, p. 44.)

The key when inserted and acting with its bevelled wards *w* against the bevelled edges *e* of the tumbler, will push it back, (see fig. 3,) so as to allow it to pass over stud *z*.

Claim.—So forming the tumbler with bevelled edges for the key to operate it, and so arranging it in relation to the bolt and the stud *z*, that when locked the bolt is held firm against pressure by the tumbler fitting over the stud *z*, as set forth.

No. 12,647.—C. GUSTAV MUELLER.—*Improvement in Bank Locks.*—Patented April 3, 1855. (Plates, p. 45.)

The bars M are lifted by the key acting on the lifting pins *n*. The key has a bit for each pin *n*, and these bits are capable of being extended so as to suit the depth of each hole in plate I I. The key moves the horizontal sliding pins f^1 I g^1, and by moving plate S to the back of the lock, (see fig. 2,) the ends g^1 will be pushed into the holes in plate I I, and the bars M will be free to be moved back by the action of springs *s*. If knob B is pressed in, the rod *p* presses against arm *l*, which partially turns shaft *t*, and causes lever *d* to press plate *r* down into the rack-teeth in M. When this has been done, (and it must be done before the knob H can be turned, in order to throw back the bolt,) the bars M and *i* (which latter serve to keep the apertures constantly closed through which the pins *n* play) are rendered immovable, and cannot therefore be made to produce any friction on the inner side of the lock as long as they are thus held by the plate *r*; and as the horizontal slides f^1, which have to be forced into the holes in bars M, are a short distance from the surface of the bars M, before knob H is turned, it follows that these slides cannot be pushed against the bars M before they have been fastened by plate *r*, thus obviating any friction between the bars and slides, and thereby preventing the possibility of picking the locks.

A more detailed description would occupy too much space.

Claim.—First, a key provided with extension bits, the individual length of each of which can be altered at pleasure, and still be applicable to the lock as described.

I also claim the arrangement of the plates M and slides *f*, for preventing any friction, and so as to prevent the possibility of feeling how the plates or slides are connected, as set forth.

I also claim the bars M, having saw-toothed racks, as arranged with the sliding bars *i* and the projecting pins *m*, for operating them from the outside of the lock, as described.

I also claim the arrangement of the horizontal changeable sliding pins, which are moved by the bars M, the rack-toothed wheels or segments, and the forked lever U, which is moved by the projection on the circular plate W, as set forth.

I also claim as arranged, the bars M, and the stationary plate H for holding the pins when they are withdrawn from said bars, as described.

I also claim the arrangement of the knob, the collar R, with its bent arm T, and the circular plate W, for turning and holding said plate, substantially as described.

I also claim, as arranged, the rod *p* of the inner knob B, the lever *l*, shaft *t*, lever *d*, plate *r*, and its spring *g* for connecting said knob with the bars M, and operating them, as set forth.

No. 12,784 —John Schneider.—*Alarm Attachment for Door Locks.*—Patented May 1, 1855. (Plate, p. 45.)

The hammer C has near its inner end a semi-circular plate *b*, and turns on a pivot *c;* the end *d* of the hammer rests against a spring D. A tumbler E has a projection *h* fitting in the keyhole G, and also a pin *f* passing through the other side of the casing A. A spring *g* serves to press the tumbler towards the keyhole. In this position of the tumbler its tooth *e* fits into a corresponding notch in the plate *b*.

A burglar, in tampering with the lock, would move the projection *h;* consequently the tumbler and tooth and the hammer would fall, and explode the charge of powder in barrel B. The knob F on pin *f* may have a string attached to it, which may also be attached to the casing of the door, so that the opening of the door would draw out the pin, and with it the tumbler, and cause the hammer to fall.

Claim —The employment or use of the barrel B, hammer C, with plate *b* attached, spring D, and tumbler E, when arranged as herein shown and for the purpose as set forth.

No. 12,932.—Linus Yale.—*Improvement in Bank Locks.*—Patented May 22, 1855. (Plates, p. 45.)

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I do not claim separately the rods *e* e^1 working in holes in the bolt B, and a sliding frame C; for that is an extremely old fastening, and used in locks many years since.

But I do *claim* the sliding frame C and plate D, in combination with the rods *e* e^1, when constructed and arranged as herein shown, so that the plate D will, during the operation of unlocking the lock, cover the opening or keyhole E^1 in the casing before the bolt can be thrown back, thereby preventing the lock from being picked, or impressions taken to form a key.

Also, unlocking the lock by means of a segment key F, which is placed within a corresponding shaped recess *g* in the plate D, by passing said key through the opening or keyhole E^1, and moved with said plate; so that when the bolt B is thrown back the recess *g* and key F will be in line with or opposite to the opening *k* in the knob E, thereby allowing the key to pass out of the recess *g* through said opening *k* into the hand, as herein shown and described.

No. 12,957.—Wm. Maurer.—*Improvement in Door Locks.*—Patented May 29, 1855. (Plates, p. 46.)

When the lock is in a locked state (see fig. 1) the pawl D projects within the slot *d* in the casing A, and prevents the band B from

turning on the casing A, and consequently the bolt-pin from being withdrawn or thrown back. To unlock the lock, therefore, the pawl D must be thrown out of the slot *d*. In order to effect this, the key is placed in the keyhole and turned, and the several bits of the key act against their proper notches in the inner edges of the plates G, and the plates G are turned, and also the segment tumblers J, in consequence of the pins *j* acting against them, and the slots *i* are brought in line, and the spring-plate *c* forces the pawl D into the slots *i*, and freed from the slot in the band B, the bolt (which is attached to the projection C on band B, and is not shown in the figures) can then be thrown back as the band is allowed to turn on the casing A. To lock the lock, the bolt is thrown forward by the usual knob, and the key is inserted in the keyhole just far enough to turn the plate K. This plate is turned from left to right, and the shoulder *k* turns the segment bar L, both bars L being moved in consequence of their connexion, and the inclined recesses *l* throw the pawl D back into the slot in the band B. The bar *m*, which connects the two segment bars, throws the segment tumblers back to their original positions, and the spring catch H keeps the plates G in proper position when the key is withdrawn from the lock.

Claim.—The arrangement of the notched annular plates G, segment tumblers J, spring pawl D and band B on the casing A of the lock, and segment bars L L, as shown for the purpose of connecting and disconnecting the band B from the casing A, and allowing the bolt of the lock to be operated and secured as described.

No. 13,037.—John C. Kline.—*Improvement in Door Locks.*—Patented June 12, 1855. (Plates, p. 46.)

By turning the key *n*, tumbler C turns on its pin *h*, whereby nose g^1 operates on the oblique face t^1 of the bolt B, and forces the same forward, until the tumbler has acquired the position shown in fig. 2, when the nose g^1 sets into notch *d*, whereby the bolt is kept in a locked state. The bolt, when moving, is guided by the arm *k*. During the operating of the nose g^1 on the face t^1, the other nose *g* of the tumbler is allowed to pass freely in a slot *s* cut out of the bolt. If the key is applied from the other keyhole *a*, then the nose *g* operates on the surface *t* of the tumbler, moves the bolt forward, and sets finally into notch *d;* in the meantime the nose g^1 is allowed to pass freely in slot s^1. Thus the noses operate on the lock-bolt by means of the inclined surfaces *t* t^1, and stop the same by means of its setting into the notch *d*.

Claim.—The inclined or oblique faces *t* t^1 and notch *d* of the bolt, in connexion with and operated by said key-tumbler, substantially as described.

No. 13,050.—Jos. C. Silvy.—*Improvement in Door Locks.*—Patented June 12, 1855. (Plates, p. 46.)

a q is the circular bolt refered to in the first part of the claim. The key *k* is provided with a screw in the handle, which regulates the

tumblers of the key, and has a scale which serves (after locking) to change the tumblers of the key by means of the screw, so that the key will have no effect on the lock until the key is placed back at same scale it was when locked.

Claim.—The circular or solid circular bolts, one half in the lock, and the other half in the catch, as specified.

2d. The extension key, to lengthen or close the tumblers by means of a screw or slide, together with a scale to regulate the sliding-bolt or bolts in the lock.

No. 13,163.—Edmund Field.—*Improvement in Locking Latches for Doors.*—Patented July 3, 1855. (Plates, p. 46.)

When the door is closed, the inclined edge at the outer end of the catch strikes against the lower edge of the slot in the bar G, and the catch passes through the slot and is forced down over the lower edge of said slot by the spring D, which acts both upon the bolt and catch. The key is then inserted in the keyhole and turned, and the guard tumbler C is first raised, so that the projection *c* will be raised from pin *d*, attached to the bolt. The key then throws the outer end of the bolt through the slot in bar G, and the catch is thereby prevented from being raised until the bar is thrown back.

The inventor says: I claim nothing new in the locking bolt or catch, separately considered, nor yet in merely combining them so that the locking-bolt is arranged to shoot into and lock the catch.

But I *claim* the arrangement, as substantially shown and described, of the locking-bolt B with F, when these parts are hung and operate together, essentially as set forth, and so that the locking-bolt with its tumbler-guards and other appurtenance or appurtenances, when not used to lock the door, are set in motion by the catch each time it is operated, substantially as and for the purposes set forth.

No. 13,722.—Richard G. Holmes and Wm. H. Butler.—*Improvement in Locks.*—Patented October 30, 1855. (Plates, p. 46.)

In order to unlock the lock at the outer side of the door, the inner end of lever C is operated by pressing the sliding plate J against it; and in order to do this, the sector tumblers K must all be turned upon their axis *k* till the slots *l* in the several tumblers are brought in line with each other, and directly opposite the plate K[1], so that the tumblers and plate may be shoved inwards, the plate fitting in the slots. This is done by a key N having bits of proper lengths.

The spring L, when the plate J and the tumblers are shoved inwards, will be pressed against the side of the tumbler adjoining it, and will cause the several tumblers to be pressed together and bear against each other, so that one cannot be moved on its axis *k* separately. By this means a burglar is prevented from operating single tumblers.

The dotted lines in fig. 1 represent the position of bolt B after the door has been opened.

Claim.—First. Arranging the spindle or arbor E in such a relation with the bolt, that the bolt may be operated by drawing and pressing the spindle or arbor in a direction transversely with the casing of the lock, substantially as described.

Second. The cylindrical bolt B constructed and arranged substantially as shown; and also, connecting said bolt to the spindle or arbor E by means of the lever C, as described.

Third. The employment or use of the sector tumblers K when attached to a sliding plate J, and used in connexion with a spring L, which is acted upon by the bended or inclined projection *n* at the side of the bar or casing I, for the purpose of preventing the lock from being picked by obtaining a knowledge of the position of the slots *l* in the tumblers by pressing the tumblers singly against the plate K[1], as described.

No. 13,753.—D. W. G. Humphrey.—*Improvement in Locks.*—Patented November 6, 1855. (Plates, p. 47.)

This lock will indicate the number of times it has been opened after having been set; and if operated upon with a false key, it will entrap the key and sound an alarm.

The indicator A turns on a pivot *i*, and is moved forward one number at each unlocking or opening by the sliding of bolt C, which drives forward the lever D, which turns on pivot X, and operates the indicator at the point *n*. The bolt C is connected with lever D at the point *z*, by means of pin through lever, which rests in slot in bolt at said point of connexion *z*. The indicator A is held forward as driven by lever D, by means of catch F, which turns on pivot *k*, and is forced against indicator by coil spring around pivot *k*. In the locking, the lever D is forced back with the bolt C bending in joint of lever at the point D to pass under teeth of indicator, and then is straightened back by spring *u*. The indicator is driven around until the long space between the teeth rests at the point *n*, when the bolt C can slide back and forth any number of times without effecting any further change in the position of the indicator until it is regulated. H is a stump against which the long tooth *r* of indicator rests when it (the indicator) is regulated. The slide G is connected with the lever T (fig. 1) at the point *d*, which lever, being raised at the point *y* and turning on screw at point *c*, depresses the slide G, (fig. 2,) which slide depresses arm of catch F, forcing the catch back clear from teeth of indicator, and the indicator is forced back to its starting point by means of coil spring within it at R, when the long tooth *r* rests upon the stump H. The indicators, for any number of boxes in one body, are connected by their levers T (fig. 1) at the points *y* vertically by rods or wires, and horizontally by having these rods or wires connected to a shaft, which, being turned to depress the levers at point *y*, and then turned back to raise the levers to their resting place, all are regulated in a moment's time.

N (fig. 2) is a pivot on which the key turns to slide the bolt C. The catch M is raised from notch of the bolt C by slide L under said catch by turning the key. B is a circular movable ward-plate which may turn on pivot N, its centre, when the key is not fitted to the construction of the wards *g*, which are placed on either side of the entrance of

the key. The ward-plate is prevented from turning too easily by the lever E, one end of which rests in the rounding notch of plate at S, and is pressed into the notch by the coil spring around pivot at the point V on which the lever turns. The other end of lever E protrudes through the aperture at *a* (fig. 1) on inside of door. The key enters between the wards *g;* and if it is not fitted to the wards, the ward-plate easily turns, and the end of lever E catches into the notches *t* on the under side of plate and prevent its being turned back; consequently, the key cannot be turned back or withdrawn until the ward-plate B is released by raising the end of lever at *a*, on inside of door (fig. 1). When the ward-plate is turned by any key not fitted to the wards, the projections on either side of the plate turn into the notches in the bolt C at the points P, thus barring the bolt against being moved until the plate is released, as before described.

The end of the lever E (fig. 2) at the aperture *a*, (fig. 1,) when the door of box is closed, shuts into a notch connected to a vertical wire running through tier of boxes at the point J. This wire is connected to an alarm, and is operated, when a key is entrapped in the lock, by the vibration of the end of lever E at the point *a* resting in the notch of wire at J.

Claim.—The indicator A, movable ward-plate B, and lever E, arranged and operating in the manner set forth.

No. 13,814.—J. Henry A. Bleckmann.—*Improvement in Locks.*—Patented November 20, 1855. (Plates, p. 47.)

The tumblers are pivoted at L; the key is introduced at I; the bits *s* and T, which are secured to the square portion *q* of the key by means of a nut V at the end of said portion, act, the former upon the faces *l* of the tumblers, and the latter (T) upon the edges *x* or *y* of the bolt B. It will be seen that the bits *s* can be attached to the key in any desired order; they are of such lengths that when brought to bear upon the tumblers at *l*, the latter shall be elevated so as to bring one or other of the channels *r* opposite to the pin *p*. When in this position the bit T, striking against the bolt at *y*, shoots it forward, the pin *p* passing into one or other of the notches *m*, according as the tumblers are more or less raised by their bits. As the key passes round, the tumblers fall upon the pin, and the bolt cannot be again returned until each tumbler is raised a sufficient distance to permit the pin to return through the channels *r;* this can only be effected by the use of the same combination of bits as was employed to shoot the bolt.

Claim.—The mode of constructing and arranging one or a number of tumblers, as described, which may be locked and opened with changeable key-bits, as set forth.

No. 13,880.—Edward Kershaw.—*Improvement in Locks.*—Patented December 4, 1855. (Plates, p. 47.)

B is the bolt, in the form of a disc, working within a recess formed n the lock case A; a portion of the disc is removed, to coincide with the straight edge of the lock-case when unlocked. The semi-circular tumblers C C are placed upon each side of the flat part or plate *b;* and the tumblers, together with the plate *b*, form a cylindrical figure, which fills the cylindrical cavity in the lock-case. The bits *e e* of the key E closely embrace the plate *b*, thus engaging the disc. Upon the tumblers C are small stumps *c*, each of which works in a corresponding slot *a* in the cylindrical part of the lock-case. These slots run in a direction parallel to the axis, to permit a corresponding motion of the tumblers as they are thrown back and forth by the key E and springs D. In any desired part of slot *a* another slot a^1 is cut, at a right angle to the first, which forms a throat, into which the projection *c* of the tumbler passes when the disc B is rotated to unlock. These throats are cut in a position to correspond to the length of the bits of the key.

Figure 3 represents a vertical section; and figure 4, a top view.

Figure 1 represents the bolt when locked.

The inventor says: I am aware that locks have been heretofore made with the bolt in the form of a disc, and rotating about a centre; and also that tumblers have been used in connexion with such lock-bolt, which had a movement with the bolt, and parallel to its axis, and were placed in position by pushing in the key; therefore, I do not claim either of these.

But, in connexion with a rotating lock-bolt, or its equivalent, I *claim* the combination of the shank *b* and segmental tumblers *c c* with the tubular recess of the lock-case enclosing the same, with their several subordinate appendages, co-operating with each other substantially as described.

No. 13,884.—J. H. Pomeroy.—*Improvement in Locks.*—Patented December 4, 1855. (Plates, p. 47.)

The additional bolt M, which is pressed forward by a spiral-spring N, holds the fastening bolt G of the lock within the case, or in the position in which they are placed to unfasten the door, while the door is open. When the door is closed, the end of the bolt M is forced in by the frame of the door, so as to release the bolt G, which is forced out by the spring K, so as to fasten the door. But whenever the bolt G is drawn back, and the door opened sufficient to allow the bolt M to project through the front plate, it is forced out so as to hold the bolt G in the case, until the door is closed again.

I *claim*, on spring locks or latches, the use of the spring-bolt or catch M N, or its equivalent, so constructed as to be operated by the door-frame or keeper to release the bolt and fasten the door in the manner substantially as set forth.

No. 13,911.—Henry C. Jones.—*Improvement in Locks for Freight Cars.*—Patented December 11, 1855. (Plates, p. 47.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Combining with the double jaw spring bolts of a lock, and

with the levers by which the jaws are opened by the action of the key, as specified, a stop-tumbler, substantially such as described, operated by the key, after the jaw bolts have been opened, to hold and keep them apart after the key is taken out of the lock, that the lock may be employed as a stop or dead bolt lock, as specified.

No. 13,968.—Thomas Bowles, assignor to Robert M. Patrick.—*Improvement in Locks.*—Patented December 18, 1855. (Plates, p. 47.)

Figure 1 represents the parts when locked.

Figure 3, when unlocked.

To unlock, the operation is as follows: The key being inserted, each of the key-bits strikes upon the end *x* of the link *c* and *d*, except the one marked *y*, which does not at first come into play. The key, thrust in, pushes back those links more or less according to the form of the same, and so as to bring the several cuts a^1 b^1 into line. The point *y* will then have gone under the fork m^1 of the lever. At this moment the cuts a^1 b^1 will be in line to receive the dogs *f g*, which are driven in by the force of their springs. This moves back the piece *i*, there being a slot in *k* to allow the guide-pin to play without moving the latter. The other projection *l* also rises, thus relieving the tail of the lever, which, however, does not now follow, as its other end m^1 is supported by the key under it. The bolt can now be pushed back; for this purpose the key is withdrawn so far as is necessary to remove *y* from under the fork m^1, when that end immediately drops as far as permitted by the rise of the tail, which is arrested by the projection *l*. Thrusting the key in, the point *y* now strikes the end m^1, and pushes it along, and, being attached to the link *k*, the bolt *n* is withdrawn. The movement of *m* carries the other point of the fork m^2 away from the supporting pin *p* of the shutter, which now drops towards the key-hole, but is arrested by striking the key, the lower edge resting upon it, as shown at *o*. On pulling the key out, the shutter falls to *t*, and closes the hole, the pin *p* dropping against m^2, ready for action in the next movement for locking.

The position *t* of the shutter is represented in fig. 3, in broken lines.

Claim.—The shutter *o*, so arranged that, being brought into action when the bolt is withdrawn, it shall cover the key-hole while the bolt is so withdrawn, as set forth.

Also, the arrangement for withdrawing the bolt by a distinct movement of the key, after the tumblers have been set, such arrangement consisting of the lever *m* in combination with the link *k* and the bolt *n*, as described.

No. 12,708.—J. M. Stone, assignor to the Manchester Locomotive Works.—*Improvement in Lathes for Turning Locomotive Drivers.*—Patented April 10, 1855. (Plates, p. 48.)

The object of this arrangement is to dispense with laying out the points by hand where the holes for the wrist-pins are to be bored. These holes are required to be exactly equi-distant from the centre of the wheel, and to form in relation to this centre an exact angle of 90°. The face-plate, upon which the wheel is turned off, is mortised, and drill D passed through. Another drill D^1, for the purpose of boring one of the wheels, is mortised through the foot-stock to bore the opposite wheel. The axes of these drills are parallel to the axis of the lathe, the one vertically beneath it, and the other in a horizontal plane passing through it. The drills are made adjustable, so as to accommodate them to different lengths of stroke. Thus the two wheels may be bored with the required exactness without laying out the points by hand, and without removing the wheels from the centres upon which they have been turned.

Claim.—The drill D D^1, in combination with the turning lathe, the one being mortised through the face-plate, the other through the foot-stock, in the manner and for the purpose substantially as herein set forth.

No. 12,117.—Norman Aylsworth.—*Improvement in Machines for Boring, Planing, and Slotting Metals.*—Patented January 2, 1855. (Plates, p. 48.)

Cross-head K K can be moved up or down and fastened by screws X on two columns D. Hand-wheel and screw N serve to move the carrier L of the turning tool along the cross-head K K; and hand-wheel and screw O raise or lower said tool-carrier. A feather or mandrel Q and a groove within hub F allow said mandrel to be worked up and down by means of nut S and worm-gear T U. V is the rimmer, firmly fixed to the tool-stock R R, which itself is firmly fixed in the centre of mandrel Q. Pinion Z on driving-shaft Y revolves table I; pinion *b* serves to work nut S, and thereby to raise or lower mandrel Q in case the worm-gear T U is thrown out of gear. The operation is as follows: The wheel to be bored, etc., is fastened on table I; the tool-stock is passed down through the hub of the wheel, so that the lower end of the tool-stock enters the upper end of the spindle H. The table being then revolved, and the worm-gear being operated upon, mandrel Q moves down, and with it stock R and cutter V, thereby boring the wheel. By means of hand-wheel O the tool P is moved down, turning off the hub of the wheel; hand-wheel N at the same time imparting the proper horizontal motion to P.

In order to cut a key-seat, or slot, the motion of the table I is stopped, the worm is thrown out of gear, a tool-stock, with a proper cutter, inserted into the mandrel in place of tool-stock R; pinion *b* is then properly revolved, thereby revolving nut S, and removing the tool-stock up or down, by which operation the key-seat is cut through the hub of the wheel.

Claim.—The so arranging of the several parts of a machine for turning, boring, and cutting key-seats in car-wheels, cranks, and other machinery, as that the three several operations may be completed from the same centres, without unchucking said piece of machinery, by which means more perfect work can be done than when the piece is removed or rechucked for two or more successive operations, the whole being achieved in the manner set forth.

No. 12,228.—Wm. Beasley, assignor to Jas. Brett, Jno. Watkins Brett, Chas. Wm. Tupper, and Wm. Beasley.—*Improvement in Manufacturing Metal Tubes.*—Patented January 9, 1855. (Plates, p. 48.)

f represents in the engravings the strip coiled around mandrel *d*, which is welded to a tube by passing it through the rollers *h i i*.

The inventor says: I do not claim subjecting metal tubes to cross-rolling, as that has been done before.

But I do *claim* the forming of a metallic tube, by winding a strip of metal spirally on a mandrel, and welding it by cross-rolling, substantially as described.

No. 12,268.—Solomon G. Booth.—*Improvement in Rollers for Corrugating Sheet Metal.*—Patented January 23, 1855. (Plates, p. 48.)

The rollers consist of single plates *c* c^1 c^2, &c. The width of the rollers, and consequently the curvature of their faces, may be changed by the insertion of additional plates, or the removal of some of those already on the roller-shafts.

The inventor says: I do not claim making the rollers of adjustable sections, for the purpose of repeating bending operations upon a piece of sheet metal; nor do I claim making rollers of two or more parts.

But I *claim* making the swages and dies for forming beams of wrought iron of numerous thin sections, so that one, two, or more sections can be removed to produce beams of different forms, for the purpose of saving the expense and inconvenience of a multiplicity of pairs of swages and dies, all substantially as set forth.

No. 12,503.—Alanson Brown.—*Improvements in Machines for Turning, Boring, and Slotting Metals.*—Patented March 13, 1855. (Plates, p. 49.)

The hub C (which supports the lower spindle D on which the table or face-plate E is fixed) is not centrally placed between the three columns G G G, and a short column I is used at the front part of the machine, for the purpose of affording an unobstructed front for the introduction of large pieces to be operated upon on the table. By clutching or unclutching the clutch U, the driving-shaft *o* will either revolve the gear-wheel V and the table, or it will remain stationary. By shifting the driving-belt T from the position represented in the engraving to the loose pulley J^1, the tool-bearer or upper spindle R^1 will remain stationary, otherwise it will be revolved. The bevel-wheel is feathered on spindle R^1, so that the spindle may freely rise and fall without interrupting its rotating motion. Motion can also be given to bevel gear U^1 on sleeve V^1, which passes through hub G^1, and may turn therein, so that the spindle, which may carry a boring tool on its lower end, may be boring out the hub of a car wheel, crank, or other piece, whilst the sleeve outside of it, but also rotating, may be carrying a turning tool and be facing off said piece at the same time. The cross-head *b* can

be slid up and down on the side columns G, (by means of shaft *m* and gearing *o p*,) and supports a sliding tools-tock holder *c*, which can be made to move horizontally and approach the centre, either by means of hand-wheel *l* or pulleys *h*, driving shaft *g*, gearing *i j*, and horizontal screw shaft *k*, working in a female screw in sliding piece *c*; *e* is the tool carried by the said sliding piece *c*, and is used for facing off work when the table is rotated.

The inventor says: I am aware that single column machines for boring and drilling small work have been used, in which operative parts project forward of said column; this I do not claim, as the support is not firm enough for accurate work of the kind which my machine is desired for.

But I *claim* so arranging the table on face-plate and upper spindle or tool-holder on a machine for turning, boring, and cutting key-seats, as that either one of the two may be revolved and the other remain stationary, as the character of the work may require, and substantially in the manner set forth.

I also claim combining with the upper spindle a revolving slide-head carrying a cutter susceptible of either a horizontal or vertical motion or adjustment, as set forth, for the purpose of turning off work, either inside or outside, that will not revolve between the columns.

I also claim arranging two, three, or more supporting columns, in rear of a plane drawn through the line of centres of the operative parts of the machine, for the purpose of leaving an unobstructed front for the introduction of the piece to be dressed, as described.

No. 12,712.—Marshall Burnett and Charles Vander Woerd.—*Improvement in Machines for Punching Metal.*—Patented April 17, 1855. (Plates, p. 49.)

Cam *c* and crank F are so arranged on their respective shafts, that when the point of the bar J is raised up at its front end by the lever H, it shall receive a similar rising motion at its rear end by the cam *c*, and thus always move parallel with the bed, so as to bring the punch down square upon the plate to be punched.

Claim.—So combining the punching-bar with a vibrating lever at one end and a cam at the other end of it, as that it shall always rise and fall in a plane parallel to the bed of the machine, substantially as described.

No. 12,723.—De Grasse Fowler and George Fowler.—*Improvement in Machines for Punching Metal.*—Patented April 17, 1855. (Plates, p. 49.)

Power being applied to crank H, (which is fast on the socket *q*, which latter is loose on shaft B,) it will revolve socket *q*, and with it the fly-wheel G round shaft B, as the socket *q* is fast to the hub of the fly-wheel. The shaft B will not revolve, and the punch *d* will remain stationary in its highest position, until the operator depresses the end I of lever *n n*. Then the lever *s s*, which has its fulcrum in *s*, will move

the sliding clutch *r* towards the hub of the fly-wheel, the clutch will push the sliding pin *p* through the hub of the fly-wheel, so that the pin will strike against the projection *o* on the collar F, which latter is fast on shaft B. The collar, and with it the shaft B, will now be revolved, and the punch will descend by means of eccentric C. When the end I of lever *n n* is depressed, the lower end of lever K, which has its fulcrum in *l*, will be drawn over and upon lever *n n* by means of spring *m*, as seen in figure 2, and thus keep the machine in gear until the punch has operated upon the material, and has been again elevated to its highest position, when the stud *i* projecting from collar F will strike the upper end of lever K, and force its lower end off the lever *n n*, and the spring K will draw up the end I of lever *n n*, thereby forcing back the clutch *r* to its original position, shown in figure 3; when the sliding pin *p* will not reach projection *o*, and the machine will be out of gear, the punch resting at its highest elevation, and the lower end of the lever K resting against the side of lever *n n*. Figure 1 is part of a view looking from the punch towards the fly-wheel; figure 2, part of a rear view; and figure 3, a central longitudinal section.

Claim.—The peculiar manner of connecting the operation of the two levers (*n n* and K) to throw the machine out of gear at the time when the punch is at its greatest elevation, when constructed, arranged, and made to operate substantially in the manner herein described.

No. 12,739.—Martin R. Griswold.—*Improved arrangement of Rollers for making Metal Tubes.*—Patented April 17, 1855. (Plates, p. 49.)

The two rollers B B have a tapering serrated contour, (figure 4,) the rollers increasing in diameter to conform to the decreasing diameter of the material while being wrought. Each roller has its bearings in a case A A, one above the other. The axes of both the rollers form an angle with each other. The tube J to be wrought is in contact with the rollers at the point which lies in the intersection of two vertical planes drawn through both the axes. The rollers being revolved, (see arrows in figure,) the tube (being at an equal angle from each roller) is revolved in an opposite direction; and in being drawn through, a spiral indentation is formed on its surface, at the same time elongating the tube. Rollers with smooth faces are then employed to finish the article. The cases A A, resting on central pivots, can be so turned as to form any desired angle between the axes of the rollers, and then they are secured to the frame. Between the rollers, and secured to the frame, is the guide-plate, (figure 3,) having an opening in its centre sufficient to admit the lower roller B to project through and above said guide-plate. The two slides *c c*, which carry guide-rollers D D, can be adjusted on the guide-plate by screws and nuts at their outer ends. Two pairs of arms *r r* projecting from the guide-plate serve to guide and keep the material in its proper place between the rollers B B. The upper roller B can be set nearer or farther off the lower roller B, by means of set-screws E E acting against the sliding journal-boxes of said upper roller, thereby allowing tubes of any diameter to be wrought with one pair of rollers. The driving pulley G transmits motion (by

means of universal joint I) to pulley H, and from this to the upper roller-shaft by means of a gear-chain. Another gear-chain, on the rear side of the machine, transfers the motion of pulley G to a pulley below, which, by means of universal joint L and pulley K and chain imparts motion to the lower roller-shaft.

Claim.—The arrangement of the adjustable smooth or serrated rollers, whose axes cross each other, as herein set forth, with the guide-plate and slides, and guide rollers, for making seamless metal tubes, as described.

No. 12,767.—James H. Thompson.—*Improvement in Machines for Planing Metal.*—Patented April 24, 1855. (Plates, p. 50)

The nuts *o*, or the bar to be planed, are placed upon a mandrel E, as seen in figures 1 and 3. The mandrel platform D is then adjusted by means of a set-screw and vertical slot (not shown in the figures). The clutch U being moved towards driving-pulley O, shaft N revolves and rotates the disc C, by means of gearing M L J I, and as the cutters *c* project gradually further from the centre of disc *c*, in consequence of its scroll-form, (see figure 3,) the cutters will plane off one side of the nuts *o* at one revolution of the disc, the sides of the nuts being equal in width to the space or difference between the longer and shorter diameter of the disc. When the disc has made one revolution, the projection *j* strikes against the upper end of the lever H, and depresses it, and throws the pin h^1 on said lever out of the ratchet, and the weight *h* rotates the drum G, and consequently the mandrel E and nuts *o*, the space between two teeth of the ratchet thereby presenting a new side of the nuts to the cutters, and so on.

As shaft B rotates, the arm W strikes against one of the radial arms P, and moves the arm a certain distance at every revolution of the shaft. When the arm to which pin K is attached is moved, said pin throws the lever V upward, and the notch *l* is raised from pin *m* on sliding-bar R; the spring S operates the sliding-bar, and disconnects the clutch U from pulley O. The number of arms, of course, correspond to the number of sides of the nuts or bar.

Claim.—1st. Planing the sides of nuts of prismatic bars by means of a series of cutters *c* attached to the periphery of a disc C, of scroll form, so that each cutter will project a trifle further from the centre or shaft B of said disc, and thereby allow the whole number of cutters to pass over and plane the whole surface of each side of the nuts or bar at one revolution of the disc, as herein shown and described.

2d. The employment or use of the disc C, with cutters *c* attached to its periphery as herein shown, in combination with the intermittingly rotating mandrel E, for the purpose as set forth.

3d. Rotating the mandrel E intermittingly by means of the lever H, projection *j* attached to the disc C, and the ratchet E, and drum G operated by a weight *h*, or its equivalent.

4. Operating the clutch U by means of the radial arms P, lever V, and spring S, attached to the sliding bar R; the arms P being acted upon by the arm W on the shaft B, as herein shown and described.

No. 12,799.—Jeremiah Stever.—*Improvement in Machines for Burnishing Metals.*—Patented May 1, 1855. (Plates, p. 50.)

The joints of the connecting rod I and the slider H are so arranged that when the slider is depressed far enough on the rod G they may be brought into line with the axis of the rocker-shaft E; when in such position, the slide is sustained upon a screw-nut K screwed upon rod G. The driving-shaft D transmits a rocking motion to shaft E by means of rod L. The slider H is raised or lowered upon rod G by means of fork M.

By these means the burnisher A may not only have a reciprocating motion imparted to it, but this motion may be either arrested or regulated while the rocker-shaft is in motion.

Claim.—The arrangement of the connecting rod I of the burnishing slider B, the rocker-shaft E, the slider H, the rod G, and the bow or stirrup F, whereby the movement of the burnisher may not only be entirely arrested while the rocker-shaft is in motion, but may have given to it such an extent of reciprocating movement as occasion may require.

No. 12,971.—Alfred B. Seymour.—*Improvement in Machines for Helically Creasing Sheet Metal Pipes.*—Patented May 29, 1855. (Plates, p. 50.)

This improvement consists in combining with the swages A a gauge-plate B and different sizes of screws D, (with gauges,) to cause the swages to move nearer to the gauge-plate in forming the screw. The machine can be set for as many sizes of pipe as there are screws D, with their corresponding gauges E. Upon the top edge of the gauge-plate there is an indicator F. By turning thumb-screw G, the gauge is set at any angle required; the scale marked and numbered upon the indicator being the guide for the operator. When the gauge plate is set, it is required to set the gauge E in the proper screw D, the screws D being made fine or coarse, according to the size of pipe to be made. When both are set to correspond, the pipe is swaged in the ordinary manner of swaging, but a spiral is formed by the swaging rollers being moved up towards the gauge-plate.

Claim.—The plate B, having a gauge between the shafts of the creasing-rollers, and adjusted by a set-screw, so that the proper inclination may be given to the end of the pipe.

No. 13,046.—Orson W. Stow.—*Improvement in Sheet Metal Folding Machines.*—Patented June 12, 1855. (Plates, p. 50.)

A, bed plate; B B, standards carrying the head C, to which folding plate D is secured, and containing the bearings for the journals *a* of the front folding-bar E, which is turned in the usual manner, (by means of crank F,) from position fig. 1, into position fig 3; G, back folding-plate hung on centres *b b* so as to be capable of swinging upwards from position fig. 1, into position fig. 3; H, adjustable gauge secured to

G, to regulate the width of the lap; I, cam at one end of bar E; J, arms attached to corresponding end of back folding-bar; *c*, friction roller.

The plate *d* (in fig. 3, d^1) is laid upon the folding-bars under the folding-plate, and the crank F is thrown back, (see fig. 3,) whereby not only the front folding-bar is thrown up, but at the same time, by the action of cam I upon arm J, the back folding-bar G is raised; thus, the lap is completed (see d^1) at one operation.

The inventor says: I do not claim the arrangement of the folding-bars at right angles, or thereabouts, when open to the folding-plate, and effecting the fold by the movement of both bars to bend the edge and body of the plate on opposite sides of the stationary folding-plate or former; as such an arrangement, under a separate and disconnected operation of the bars, is old.

But I *claim*, in folding machines which have the folding-bars E and G arranged and operating in connexion with a folding-plate D, as described, effecting the simultaneous action of the two folding-bars, by so connecting or driving them, that upon operation being given to the one folding-bar, the other folding-bar is set in corresponding action or motion thereby; whereby the folding-plate D is relieved from unequal and varying strain or pressure on its one side or face, the two folding-bars are necessitated to act in unison, and the one operative lever serves to set both folding-bars in motion, as set forth.

No, 13,255.—Edwin Ells.—*Improvement in Machines for Forming Metal Tubes.*—Patented July 17, 1855. (Plates, p. 51.)

The inventor says: I do not claim the employment of rollers alone to give form to the tube; neither do I claim bringing the strip or skelp of metal, of which the tube is to be made, to a form whose transverse section resembles the letter U, when this is performed by separate means unconnected with the rollers.

But I *claim*, arranging the rotary bur-cutter I between the preparatory U-shaped die *a b* and the rollers G G, substantially as described, whereby the scarfing operation is performed at the same time as the forming operation, and the forming machinery serves to hold and feed the strip or skelp in a suitable manner to receive the scarfing operation.

No. 13,295.—Cephas Applebee.—*Improvement in Machines for Cutting Sheet Metal.*—Patented July 24, 1855. (Plates, p. 51.)

A piece of metal is placed and confined between the clamps B B. This having been done, the frame A is moved aside until it is arrested by stop I, so as to introduce the metal between the blades of shears N L, when the upper blade is forced down and cuts off the end of the plate. Next, the frame A is moved back so as to force the metal between the rotary cutters D E, which reduce it to the section of an annulus. Finally, the frame is moved against stop K, and the other side of the metal cut off by the shears M N.

The piece of metal, when cut out, is represented in fig. 3.

The inventor says: I do not claim the movable bar A, its clamps, and one or two sets of rotary cutters, arranged and operating together, as described.

But I *claim* the combination therewith of the index limb or arc, the movable radial supporting arms, and their two end shears, the whole being applied together and used to operate on a piece of metal or other material, and reduce it to the shape of an annular section, suitable for being bent into the shape of a conic frustrum, in manner and for the purpose specified.

No. 13,625.—Wm. Sellers and James Walker.—*Improvement in Moulding Circular and Under-cut Work.*—Patented October 2, 1855. (Plates, p. 51.)

The half pattern B is turned down into the sand *s* by means of revolving the axle A. When the sand has properly packed about the pattern, it is brought slowly out of the sand by revolving the axis. The other half of the mould is to be made in a similar manner. The casting will produce a grooved pulley.

Claim.—The method of moulding circular under-cut work, herein described.

No 13,118.—Isaac H. Steer, assignor to Henry Carter.—*Improvement in Making Nuts.*—Patented June 19, 1855.—Antedated December 19, 1854. (Plates, p. 51.)

The bar (heated to a welding heat) is placed in groove B, its extremity in contact with the back side of the die. The upper swage I now decends, and a piece is cut from the end of the bar by the action of the front edge *i* of swage I and the fixed cutter C; this piece is forced into the die by the continuous downward movement of the swage, the middle, or the portion removed to form the eye, resting upon and being detained by the fixed punch D, while the rest of the piece is forced down until a core is formed which passes into the cavity in the end of swage J and out at K. The continuous descent of I serves to compress the material between the lower surface of swage I and the upper surface of swage E. Lever F^1 serves to raise the swage E and expel the finished nut.

I *claim*, 1st. Making a nut at a single operation, from a heated bar or plate of metal, by cutting off the blank from the bar, punching a hole or eye through it, and swaging it into shape, substantially as set forth.

2d. Punching the eye of the nut in a die or press-box, by which it is surrounded and firmly supported, and thus prevented from straining or bursting during the operation, substantially as set forth.

3d. Shaping nuts by subjecting them while hot to powerful and sudden compression on the punch and in the punching-die, substantially as set forth, whereby they are finished with such a degree of smoothness, regularity, and precision, that in the condition in which they

come from the machine they are fit to use in the construction of most kinds of machinery, and are at the same time sounder and stronger than unpressed nuts made by machinery.

No. 12,194.—Robert Brayton.—*Improvement in Machines for Making Nuts and Washers.*—Patented January 9, 1855. (Plates, p. 51.)

The head-block F^{11} is attached to rod F of the piston of steam cylinder D, and slides in guides G G. The plates H^1 H^1 ease the action of the machine at the termination of the back stroke, as the head-block is brought into contact with the plates, directly after the nut is thrown out. The plates H H ease the action of the punch and dies, and prevent them from straining when brought into contact in forming nuts and washers, and also gauge the nut or washer to any thickness, according to the number of plates. Die-block I is secured to anvil J by the side-keys K K, by which it is readily adjusted. One end of the guide-spring L (which spring is secured to bed-plate A by means of brace L^1) surrounds the upper portion of the die-block on three sides, (see fig. 2,) and is raised forming a shoulder above the die-block on two sides L^2 L^2, (see fig. 3,) which are a little above the die-block; thereby it does not become heated, as would be the case if the bar rested upon the die-block. By means of this guide the bar is quickly adjusted in place for the dies. The punch M is fitted to the head-block, and extends through the check N and check-plate N^1, so that they slide independently of the punch. The check N slides also in the forming-box O, while the box is secured in the ring P. When the head-block descends to position, fig. 1, die-block I passes a little into box O; the nut is thereby cut off from the bar, and it is punched by the punch passing into the hole of the die-block; the nut or washer being compressed into shape in the chamber of the forming-box. Thus the nut is finished at one stroke of the piston. When (during the ascent of the piston and head-block) the check-plate N^1 strikes against the check-bars B^1 B^1, the nut is thrown out.

The instantaneous action of the machine prevents the tools from being injured by a protracted contact with the heated metal.

Claim.—1st. The arrangement of the forming-box O, case P secured by the plate Q to the head-block F^2, operated by the piston F in the cylinder D, as described, in their relation to the check N, check-plate N^1, check bars B^1 B^1, punch M, and die I, for the purposes and as herein set forth.

2d. The metallic plates H H and H^1 H^1, as arranged in the slides G G in relation to the head-block F^2, for the purposes described.

3d. The spring gauge-bar L, the same being to protect the bed-die from the heat of the blank or nut-bar, and also to gauge its feed, as set forth.

No. 13,252.—Richard H. Cole.—*Improvement in Nut Machines.*—Patented July 17, 1855. (Plates, p. 52.)

The bottom *j* of the nut-box is combined with a hollow holder j^1,

which is secured within a recess in the forward projection of the reciprocating plate H, which latter is forced forward by a cam P on revolving shaft J, and forced back by the pressure exerted by the punch *d* upon bottom *j*, when a nut is formed by the action of said punch. This pressure against the bottom of the nut-box is resisted by means of a crank on oscillating shaft L, whose wrist L^1 is received into a rectangular box e^1 that works in a transverse slot in plate H, and by the weighted lever A, (B being the weight,) which lever projects rearwards from said shaft. Plate H is thrown forward by cam P a sufficient distance to carry the end of the bottom *j* entirely through the box, for the purpose of enabling it to discharge the finished nut; but the moment P ceases to operate upon H, the cam *m*, on rotating-shaft J, strikes against friction-plate m^1, on the under side of shaft L, and elevates said shaft; and by so doing causes its crank L^1 to operate plate H and draw the bottom *j* into the nut-box a sufficient distance to receive the blank for a nut at the moment that it is cut off by the punch. The mandrel *e* pierces the nut.

To adapt the depth of the nut-box to different thicknesses of nuts to be formed, keys p^1 of different thickness may be inserted between plate m^1 and lever A; and to cause the cam m^1 to operate for exactly the proper length of time upon H, the said cam is divided into two parts, which interlock each other in such manner that their bearing face may be extended or contracted, and so secured by screws or wedges.

Claim.—Arranging the movable bottom *j* of the nut-box in such a manner in relation to the movements of the punch *d*, that when a nut is being formed in the nut-box, its bottom will be forced against a yielding support, for the purpose of insuring in all cases perfectly shaped nuts, and enabling the machine to self-adapt itself to bars o different thicknesses, substantially as set forth.

No. 13,720.—Robert Griffiths.—*Improvement in Nut Machine.*—Patented October 30, 1856. (Plates, p. 52.)

The heated bar is introduced between the cutting and sliding boxes F and the stationary boxes *a*. Cams (not shown in the engraving) cause the boxes F and the punchers G to move forward, passing the boxes *a*. Other cams operate the table so as to move the lower table up and the upper table down, and to compress the heated bar at the time when the sliding boxes and punchers pass the stationary boxes, thereby severing bars into nuts, and punching them at the same time; the tables then open again, and the finished nuts descend with the lower table, wherefrom they are removed by a scraper. By making the faces of the table *n n* grooved, hexagonal nuts can be produced.

Claim.—The tables *n n* with the boxes and punchers, whether connected together or not, arranged and operating as described.

No. 12,191.—Arnold Buffum.—*Improvement in Machine for Crushing and Pulverizing Ores.*—Patented January 9, 1855. (Plates, p. 52.)

a is the bed plate, and *b* the rocker, to which a vibrating motion around centre *c* is to be imparted by any suitable mechanical means. The ore is fed in at the more elevated part of the bed-plate.

The inventor says: I do not claim to be the exclusive inventor of corrugations in machines for pulverizing ores. Neither do I claim to be the exclusive inventor of an arrangement for a progressive pulverization of ores. Neither do I seek, by *this* patent, to secure the application of the rocking action, independent of its combinations.

But I do *claim*, the rocking action of the crusher, in combination with corrugations on the lower surface of the rocker, and corresponding corrugations on the upper surface of the bed-plate, for the purpose and substantially as described in this specification.

No. 12,576.—Reuben Shaler.—*Improvements in Ore Separators.*—Patented March 20, 1855. (Plates p. 52.)

The material passes from the hopper on to the screen *m*, where the finer portions pass through the perforations, and are operated upon by the weaker blast coming from blower 2; while the coarser go to opening *w*, and are operated upon by the strong blast coming from blower 1.

The inventor says: I disclaim the use of the screen *m*, except when used in combination with the two sets of shelves 3 3 and the blower *a*, which produces two blasts of unequal force. I disclaim also the use of two sets of shelves when used in combination with a blower of common construction.

I *claim* the described combination of mechanism, which separates the fine earth and small particles of gold from the coarse, and exposes the finer portion of impurities and gold to a moderate blast and the coarser portion to a more powerful blast. The said combination embraces the blower *a*, which produces two blasts of unequal force, the two sets of shelves or inclined planes 3 3, and the screen *m*, or its equivalent.

This combination I claim, when the several parts are used substantially as specified.

No. 13,136.—Bearnard O'Bryan.—*Improvement in Machines for Cleaning Ore.*—Patented June 26, 1855. (Plates p. 52.)

The hopper and plate G H serve for loosening and shaking off the dirt sticking to the ore; and the ore falling upon screen K is cleaned and sifted. The hopper G rests upon a platform P, having an opening in its centre; and underneath the platform is fastened a frame Q, which has an angular shaped centre-piece R, sharp edge at top, which centre-piece supports the shaft B, and forms an aperture on each side through which the ore falls upon the screen, for the purpose of scattering and breaking the force of the falling ore upon the screen.

Claim.—The arrangement of the solid cast-iron horizontal circular plate H, having solid raised arms with upright ends, operating in a ribbed cylinder, with the frame Q and the centre-piece R, for the purpose of scattering the ore on to the sieve underneath, as and for the purposes described.

No. 13,892.—Richard Vose.—*Improvement in Quartz-Crushing Machines.*—Patented December 4, 1855. (Plates, p. 53.)

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I *claim* supporting the centre of the inclined vessel A upon a semi-spherical hub *a*, which works on a raised perforated socket in the plate *c*, whilst the depressed portion of the periphery of said vessel is supported upon a horizontal plane or track *m*, by which I am enabled to impart the requisite movements to the said vessel, through the medium of a shaft descending from its hub *a*, and in connexion with the said method of supporting and operating the inclined vessel A.

I also *claim*, discharging the contents of the said vessel through an aperture in the descending operating shaft, substantially as set forth.

In connexion with the described peculiar manner of supporting and operating the vessel A, I also *claim* the combining of the periphery of said vessel with the supporting frame by means of the springs *s s*, or their equivalents, for the purpose of steadying the movements of said vessel, and preventing it from turning upon its axis, substantially as set forth.

No. 13,961.—Julius E. Schwabe.—*Improvement in Treating Galena or Lead Ore*—Patented December 18, 1855.

One hundred pounds of powdered Galena ore are to be mixed with fifty pounds of common rock salt, and to this are added from thirty-seven to forty pounds of an acid of 65° Beaumé. The decomposition begins as the chlorohydric acid, formed by the action of the acid on the rock salt, drives off the sulphur of the ore as sulphuretted hydrogen, and unites with the lead to form chloride of lead. Small quantities of water may be added from time to time, and, under continual stirring and moderate heat, the operation is continued till no more evolution of sulphuretted hydrogen is perceptible. Then more water is to be added, till about one gallon of water is added for every ten pounds of ore. It is then to be boiled for about fifteen minutes, and the insoluble mass allowed to settle. The liquor is then drawn off, and the mass transferred to vats, in which the soluble soda salt is completely washed out. The remaining insoluble whitish substance consists of more or less chloride and sulphate of lead, and contains generally some indecomposed ore, which may be separated by washing. The white salts of lead are now ready for further treatment, which of course has to vary according to the colors which are intended to be made.

I *claim* the method of treating Galena by means of common salt, or its chemical equivalent, and sulphuric acid, in the manner and for the purposes as described.

No. 12,975.—J. B. Terry.—*Improvements in Pin-Sticking Machines.*—Patented May 29, 1855. (Plates, p. 53.)

The principal features of this improvement are sufficiently elucidated

in the claims and engravings. A more detailed description would occupy too much space.

The inventor says: I am aware that plates for crimping, and clamps for holding the paper, have before been used; such, therefore, I do not claim.

But I *claim* measuring off or gauging the paper to the required unequal distances between the rows of pins, and carrying it forward to be stuck by means of the feed-adjusting ratchet-cam u^3, operating in connexion with the crimping-jaws *g* and *h*, or the equivalents of such devices and their operative gear, so that the crimping-jaws have their reciprocating intermittent feed or travel regulated to gradually increase for a certain number of feeds, and vice versa; that is, the advance action of the crimping-jaws made sooner or later, and shorter or longer, without varying their advance terminus, substantially as specified, to measure out the paper into rows or crimps of gradually increasing distance from either end of the stuck sheet, to secure the flat close warp of the sheet from its ends towards the centre, as set forth.

I also *claim*, in connexion with the forceps *k*, or their equivalents, for taking the crimped paper from the crimper, the double clamps or jaws E, for holding the crimped paper while the pins are being stuck, as specified.

Further, I do not propose to employ or claim a slide wheel to connect the lower end of the inclined feeding pin-conductor with the upper end of vertical side guides to act as a conveyor, and serving to change the position of the pins from vertical to horizontal, whether such wheel be made with or without countersinks on its periphery.

Nor do I claim a separating wheel to sustain the column of pins, separate them, and deposit them separately, during the revolution of the wheel, in a grooved slide at the proper period, the wheel being made of discs, or with grooves or teeth cut across its periphery.

But I *claim* the employment, for the purpose specified, of the intermittent revolving cylinder C formed on or around its periphery, with rows c^1 of parallel grooves of the width of the body of the pin, and corresponding with the grooves in the conductor, and arranged in relation thereto, as specified, and of the length of a pin, or thereabout, with a notch or recess at the back end for the head of the pin; each groove serving to count out and convey one pin at a time, and the whole serving to count out and convey to their horizontal sticking position the several pins in a row, as shown and described.

Also, I *claim* the manner described, of operating the distributing cylinder *c* by means of the vibrating arm J 3, operated from an intermittent rocking-shaft, and having a spring-ratchet biting into a toothed disc, or the equivalent of these devices, to give to the cylinder its counting out and conveying action, as set forth.

I also *claim* the employment of a sticker *c* 5, arranged at the foot of the conductor, and operating to strike the pin at or near its point, as the pin leaves the conductor, to change the position of the pin and hold it to its seat in the distributing cylinder, substantially as specified.

Lastly, I *claim* forming the inclined conductor at its lower end with an offset a^1, covered by an apron B having recesses on its upper edge to allow of the heads of the pins passing there-through, and having a guide *b* on its outer face to carry off the surplus pins, essentially as described

No. 13,553.—J. B. Terry.—*Improved Machines for Crimping Paper for Sticking Pins.*—Patented September 11, 1855. (Plates, p. 54.)

The crimping clamps *b* b^1 are hinged together at their upper end and connected to a lever *c*, which latter (in connexion with suitable side guides) imparts to the clamps an intermittent vertical movement. The clamps are kept open by a spring, and closed at the proper time during their descent by projecting guides *e*. The semi-circular recesses *f* are for the purpose of receiving in between the clamps a former or rod *g*, round which the paper is compressed by the clamps in closing, and serve as a bed or stop for the paper, to enable the clamps to give the requisite crimp to the paper. This former is operated so as to be withdrawn from between the clamps and paper after the crimp is made, and at the proper period to advance across and occupy the position for its reception between the clamps to effect the crimping.

The paper is represented in the engravings by a strong broken line.

I *claim* the use of the hinged clamps *b* b^1, or equivalents, operating together with the folding rod or former *g* to crimp the paper, substantially as set forth.

No. 13,785.—Thaddeus Fowler.—*Improvement in Separating Pins.*—Patented November 13, 1855. (Plates, p. 54.)

The pins are thrown into pan H, which has a shaking motion, which will cause the pins to slide down on to the endless apron F; this apron receives, by any well known mechanical means, a longitudinal as well as a lateral oscillating or rocking motion. The two wire points *i* are so near the apron that a pin cannot pass under them, and so near to each other that a pin lying crosswise of the apron must come in contact with one of the points, and thereby be turned lengthwise of the apron: so that if it is straight, it will roll off; but if crooked, it will pass down to the box C. Thus the imperfect or crooked pins will be separated from the perfect ones.

Claim.—The method of separating the imperfect from the perfect pins by the use of an endless apron, having both a longitudinal and a lateral oscillating or rocking motion, when constructed and made to operate substantially as described.

No. 13,175.—Friedrich W. Hoffman and Charles W. Gustav Fordan.—*Improvement in Machines for Making Rivets.*—Patented July 3, 1855. (Plates, p. 54.)

The upper jaw 27 is secured to the frame of the machine, while the lower 26 slides on the inclined plane of piece 28; the downward motion of 26 is produced by arms 29 fixed on knife-frame 30. This movement of the lower jaw is for the purpose of preventing the bar (passed in through 21 and between jaws 23 and 24) from bending during the process of cutting off, it (jaw 26) being in the same plane with 24, and quite near to it. It likewise allows the the finished rivets easily to be pushed out of the die. The chamfer or knife 25 forces jaw 26, with the piece of iron just cut off, up the inclined plane, and against jaw 27, both acting like a vice and keeping it in its proper place during the process of making the head on it. As soon as the rivet head is finished, the arms 29 press the movable jaw down the inclined plane, the advancing bar pushing the finished rivet easily out of jaw 26.

Claim.—The knife 25 so arranged in relation to the lower jaw or jaws, and the header, that while it serves as a cutter it also moves up the inclined plane jaw, and forms a solid support for the rear end of the blank during the making of the head, as set forth.

No. 12,837.—Andrew Jackson Suffern.—*Improved Machine for Rolling Railroad Rails.*—Patented May 8, 1855. (Plates, p. 54.)

The nature of this improvement is apparent from the figure.

Claim.—The employment of three rollers in combination, arranged with their axes in the lines of an equilateral triangle, each roller having a projecting fillet and a groove each side, and the three working in unison, substantially as herein specified, for rolling three-tread rails; each roller forming the surface from the middle of one tread to the middle of the next, and the groove between of such form that each head or tread may be wider than the thickness of the shank, as set forth.

No. 12,500.—Wm. E. Arnold.—*Improved Sash Fastener.*—Patented March 13, 1855. (Plates, p. 54.)

B is the bolt with the curved shank B^1, which is confined between the projections *b* and *c* of slide S. As the bolt is prevented by the edge of the casing from moving vertically, a vertical motion of slide S will produce the positions of the bolt represented in figs. 6 and 7. The tumbler T has a pin P which passes through slot *m*; while a notch *n*, which slips on to the projection *e* on slide S, enables it to have a slight angular motion, of which *e* is the centre. The upper edge of the tumbler bears against projection X when a vertical pressure is exerted againt pin P, which will enable this pressure to move the slide S and consequently the bolt. The notch *n* and pin P mutually act as pivots to each other. Force applied to the bolt will act on the tumbler through slide S and projection *e*, and will consequently tend to bring the projecting angle *g* of the tumbler into one of the notches *h* in the casing, when all further movement will be effectually prevented. But a vertical pressure on pin P will produce a rotary movement in a contrary direction, tending to release the tumbler from notch *h*, and allow it to act freely on the slide through projection X.

Claim.—The arrangement of the bolt B traversing in guides, the slide S, and the tumbler T, in relation to the case and the notches *h* herein, as set forth.

No. 12,710.—William E. Arnold.—*Improvement in Sash Fasteners.*—Patented April 17, 1855. (Plates, p. 54.)

Bolt B fits loose on slide W, and can be inserted as shown either in figure 5 or in figure 6. The bolt being in position figure 6, and the

slide being moved downwards, the bolt will assume position figure 7 and figure 1, and lock the sash. Any pressure on the outer end of bolt B (figure 1) will merely press the slide against the opposite side of the case, but can produce no vertical motion. As the slide is raised, however, by means of knob D, the outer end of the bolt yields to the pressure and moves inward.

Claim.—The mode, substantially as herein set forth, of constructing and arranging a slide bolt and case, so as at pleasure to form either a right or left hand lock, the security also of said lock being attained by means substantially as described.

No. 13,491.—ASAHEL GILBERT, Jr.—*Improved Sash Fastener.*—Patented August 28, 1855. (Plates, p. 54.)

The nature of this invention will be understood from the claim and the figure, which represents a horizontal section through the lower sash frame.

I *claim* the hinged cross-bars *c c*, having split knob handles, serving to disengage the fastening in both sides of the sash, and to raise and lower the sash.

No. 13,656.—WILLIAM PATTON.—*Improved Sash Fastener.*—Patented October 9, 1855. (Plates, p. 54.)

A, is part of a window frame. B, the sash. C, is the sash fastener, composed of two hooked arms *a* a^1, projecting from shaft *b*, which turns on pin *c*. D, metallic frame screwed to the window frame at 1 1. *d* d^1 are staples driven into the sash. Hook *a* catches into staple *d*, when the sash is lowered, and thus locks it when down. Hook a^1 takes into one of staples d^1, and holds the sash any height, varying with the height or distance apart that the staples are set at.

Claim.—The arrangement of the self-acting catch or holder, with its staples on the outside of the window frame and sash, so that it may be more easily placed upon any window without taking it out of the frame, or be readily repaired, and to prevent the cutting away or mortising of the frame or sash, as represented.

No. 13,177.—JOHN LOUDON and OTTO AHLSTROM.—*Improvement in Screw Fastenings.*—Patented July 3, 1855. (Plates, p. 55.)

This improvement consists in constructing either a bolt-head or nut, as the case may require, so that the screwing up of the nut or bolt, as the case may be, causes the bolt-head or nut to expand for the purpose of making it fit tightly within an opening in which it is received, and prevent its drawing out.

Claim.—1st. Constructing the head of a screw-bolt of fixed wedges or inclined pieces *a a*, and loose expanding pieces *b b*, whereby the act of screwing up the nut is caused to expand the said head, for the purpose of making it fit tightly in a suitable cavity or hole in which it is placed, substantially as herein described; or what is equivalent, constructing the nut with the said fixed wedges or inclined pieces, and expanding side pieces, so that by screwing in the bolt, it may in the same manner be expanded to fit tightly within a suitable cavity.

2d. Forming the fixed wedges *a a* or inclined side pieces of the bolt or nut up the sides of the bolt, as illustrated in figures 1 and 2, and herein described, so as to get a great length of bearing for the expanding pieces, with a small sized bolt-head or nut.

3d. Confining the expanding pieces *b b* to a bolt or nut, by means of an elastic ring *c*, substantially as described, which keeps them always in condition to use on the bolt or nut, and which allows them to expand and to remain parallel during their expansion, and contracts the collar when the nut or bolt is unscrewed, and allows the bolt or nut to be removed.

No. 13,767.—ELLIOT SAVAGE.—*Improvement it Arranging and Feeding Screw Blanks.*—Patented November 6, 1855. (Plates, p. 55.)

Hopper A has one or more of its inner sides arranged at an angle with respect to the inner surface of a reciprocating slider B, as seen in the drawings; such slides serving to constitute one side of the hopper or receiver A, and also one side of the long opening or space D extending out of the bottom of the hopper, and into a passage or channel E formed betweent he parallel plates *c d* projecting down respectively from the receiver or hopper and the slider, as seen in the drawings, and leading into an inclined conductor or spout F, disposed as seen in the figures. The said inclined conductor is provided with a long slot or passage *f*, which communicates at its upper end with the channel E, in such manner that the screw blanks may be made to pass out of the said passage and into the inclined conductor, and take positions as represented at *g g*.

The slider B, when the machine is in use, is to have a reciprocating rectilinear movement imparted to it, it being adapted to the hopper in such manner as to admit of such a movement. There is affixed to the hopper a spring or presser H, which is arranged and made to press against the outer surface of the slider, as seen in the drawing, its arrangement being such as will allow and cause the slider to be pressed up against the screw blanks when it is moved forwards, and to give or move away a little therefrom during its backward movement; the same being to facilitate the forward movement of the screw blanks through the passage E and into the conductor.

In operating with this machine, a quantity of screw blanks is thrown promiscuously into the hopper. This done, the slider is to be put in motion forward and backward. By its friction against the mass of blanks, it will cause some of them to fall downward and extend through the openings in the hopper, and to stand in vertical directions, and be supported by their heads resting against the two opposite inclined sides of the hopper.

By the continued movement of the slider, the blanks will be moved through the passage, and successively caused to enter the inclined spout

or conductor F, through which they will be made to travel by their gravitating power, each maintaining its vertical position while passing longitudinally throughout said conductor.

Claim.—The combination of the reciprocating slider B, the receiver or hopper A, and the inclined conductor F, the same being arranged and made to operate together, substantially as specified.

Also, combining the spring-presser H with the slider and hopper, so as to cause the slider to operate laterally with respect to the screw blank, as explained.

No. 12,931.—John Henry Wygant.—*Improvement in Spikes.*—Patented May 22, 1855. (Plates, p. 55.)

The offset B on spike A serves, just before the locking piece C is driven entirely home, to bend or curl its end, (see figure 1,) and thereby cause it to take a lateral instead of a vertical direction, and, consequently, to take a firm hold in the wood and thus lock the spike firmly in its place.

Claim.—Providing a spike A with a level or inclined offset on one of its sides, and employing, in connexion with the same, a light metal bar or locking piece C, substantially as and for the purposes set forth.

No. 13,535.—Amos Whittemore.—*Improvement in Spike Machine.*—Patented September 4, 1855. (Plates, p. 55.)

Roller e^1 is pivoted in the forked end of beam f^1, which beam is pivoted to carriage *e*, to which latter the header *f* is attached. The roller e^1 moves forward, together with the beam, carriage, and spike, and at the same time receives a downward motion by means of rollers *j j*, (set in standard h^1,) against which rollers the bevelled end f^1 of the beam strikes during its forward motion; thus the roller e^1 will press the end of the spike between it and the inclined surface i^1, rendering the point of the spike thus formed the most compact and dense part of the spike.

I *claim*, pointing the spike by means of the inclined bed *s*, the advancing roller e^1, the inclined surface *f*, and the pressing roller *j*, as set forth.

No. 13,945.—A. M. George.—*Improvement in Spike Machines.*—Patented December 18, 1855. (Plates, p. 55.)

The bar A^1, from which the spikes are formed, is placed between the two jaws B B^1, the end of the bar bearing against the die D, which at this time serves as a stop. Motion being then given to the shaft F, the jaw B will be moved by its cam E towards the stationary jaw B^1, the back ends of the jaw grasping the bar. The toggle C is then operated by lever D^1 acting against roller *c*, and the die D is moved forward and forms the proper head upon the spike; while the lever I is moved outward from the jaws by roller *f*, and the cutter *k* cuts the blank off obliquely from bar A^1, and the oblique end is properly bent as the jaw B closes against B^1. The obliquity of the cutter *k* is regulated by

changing the positions of the pivots *e i*, which may be done by turning cylinders G H in the jaws. The cutter is returned by means of lever J acted upon by cam E.

The inventor says: I do not claim the jaws B B^1, nor the toggle C, with the heading-die D attached; for they have been previously used.

But I *claim* the friction-roller f^1, and lever I, to which the cutter K is attached, when said roller and lever are placed upon adjustable centres or pivots, or rods *e i*, arranged substantially as shown, for the purpose specified.

No. 13,841.—Dennis S. Blue.—*Improvement in Blacksmith's Striker.*—Patented November 27, 1855. (Plates, p. 55.)

By applying the foot to the treadle *g*, which connects with rods *n*, and the rods being attached to the ends of the rocking-shaft *r*, by means of slots *q*, the hammer Y is actuated. The slotted parts *j* of the treadle admit of increasing or diminishing the stroke in the application of the foot; for a slight forward or backward pressure will move the treadle forward or backward, and thus shorten or lengthen the leverage.

Claim.—In the construction of the blacksmith's striker, the use of slotted lever-treadle, the slotted lever, and the rock-shaft, substantially as described.

No. 12,219.—Wm. J. Stevenson.—*Improved Apparatus for Soldering Tin Cans.*—Patented January 9, 1855. (Plates, p. 55.)

The clamps E F being open, (as indicated by dotted lines *x x* in fig. 3,) the tin can *g* is fitted on mandrel A B, the section B of the same being thrown forward, (by bringing lever C into position indicated by a dotted line *z*, in fig. 2,) so as to fill the interior of the can. The clamps E F are then brought together, (see fig. 1,) the strip of solder *m* is laid in the channel between the edges of the clamps and melted by a soldering iron. When the solder has cooled, the section B is again withdrawn and the can removed.

Claim.—1st. The manner herein described and shown of constructing the upper extremities of the jaws of the clamps, for the purpose of forming a groove or channel to receive a strip of solder and confine it where its presence is required after being melted.

2d. The manner herein shown of interposing a strip of wood D between the cold iron of the mandrel and the lap forming the joint or seam of the can, for the purpose of preventing the solder being cooled too rapidly after it has been melted.

No. 13,392.—Jno. L. Irwin.—*Improved Mode of Securing Tires upon Wheels.*—Patented August 7, 1855. (Plates, p. 56.)

Claim.—Attaching or adjusting tires to wheels by having the ends of the tires bent so as to form lips or projections *a a*, through which a screw-bolt C is passed, for the purpose of drawing the ends of the

tires together, and fitting the same tightly to the felloes or rim, the rim having a recess *d* made in it to receive the lips or projections and screw-bolt, the recess being covered by a cap D, substantially as shown and described.

No. 13,256.—Jno. Fraser assignor to Logan, Vail, & Co.—*Improvement in Adjustable Vices.*—Patented July 17, 1855. (Plates, p. 56.)

The vice, when set for griping taper-shaped articles, is represented by dotted lines.

The inventor says: I am aware that adjustable vices have been previously used; but the jaw only has been arranged so as to turn, the screw remaining stationary, and, consequently, they operate very imperfectly, as the line of pressure and the axis of the screw were not in line.

I do not claim, therefore, an adjustable vice, irrespective of the construction shown.

But I *claim*, having the screw F, which passes through the movable jaw E, pass through a nut G so arrranged as to turn, and cause the screw and movable jaw to turn when wedged or taper-shaped articles are to be held, so that said jaw E will conform to the obliquity or taper form of the articles, and cause them to be securely grasped by the jaws.

No. 13,489.—Robt. W. Davis and Daniel Davis.—*Improved Vice.*—Patented August 28, 1855. (Plates, p. 56.)

The article to be griped is placed against the face of the stationary jaw A, and the movable jaw B is brought into contact with it simply by pushing it up, since the pawl M permits the movement of the beam in that direction; pawl M will hold the jaw close to the article within a distance less than that between two adjacent teeth of the ratch *a*. A partial turn of cam E then immediately wedges the jaws against the article with great force. By reversing the cam the article is again set free; and by lifting the arm P, and thereby throwing the pawl down away from the ratch, the jaws can be drawn apart.

The inventors say: We are aware that parallel vices have been heretofore constructed with cross levers and ratchet movement; and do not claim merely such as our invention.

But we *claim* an improved arrangement of the sliding ratch-beam C, pawl M, and the detachable weighted key P, and the cam E, all constructed and operated substantially as described.

No. 13,681.—Jasper Johnson.—*Improvement in Vices.*—Patented October 16, 1855. (Plates p. 56.)

Before inserting the article X between the jaws, the lever F is sufficiently elevated to cause the spring *n* to enter a slot in stud *m*, the effect of which is to lift pawl *i* into recess *r*, and leave rack E free to move. Jaw B is then drawn out and X inserted, the jaw B at the same time

closing by its weight. The hand of the operator is then placed upon knob H, causing it to drop, and pawl *i* to engage the rack-bar E. A slight pressure on the knob will cause the pawl to draw powerfully on the rack-bar and compress X between the jaws.

The inventor says: I disclaim the construction of vices where a distinct adjustment is requisite for grasping the article previous to the tightening of the jaws by lever power, as in the patented vice of *Cove*, and the rejected vice of *Pardee*; such constituting no part of my invention.

But I *claim* the combination of lever F *f i*, swinging lugs *l*, and rack E, with one jaw A fixed and one movable, in the direction of the rack, arranged and operating as specified, to grasp and tighten by one continuous movement of jaw B, and admitting of change of capacity without adjustment therefor.

No. 12,275.—Henry A. Frost.—*Improvement in means of holding Window Blinds.*—Patented January 23, 1855. (Plates, p. 56.)

Fig. 1 represents a front view of the blind and apparatus; fig. 2 a plan of the same.

Claim.—The application to window blinds of a semi-circular spring rod E, which may bear upon a wide staple D D beneath the blind C, which acts upon it at all times, as described, so that the blind may be retained in any desirable position.

No. 13,570.—Wm. Grover.—*Improvement in Cutting Wire.*—Patented September 18, 1855. (Plates, p. 56.)

The wire W to be cut is placed in one of the slots *a*, which corresponds in size to the wire, the stop E having been previously set, if pieces of the same length are required. The wire is cut by pressing the handles together, which causes the slots *a* in the two plates B B to cross or pass each other.

I *claim* the use of the circular plates B, having radial slots A formed thereon, for the purpose of holding and cutting wire, together with the gauge E, constructed and operating in the manner prescribed.

No. 13,651.—William Lincoln.—*Machine for Making Wire Dish Covers.*—Patented October 9, 1855. (Plates, p. 56.)

The carriage D with the dies A B being removed from table G, and the gauge *l*, as well as the follower B, being withdrawn from cup-die A, a sheet of woven wire, perforated through its centre, is laid upon the top of die A, and with spindle C extending through its perforation. The follower B is then placed on spindle C and forced down thereon, so as to press the sheet of woven wire into the required form. The gauge hoop *l* is then inserted in the upper part of A, and that part of the wire sheet projecting above the gauge is removed with a pair of shears. Next the rim *r* is fitted upon that part of the wire sheet which

extends above die A. The carriage D is then brought up into gear with pinion *o*, so as to introduce the rim *r* between the leading rollers U U; next the screw V is to be turned so as to compress the rim between the rollers. This done, the crank T is revolved, such causing the carriage D to turn about and to carry the whole of the rim around between the rollers, and bead it so as to fasten it firmly to the woven wire extending into it. The guide can be lifted (by means of a lever) into the position represented in the engravings, so that it projects into space *b* and rests against the side of it, so as to maintain the carriage D in gear with pinion O.

Claim.—The combination of rotary forming and holding dies A and B, with beading mechanism applied to operate therewith, substantially as described.

Also, the guide spindle C, in combination with the cup-die A and follower B, substantially as described.

Also, the carriage D, the guide H, the gearing *a o*, and shaft K, as combined with the dies and beading mechanism.

Also, combining with the cup-die A the movable gauge top *l*, the same being in the manner and for the purpose as specified.

No. 12,198.—Chas. G. Everitt.—*Improvement in Ratchet Wrenches.*—Patented January 9, 1855. (Plates, p. 57.)

By taking hold of nut *h*, the pawl *d* (which is constantly pressed towards the ratchet-teeth by means of spring *e*) can be slid in or out of gear with the ratchet; and by screwing up the nut, it may be fixed in either position.

The inventor says: Though I do not claim of itself the form of the ratchet-teeth as represented,

I do *claim*, the employment of the application to a wrench of a ratchet of such form, and a sliding stop, acting as described, to stop or set free the said ratchet at pleasure when the wrench is used for tapping.

No. 12,410.—Samuel H. Noble.—*Improvement in Screw Wrenches.*—Patented February 20, 1855. (Plates, p. 57.)

When the nut (for instance a four-sided one) has been turned one-fourth of the way round, instead of taking off the wrench and reapplying it to the next side of the nut, the thumb is pressed upon the thumb-piece A and pressed downwards against spring *h*; the part *b* rises then out of the notch *c* of the cylinder, and by slightly pressing the wrench (to wit, the adjustable jaw of it) against the nut, the said jaw will move backward against the spiral-spring *e*, and allow space between the jaws of the wrench sufficient to pass over and around the corners of the nut. By removing the thumb from the piece A, the spring *e* will push out the movable jaw, and the spring *h* will lower the part *b* into the notch *c*, and lock the wrench ready to turn the nut the next fourth of the way round.

Claim.—The application of the spiral or other spring, as seen in fig. 2, part *e*; the thumb-piece, part A, *g b*, and the spring under the thumb-piece, part *h*, in such a manner to the common screw of screw wrench, as to create a backward and forward self-adjusting motion of adjustable part of screw wrench now in use.

No. 12,510.—Jos. Hyde.—*Improvement in Screw Wrenches.*—Patented March 13, 1855. (Plates, p. 57.)

This wrench is to be used for grasping angular as well as round forms. The movable jaw D is brought up to the piece *d* to be grasped and held there by pressing H inwards, which will cause the cam G to bind against the shank B. By turning then the wrench in the usual direction, (see arrow fig. 1,) the piece will be grasped between jaw A and gripper E; and the greater the force exerted in turning the wrench, the greater will be the holding force upon the piece; because the piece, as the wrench is turned, has a tendency to turn the gripper upon its pivots *a*, as indicated by the dotted arrow in fig. 1.

Claim.—The auxiliary jaw or gripper E applied to, or inserted within, either the stationary or movable jaw of a hand or screw wrench; said jaw or gripper being constructed and arranged as shown, or in an equivalent way, so as to bind or press the article between it and the stationary jaw with a force proportionate to that exerted in turning the wrench, as set forth.

No. 12,590.—L. D. Gilman.—*Improvement in Screw Wrenches.*—Patented March 27, 1855. (Plates, p. 57.)

The wrench being adjusted and set for use by means of an eccentric E, which, acting upon a strap of the toothed adjustable plate D, causes its teeth to lock with the shank teeth, thereby holding the jaw of the wrench firm. *d* are springs which press the toothed plate back clear of the teeth of the shank as soon as the eccentric is brought back from the position represented in dotted lines, into the position shown in full lines.

The inventor says: I make no claim to the teeth on the sliding bar of the wrench.

But I *claim* the arrangement of the adjustable toothed plate with its springs, the toothed adjustable jaw, and the eccentric with its strap attached to the toothed plate; the several parts being operated in the manner as described and shown.

No. 12,935.—Francis S. Coburn, assignor to Ruggles, Nourse, & Co.—*Improvement in Screw Wrenches.*—Patented May 22, 1855. (Plates, p. 57.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Arranging and combining with the angular recessed head C of a handle A, a movable notched jaw, operated in manner with

respect to the recess of the head, and by means, substantially as described; the same rendering the wrench adjustable to nuts or screw-heads of different sizes, and capable at the same time of embracing them on their four sides.

No. 13,120.—CHARLES B. BRISTOL.—*Improved Wrench.*—Patented June 26, 1855. (Plates, p. 57.)

The nature of this improvement will be understood from the engravings.

Claim.—The combination of the disc with the stock and binding pin, when the whole is constructed, arranged, combined and made to operate, substantially as described.

No. 13,221.—BENJ. F. JOSLYN.—*Improvement in Slide Wrenches.*—Patented July 10, 1855. (Plates, p. 58)

The nature of this improvement is apparent from the claim and engravings.

The inventor says: I do not claim making a slide wrench with one part or jaw sliding in the other, and surrounded by a nut, as such.

But I *claim* the nut E surrounding both parts of the jaws, and long enough to give the required motion, with a thread on its inside working in the edge of part B; the part A surrounding the part B, with the slot from C to D, as described, and the part B sliding in A, with a thread on its projecting edge to receive the nut E; the whole arranged as described for the purposes set forth.

No. 13,388.—ALDEN GRAHAM.—*Improved Wrench.*—Patented August 7, 1855. (Plates, p. 58.)

By turning ring C the jaws E are operated, either end of the jaws being made to grasp the nut or article to be turned; and the handle A may be moved in one direction without turning the plates D and jaws E, as the pawl *h* will slip over the teeth *g* in plate D; but, when moved in the opposite direction, the pawl will take along the plate D and the jaws E, to turn with the handle.

The inventor says: I do not claim the arrangement of a plate provided with ratchet teeth, in which a pawl catches, so as to allow the implement to be operated without removing it from the nut or other article to be turned; as ratchet wrenches have been previously used.

But I *claim* fitting the jaws E, when turning on pivots in the slot, and operating the same by a ring C, having a screw thread *a* on its inner surface, to work between threads *f* cut on the outer surface of the jaws, in the manner and for the purpose set forth.

No. 13,456.—JOHN D. DALE.—*Improved Wrench.*—Patented August 21, 1855. (Plates, p. 58.)

When it is designed to turn a nut to the right, the hub F is inserted in its opening from the upper side, as in figure 1, and the jaws D are made to grasp the nut by turning the plate E^1, with the worm E on its lower surface, to the left. A vibrating motion is then given to the lever K with one hand, while the handle A is held with the other hand, which causes the hub F to move correspondingly, and to alternately move the ends of the pawls G G^1 against the ratchet teeth of B^2.

When a nut is to be turned to the left, the hub F is taken out and inserted from below, when the movements will be reversed.

I *claim*, 1st. The combination of the reversible flanged and winged hub F and pawls G G^1, with the upper and lower ratchet wheels B^1 B^2, constructed and operated as described.

2d. The combination of the angular jaws and worm plate F, or their equivalents, with the upper and lower ratchet wheels B^1 B^2, and the mechanism giving them a continuous motion either to the right or left.

No. 13,597.—HENRY J. BEHRENS.—*Improvement in Wrench.*—Patented September 25, 1855. (Plates, p. 58.)

When the jaw *b* is pressed back by the strain, there is but a small amount of friction upon the eccentric *c* to carry it back, while its serrated periphery holds upon the wrench bar, increasing its holding power with any increase of strain; and when the strain is removed, it allows an easy and expeditious release, so that the jaw can be moved back and forth by one hand.

Claim.—The employment of an eccentric, toothed on its periphery, and held down by a spring, as described, in combination with the smooth bar wrench, in the manner and for the purpose herein set forth.

No. 13,617.—Jos. HYDE.—*Improvement in Screw Wrenches.*—Patented October 2, 1855. (Plates, p. 58.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—The eccentric shaft *e* and thumb piece *c*, as they are arranged in relation to the screw *b* of the movable jaw, so that the screw may be thrown in and out of gear with the bar, and the jaw be moved by sliding it on the bar or through the turning of the screw, as set forth.

III.—FIBROUS AND TEXTILE.

No. 13,391.—LIVERAS HULL.—*Improvement in Braiding Machines.*—Patented August 7, 1855. (Plates, p. 59.)

Underneath each of the bobbins F of a common braiding machine, and applied to the racer frame D so that it may play freely upward and downward, is a weight K suspended by means of a hook to the thread *b* that proceeds downward from the bobbin; the thread, after leaving the hook, passes up through an eye *c* in the racer frame, and thence towards

the centre of the machine. The object of these weights is to maintain an equality of tension upon the thread during the eccentric movements of the racer. By applying the weights to the racer, (and not to the bobbins, as was usual heretofore,) no thread guides between the bobbin and weight are necessary, and there is no lifting action upon the bobbin, while it and the weight are freely exposed in order to enable the attendant to mend broken threads with facility. During the elevation of the weight it will be carried against this lower arm of lever pawl H, releasing said pawl from the bobbin ratchet G, and thereby permitting the bobbin to revolve and give out thread; the revolution being effected by the gravitation of the weight. As soon as the weight falls away from the pawl, the latter will be forced against its ratchet by the contractile power of spring I.

Claim.—The arrangement of the bobbin, the pawl, and the weight within the racer, or with respect to one another therein, substantially as described, the same presenting advantages as specified.

No. 13,719.—LIVERAS HULL.—*Improvement in Machinery for Braiding.*—Patented October 30, 1855. (Plates, p. 59.)

The thread *f* from the bobbin is first carried directly through the tubular journal C; from thence it is bent towards the periphery of the pulley turned underneath the hook *a* thereof; thence wound one or more times entirely around the pulley, or in the groove of its periphery, and thence carried upward and through an eye *g* made in the frame of the racer. From said eye the thread extends to the whip or point where the braiding is to be performed. During the eccentric travelling movement of the racer, while the braiding operation is being carried on, the draft on the thread will cause the pulley to rotate or give way, and wind up the spring coiled within it. When the racer approaches the central part of the braiding machine, the retractive power of the spring E will rotate the pulley or turn it backward, so as to cause it to take up the slack of the thread and maintain the thread properly extended. When the draft on the thread becomes sufficient to carry the stud *b* around against the lever pawl F with force sufficient to tilt it, and throw it out of action upon the ratchet, the bobbin will be relieved and will be caused to turn by the draft on the thread, so as to give out more thread as soon as the bobbin commences to rotate. The spring, being relieved from the draft on the thread, will turn the pulley backward, and not only take up the thread given out from the bobbin, but move the stud *o* away from the lever pawl, so as to permit the spring *e* of said pawl to force the pawl up to the ratchet and arrest the rotary movement of the bobbin.

The inventor says: I do not claim combining with the racer and its bobbin machinery for taking up the slack of the thread, and causing the bobbin to give out or deliver thread, as the same may be necessary.

But I *claim*, arranging and applying a rotary spring-pulley and a tripping steed, or its equivalent, and tubular guide-journal with respect to the bobbin and its spring pawl, and so as to operate therewith substantially as specified.

No. 12,469.—HORATIO N. GAMBRILL and SINGLETON F. BURGEE.—*Improvement in Carding Machines.*—Patented February 27, 1855.—Patented in England August 22, 1854. (Plates, p. 59.)

D¹ D, D¹ D are two pairs of lap-rollers, and E E¹, E E¹ two pairs of feeding-rollers, by which the lap is fed to the cylinder A at two points, so as to furnish the lap in thin sheets to the cylinder, without increasing the velocity of the feed-rollers, or causing the card-teeth to pass through so thick a fleece.

The cam F works shipper G, the lower end of which straddles the endless belt H, which passes around two conical pulleys I J. Pulley I receives its motion from cylinder A by means of pulley and belt K L, and transmits motion through belt H to pulley J. The two cone pulleys stand in a reversed position in relation to each other. When the belt H is equi-distant from the extreme ends of the pulleys, the relative velocities of the peripheries of cylinder A and stripper M are the same; but as cam F revolves, the shipper G carries the belt back and forth from end to end of the cone pulleys, thereby changing their relative velocities; so that half the time the cylinder A is stripping the stripper M, and during the other half of the time the stripper M is stripping the cylinder A.

Claim.—The application of two or more sets or pairs of feeding rollers to the working cylinder of carding engines, substantially in the manner and for the purpose set forth.

Also, the reversing of the relative velocities of the peripheries of the main working cylinder and stripper M, at intervals, by an automatic movement, for the purpose of cleaning or preventing the clogging or packing of the main cylinder, substantially as described.

No. 13,395.—JOHN G. MCNAIR.—*Improvement in Manufacturing Carpets.*—Patented August 7, 1855. (Plates, p. 59.)

The object of this invention is to produce a fabric having a figure on the two surfaces like ingrain carpets, with the colors reversed, but without a figuring warp. Figs. 1 and 2 are views of the upper and under surfaces of the fabric; fig. 3, a longitudinal, and fig. 4, a cross section; *a*, threads of the warp operated by a jacquard or other figuring apparatus; *b*, binding in warp of finer thread, operated by the usual harness, to be operated once for each throw of the shuttle; *c*, the woolen weft, mounted in two shuttles operated alternately, is, one or both, party-colored.

Claim.—The fabric, substantially as described, by the double wefts, one or both of which is party-colored, in combination with the two sets of warps, one to divide and ingrain the wefts, and the other to bind in the wefts, substantially as and for the purpose specified.

No. 13,702.—SAMUEL FAY.—*Improvement in Finishing Carpets.*—Patented October 23, 1855. (Plates, p. 59.)

The carpet B is wound upon shaft *c*, power being applied to pulley C, Shaft *d* may be operated by a crank or otherwise, and when it is de-

sirable to lift the pressure roll S (weighted down by weight *w*) from off the carpet roll, for the purpose of taking the latter out, the carpet is wound tight upon the roll without being unduly stretched.

Claim.—Giving to woven figured fabrics, such as carpets, the finished appearance derived from the application of heavy pressure, whilst placing the goods in a roll for convenience of transportation, and without distorting the pattern by an irregular undue stretching of the fabric, substantially as described.

No. 13,018.—O. B. Tomlinson.—*Improvement in the Manufacture of Ornamental Felt Cloth.*—Patented June 5, 1855. (Plates, p. 59.)

After the batting has had the colored wool, to form the design, placed upon its surface, (fig. 1,) the sheet of batting is to be hardened to enable it to be handled while it undergoes the shrinking process. It is hardened by wrapping it in a cloth which is sprinkled with water, and placed upon a hot iron plate so as to raise the moisture into steam. It is then ready to undergo the shrinking or felting operation. The latter process fixes the colored wool among the uncolored wool in the batting, so as to form part of the body of the felt, (see fig. 2,) and thus an article is produced superior to printed fabrics.

The inventor says: I do not claim the incorporation of rovings of different colors in the manufacture of felt stripes, checks, or plaids.

But I *claim* the manufacturing of ornamental felt fabrics by placing colored wool, fur, or any other shrinking substance, upon the surface of a sheet of batting, and shrinking the same colored wool, &c., into the body of the felt, in the manner substantially as described, to form an ornamental fabric of the character and quality described, for the purpose set forth.

No. 13,543.—Joseph D. Elliot.—*Improvement in Machinery for Folding and Measuring Cloth.*—Patented September 11, 1855. (Plates p. 59.)

The cloth (see strong broken line in the figure 2) passes over rollers A and B, underneath friction bar C, over roller D, and down to blades E E¹. The crank F imparts a reciprocating motion to the upper end of arm G. The pins K connect the blades E E¹ with the end of pitman H, and work through slots in the upper end of arm G, which slots allow the blades to adjust themselves to the increasing thickness of the pile of cloth on the table M. One end of the cloth is held by jaw L; the blade E carries the cloth to the jaw L¹, which is raised at the time the cloth arrives, and is pressed down immediately afterwards to take hold of the cloth. The blade E¹ then carries the cloth back to jaw L, where it is again clamped by the said jaw, and so forth. The blades turn on pivot K, and are guided by a rod N. The rod N is attached to the blades, and slides through a nut or swivel O, which latter is free to turn on a pivot attached to frame P.

I *claim*, in connexion with the pivoted vibrating blades E E. the rod and swivel, for causing said blades to make a half revolution during each vibration, substantially as described.

I also *claim* the friction bar or brake C, in combination with the rolls B D, for preventing the cloth, by the momentum of the blades, from paying off faster than it is folded, substantially as described.

No. 13,888.—Nathan Simmons.—*Improvement in Cloth-Stretching Rollers.*—Patented December 4, 1855. (Plates, p. 59.)

The discs A D B, turning loosely on shaft C, are braced together by rods E, which latter support the stretchers I H G F and I¹ H¹ G¹ F¹. These stretchers slide freely on the rods, and each set of stretchers is connected to cross-bar L, and one to the other by links K. Studs O, extending from the under side of each outer stretcher I or I¹, enter into, and are acted upon by, a grooved cam P or P¹ fixed upon the stationary shaft C. During half a revolution of the stretching roller, the stretchers I and I¹ will be moved (by means of said stud and cam) parallel to the axis of the roller, and away from the middle disc D; and during the succeeding half revolution, they will be moved back towards the middle disc. The several stretchers of each set will be moved consecutively, as the outer stretcher I or I¹, in moving outward, takes up the slack of one after the other; thus the cloth will be stretched width-wise, so that the first strain will be on the selvage, which will be followed by consecutive strains acting in a direction away from the middle of the cloth, and straining the cloth between the middle of it and each stretcher in action upon it.

Claim.—The cloth stretching roller or cylinder, imparting to its sectional stretchers, while the roller is in revolution, consecutive movements in one direction, or away from the middle of the roller, in the order as described, and by mechanism substantially as specified, or any mechanical equivalent.

No. 13,900.—James Baxendale.—*Improvement in Machinery for Folding and Measuring Cloth.*—Patented December 11, 1855. (Plates, p. 60.)

The end of the cloth is first attached to the hooks *i*, while the laying carriage D E is directly over said hooks. The nuts I I¹ are turned by hand to carry their nuts close up to the table A, and the folding rods are all raised by hand to upright positions; the carriage is then moved. Just before the carriage arrives at the other end, the dog *g* comes in contact with ratchet-wheel *e*, and turns the screw I far enough for the nut J to act upon the toe of the innermost of the set of rods *b b*, and cause the said rod to fall upon the cloth and hold it down flat upon the table. The laying carriage is then returned to the opposite end, and the cloth, being drawn tightly over the folding rod *b*, is caused to be again unrolled from the roll of cloth; and just before the carriage arrives at the end of this movement, the dog *g*¹ acts upon the ratchet-wheel *e*¹, and turns the screw I¹ far enough for nut J¹ to act upon the toe of the first rod *b*¹, which is thereby caused to fall upon the cloth. The next movement of the carriage will operate upon the second rod *b*, and the next movement will actuate the second rod *b*¹, and so forth

(the dog at each time acting upon the ratchet to move the screw far enough for the nut to act upon the toe of the next folding rod).

Claim.—1st. The employment of separate rods *b b b*^{1} *b*^{1}, for the several folds of the cloth, the said rods being arranged and operated to fall across the successive layers of the cloth as they are laid, by the movements of a suitable reciprocating carriage over the folding table, and to remain within the folds, till the folding of the whole piece is completed, substantially as set forth.

2d. The manner of operating the said rods *b b b*^{1} *b*^{1} to throw them from their upright positions across and upon the cloth, by means of the nuts J J^1 and screws I I^1, which are actuated by the movements of the reciprocating carriage, substantially as described.

No. 12,668.—Byron Boardman and George C. Sweett.—*Improvements in Machinery for Winding up Lines, Twist, or Cord.*—Patented April 10, 1855. (Plates, p. 60.)

Before the commencement of the winding, the sweep shaft D, the shaft F, and all the parts connected therewith, are in the condition represented in figures 1 and 2, and the pulley G to be disengaged; but the clasp rod U is raised to bring the clasp V *v* above the point of the upper hook B. The end of the line, which is represented in broken lines, supposed to be coming from a loose coil, enters the outer end of the shaft D, passes through the hole *a*, and from thence to and through the tube *b* of the sweep C. Before the machine is set in operation, the end of the line should be hitched to the lower hook. The machine is started by lifting the pawl K^1, and allowing the ratchet wheel K to be driven by the spring *q* so far in the direction of arrow 1 as to bring the pin *p* in contact with the upper side of the arm 7 of the lever J, which stops the ratchet wheel, and leaves the pulley G engaged with the sweep shaft, which, with the sweep, then commences to rotate in the direction of arrow 3, and to lay the line round the hooks B B^1. The laying operation continues until the ratchet wheel K has been moved so far in the direction of arrow 2 as to cause pin *m* to raise arm 7 of lever J, to disengage slide *i* from pin *k* of pulley G, and lock the sweep shaft, and to throw forward the lower arm of the said lever to operate upon lever 19, and draw back latch 16 to let fall clasp rod *u*.

The pulley G is loose on the sweep shaft, and carries on one side pin *k*, which, during the laying, catches sliding piece *i* on cylinder I, which is secured to the shaft. The slide is acted upon by spring *j*, which is coiled within the cylinder to force it in the direction of arrow figure 3, and bring part 6 in contact with the pin. When the pulley is to be stopped, the sliding piece has to be thrown back to allow part 6 to clear pin *k*. This is done by means of pin *m* of ratchet wheel K striking arm 7. Wheel K is secured to shaft F, and is engaged by tooth *n* on sweep shaft D; and, by this tooth, is caused to move one tooth during each revolution of the sweep, till *m* lifts arm 7 so as to meet end 8 of sliding piece *i*; after which, a slightly continued revolution of the cylinder causes the sliding piece to be thrown back to clear pin *k*.

The fall of the clasp rod beyond a certain point is prevented by the fixed jaw V of the clasp coming in contact with the stop 22, which then supports the clasp and rod. The clasp is arrested in the proper position to commence the woolding; and, just previously to the end of its fall, the pin *y* throws off the catch *w*, and allows wheel Q to engage with shaft P and set hooks B B^1 in motion.

Wheel Q is loose upon shaft P. The wheel is engaged with the shaft by means of a spring latch *r* pivoted at *s* to block S, which is secured to the shaft; point *u* of said latch catching one of two studs *t* on the lower side of wheel Q. Spring 10 holds the latch in operation. The disengagement of the wheel is effected by means of hook *w* pivoted to fixed bracket T, which catches the tail 9 of the latch, and holds its point clear of the pins *t*; but, during the woolding, the hook is kept clear of the latch, its tail being held by pin *y* attached to collar *z* on clasp-rod *u*.

The line passes under the clasp, which, with its rod, is raised as the woolding proceeds. The position of the sweep causes the woolding to be wound upwards, and the weight and resistance of the clasp, pressing upon the line, cause the coils to be regularly and closely laid. When the woolding has been performed to the desired height, the wheel Q is disengaged from shaft P by means of projection 35 on the side of the clasp rod, which projection, in passing catch *w*, moves it so as to catch the tail of latch *r*. The machine now stops. The clasp is opened by the attendant, and the clasp rod lifted high enough for the catch 16 to catch collar 17 and support it; and the line is taken from the hooks by the attendant, and secured at the termination of the woolding by a half hitch. The wound line or hank is then dropped through the hollow of the pivot L^1. and held by the clasp. By raising the pawl K^1 the machine is again started.

The length of the hank can be varied by adjusting the brackets M M^1 at different distances apart, the wheels O O^1 being fitted to shaft P with feather and groove. The length of sweep is adjustable by means of slot 34 and central screw. V *v* and 17 are also variable, to adjust the length of woolding.

Claim.—1st. The sweep composed, as described, of an arm C attached to a hollow shaft D, and carrying a hollow tube *b*, which is caused by the revolution of the shaft to lay round the fixed hooks B B^1 a line, cord, twist, or other fabric of similar character, which is conducted through the shaft and the said tube, substantially as herein set forth.

2d. So arranging, applying, and operating the sweep and the hooks, around which it lays the line or other fabric, that the hooks shall remain stationary, in a suitable position to receive the line or fabric, while the sweep revolves around them; and that the hooks, after the operation of the sweep terminates, shall rotate upon axes in line with each other, to perform the woolding, as herein fully described.

3d. Giving the tube *b* of the sweep a motion endwise, simultaneously with its revolution, by any means substantially as described, for the purpose of laying the line or fabric evenly on the hooks, and preventing its being laid in heaps.

4th. The manner of disengaging the pulley G, or its equivalent, which drives the sweep shaft, in order to stop the sweep at the proper time and in the proper position, by means of the sliding piece *i*, the lever J, and the adjustable pin *m*, in the ratchet wheel K, or its equivalent, deriving motion from the sweep shaft, all operating substantially as herein described.

5th. The rod U arranged and operating substantially as described, for either or both of the purposes herein set forth, viz: 1st. To carry a clasp V *v*, which regulates the woolding. 2d. To carry fins, pins, or other projections 35 and *y*, to operate a catch *w*, or its equivalent, to cause the engagement and disengagement of the gearing which gives revolution to the hooks to perform the woolding.

6th. The application to the clasp of a catch lever 15, operating substantially as described, to hold the jaws open during the laying operation, and to be caused to liberate them by the falling of the clasp to allow them to close ready for the woolding operation.

No. 12,845.—WILLIAM H. ZAHN, assignor to F. REUTER.—*Improvement in Plaiting and Twisting Cord.*—Patented May 8, 1855. (Plates, p. 60.)

The operation of this apparatus will be understood from the figures.

Claim.—The within described arrangement for driving the flyers, consisting of the circular rack *f* gearing, with their spur wheels *y y*; said rack being on a table B, which has a central pivot, through which the spindle C of the flyer frame passes, whereby the flyers are set in operation, whether the flyer frame or the table revolves, and are enabled to receive merely a rotary movement on their own axes for making twist, or such rotary movement, combined with a revolution round a common axis, for making cord, as herein fully set forth.

No. 12,920.—HENRY PEARCE.—*Improvement in Cordage Machinery.*—Patented May 22, 1855. (Plates, p. 61.)

The collar *m* and washer *n*, underneath the loose spur-wheel *i*, act as a break or rubber to the said wheel by pressure from below, transmitted by the plunger *o* passing up within the column *b* from the weighted lever *p*.

Figure 2 represents a section through the column, drawn on an enlarged scale.

Claim.—The arrangement of a friction or rubbing collar, operated by a plunger passing upward within the supporting stem *b* and the weighted lever, as described, or equivalent devices, for regulating the degree of facility of rotation of the bobbin spindles.

No. 13,564.—SAMUEL W. BROWN.—*Improvement in Machinery for Cleaning Cotton.*—Patented September 18, 1855. (Plates, p. 61.)

M is the dome or exhauster and N the grid, which prevents the cotton from being drawn off with the dirt. *b* is a dust-pipe which connects

with a cross-pipe Z, which contains a rapidly revolving fan for the purpose of drawing the dust from the cotton as it is driven along by the first beater E into the dome. R are several sets of secondary feed-rollers, supported by the arches N^2, which revolve and conduct the cotton from the dome to the second beater F in several different places, so that this beater will strike and more thoroughly agitate the fibres of the cotton.

First. I *claim* my within described dome, having a rack or grid in the upper portion of it, under which the cotton is thrown by the first beater, in connexion with the fan in the exhaust-pipe leading from the top of the dome, for exhausting the dust from the cotton as it is thrown forwards by the first beater, essentially in the manner and for the purposes set forth.

Second. I claim the use and application of two or more sets of secondary feed-rolls, in connexion with the beaters, which rolls take the cotton from the dome and deliver it to the second beaters in several different places, so as to completely separate and agitate the cotton, to straighten and even the fibres, and free the dirt from it, essentially in the manner and for the purpose set forth.

No. 13,862.—ERASTUS B. BIGELOW.—*Improvement in Cutting Pile Fabrics.*—Patented December 4, 1855. (Plates, p. 61.)

b is the rotating cutter; c^1 the double-woven cloth which is to be divided; *d d* delivery rollers; *e e* take-up rollers for drawing the two fabrics apart, and carrying them forward as the cutting operation proceeds.

Claim.—The employment of a rotating cutter, in combination with take-up rollers, substantially in the manner and for the purpose set forth.

No. 13,970.—JOHN HEALEY, assignor to JAMES BISHOP.—*Improvement in Woven Fabrics.*—Patented December 18, 1855; in England, November 17, 1846. (Plates, p. 61.)

The nature of this improvement consists in placing the weft-threads, which cross from one selvage to the other, in a diagonal position, or at any angle more or less than a right angle, with the warp, making thereby an elastic fabric when stretched in a line of direction corresponding with the shortest diagonal of the meshes.

The warp runs in a direction parallel with A A or B B; the direction of the weft-threads is represented by *a c*. The inventor states that he is about to apply for letters patent for a loom adapted to weaving the fabric described above.

Claim.—The improvement in the woven fabric described, in which the weft is placed in a diagonal position to the warp.

No. 12,343.—JOHN H. BLOODGOOD.—*Improvement in Manufacturing Seamless Felt Goods.*—Patented February 6, 1855. (Plates, p. 61.)

A bat of felting material A A is formed in every respect as for making ordinary felt cloth, and is placed upon the machine called the felter between two linen or cotton sheets. Above or below these sheets is placed a pattern B B of considerable thickness, of the shape of the article required, (the fig. represents the pattern for a coat body,) reducing so much of the pattern as may be deemed necessary where a union corresponding to a seam is subsequently to be effected; so that in those places a proper margin may be left, which margin, together with all other parts of the bat not directly embraced within the limits of the pattern, being protected from the action of the elter, in consequence of the interposition of the pattern, will remain nearly unfelted and soft; whereas those parts which are covered by or rest upon the pattern, will receive the whole action of the hardening plate. The bat being thus prepared with soft unfelted margins, the perfect union of the several parts is effected by felting, as in the old process of forming hat bodies.

The inventor says: I *claim* the method of forming the various parts necessary to the production of seamless articles of felt, by the use of a movable or stationary pattern, in the manner and for the purposes described.

But I do not claim the manner of forming the bat, or of uniting the several parts; as both are old and well known processes.

No. 12,863.—WILLIAM H. HOWARD.—*Improvement in Condensers for Fibrous Materials.*—Patented May 15, 1855. (Plates, p. 61.)

The guide plates G serve to keep the sliver down in contact with such portion of the faces as is necessary to produce the desired degree of condensation. These plates are attached to a series of levers, which work on fixed fulcrums *f*, and are all connected by a bar R. The plates are bent to fit to the sides *b b*^{1} of the discs C C^1. When they are in contact with the slivers, their curved form tends to prevent the slivers rising between the discs, and causes them to work down till they find a free place to move in. By moving the bar R to the right or left, so as to give the plates a greater or less inclination, the tendency of the sliver to rise is increased or diminished, and the condensation regulated.

The spool F receives motion by friction from drum E. As the spool receives the slivers, it keeps rising in the vertical guides *g g* on the framing, until the spool journals leave the fixed part of said guides and come in contact with the upper part of levers *h h*^{1}, which form movable continuations of the front part of said guides. These levers are hung loosely upon the shaft of drum E, the weight or bar N tending to keep them in an upright position, as shown in full lines in fig. 1. When the diameter of the spool has sufficiently increased, the journals lift the catches I, and the spool rolls down the drum E until it balances the bar N, when an empty spool is dropped into the fixed or lower part of the guides *g*. The full spool is then raised by hand and held over the empty one, (which now revolves with the drum,) until the slivers lap around it, and then it may be removed.

Claim.—1st. The combination of the several parts hereinbefore described, for conducting and condensing the fibrous material from the doffer D of a carding engine to the spool, to wit: the two sectional rolls D^1 L working in contact with each other, and the upper one D^1 in contact with the doffer, for doffing and conducting the sliver from the doffer. The two series of convex discs C C^1 mounted upon shafts S S^1, in front of and parallel to the said rolls, with the guide-plate G to govern the position of the slivers between the said discs, for twisting and condensing the slivers as they are conducted from the doffer to the spool, substantially as herein set forth.

2d. The manner of constructing the upper parts of the guides *g g* of the journals of spool F, to wit: making the outside portion thereof form parts of levers *h h*^{1}, whose operation is controlled by a bar or weight N and a catch I, substantially in the manner herein described for the purpose set forth.

No. 13,578.—RICHARD KITSON.—*Improvement in Machinery for Picking Fibrous Materials.*—Patented September 18, 1855. (Plates, p. 61.)

This invention refers to securing the teeth in the cylinders of picking machines.

e e are the locking pieces referred to in the claim.

I do not now claim, broadly, the application of a fan to the cylinder in any manner; as one method of applying a fan is embraced in my patent of October 31, 1854.

Without claiming here the use of a notched plate for securing the teeth to the cylinder, I *claim* casting or forming the notched plate with locking pieces, for the purpose of entering between the prongs *f f* of the teeth, into the grooves which are formed in the cylinder to receive the teeth, and fitting down to the bottom parts or crotches *g* of the teeth, and thus securing them in place.

No. 13,650.—JULIUS A. JILLSON and HENRY WHINFIELD.—*Improvement in Apparatus for Washing and Bleaching Fibrous and Textile Substances.*—Patented October 9, 1855. (Plates, p. 61.)

The liquid is placed in cylinder A, and the cloths in cylinder E, the bottom of which consists of a strainer F; D is a similar strainer. By working the force pump I, the cleansing liquid is forced and rotated through the cloths, and the latter are thereby thoroughly cleaned.

Vessel T is attached (by pipes provided with stop-cocks) to the pump, for the purpose of generating and passing (by opening said stop-cocks) into the cylinder A and E bleaching or disinfecting gases.

Claim.—Combining with a washing, extracting, or receiving chamber, the double-acting force pump and the disinfecting or bleaching vessel, operating substantially as and for the puposes set forth.

No. 13,636.—Jean Blanc.—*Improvement in Preparing Vegetable Fibre.*—Patented October 9, 1855.

The object of this improvement is to extract the fibre from the woody substance of the plants (to be used in the manufacture of cloth, thread, rope, and paper) without injuring the fibre as to its strength or beauty.

The inventor says: I do not claim burying the plants in either wet sand or mud, as described in the India process, found in the Agricultural Reports of the Patent Office for 1854, page 174.

Nor do I claim simply rotting the plants on end, with the butts down, as described in the Southern Cultivator.

But I *claim* the staking of the plants, butts down, in a pit dug for said purpose, and surrounding them with dry leaves or straw, with earth thrown around the same, thereby enclosing them entirely on all sides, leaving the top open and uncovered, as fully set forth.

No. 13,380.—Leander W. Boynton.—*Improvement in Machines for preparing Flock.*—Patented August 7, 1855. (Plates, p. 61.)

This improvement consists in fitting two or more brushes under the screen, and giving them both a rotary and a transverse reciprocating motion, to brush off all the particles of flock which would otherwise adhere to the under side of the screen to prevent clogging, and so that the flock will be distributed over the web with entire uniformity.

Claim.— The combination of the screen *a* with the brush or brushes, as A and B, when the brush or brushes have both a rotary and reciprocating motion, and the whole is constructed, combined, and made to operate, substantially as described.

No. 12,132.—Asa P. Keith.—*Improvement in Cotton Gins.*—Patented January 2, 1855. (Plates, p. 62.)

In addition to the openings through the centre of the brush heads, as previously patented, the inventor arranges another circular opening *c* farther out towards the circumference of each head, by means of a slanting cut through the head, having its circumference on the inside of the head larger than on the outside; this opening, like the central opening, being intersected by the arms *d* for the support of the outer rim. This slanting opening is to turn the current of air, which is drawn in by the rotation of the brush, outward between the lags near their ends next to the ceilings of the chamber; and in order to turn it still more, and regulate its exit through the lags forming the surface of the brush, there is placed a flange E on the inside of the brush head opposite the opening *c*. By these means the cotton is to be discharged cleanly from the ends of the brush into the lint room, and not permitted to choke the brush nor be thrown down on the floor in front of the mote board.

Claim.—The slanting circular openings through the brush heads, with the guide flanches on the inside, substantially as described.

No. 12,376.—Henry Clark.—*Improvement in Cotton Gins.*—Patented February 13, 1855. (Plates, p. 62.)

The rollers D D C are arranged together as near as possible without touching each other, in contact, however, with the friction roller E and the ginning roller B. As the axles of B and E are geared together, and as the rollers D D C are in contact with the rollers B and E, they will all revolve together. The rollers B and C seize the fibre, while the comb F opens the cotton, and the rollers force the seed back and out of the way, while the cotton passes between the rollers B and E, and, with the aid of the stripping rollers D D, is thrown back on a board prepared to receive it.

The inventor says: I do not claim simply rollers for ginning cotton; nor do I claim the spiral grooved roller for that purpose, as it is contemplated to use the large roller without any groove; nor do I claim the comb simply.

But I *claim* the combination of a large ginning roller, either smooth or grooved, with a very small one, the latter driven and supported, as described, by the friction rollers and the large ginning roller, together with one or more stripping rollers and comb, for the purpose of removing cotton seed from the fibre, substantially as arranged and described.

No. 12,635.—James B. Mell.—*Improvement in Cotton Gins.*—Patented April 3, 1855. (Plates, p. 62.)

The cotton to be cleaned is placed in throat M, and the roller B carries it around upon card roller F, the teeth *a* inserting themselves in the mass of the cotton and shaking and separating it as it is raised to F. The card teeth on F raise it until it comes in contact with the brushes on G. The cotton is spread over the whole length of roller F; but the seed and dirt, the inventor states, will not enter within the card teeth, but are thrown on the outside of the card and exposed to the downward stroke of the brushes on G. The dirt and seed are driven downwards to the inclined plate J, over which they pass and meet the cotton passing through throat M. This cotton being shaken by the action of B in raising it, all the seed and dirt, not tenaciously adhering to it, pass through it.

The inventor says: I am aware that card clothing has been used with a rotary brush in a cotton gin; and therefore, I do not claim them separately or combined.

I *claim* the combination of the beater B, card cylinder F, brushes *g* and H, and plate J, when arranged substantially in the manner described and set forth.

No. 12,894.—Leonard Campbell, assignor to L. Campbell and Thos. W. Brown.—*Improvement in Cotton Gins.*—Patented May 22, 1855. (Plates, p. 62.)

Cylinder F picks the cotton from saws *a*. The cotton is carried around on said cylinder, and taken off by cylinder E. The ginned

cotton is discharged from between cylinder E and concave brush bar I. The mote board J allows the motes to pass over the plane *e*, while the plane *d* prevents particles of cotton, which are specifically lighter, and consequently have less momentum, from passing under the plane *e*.

Claim.—1st. The combination of the two brush cylinders E F and brush bar I, arranged substantially as herein shown and described.

2d. The employment or use of the mote board J, when constructed of two planes *d e*, placed at such angles, or in such a relative position to each other, as herein shown and described.

No. 13,131.—R. A. L. McCURDY.—*Improvement in Cotton Gins.*—Patented June 26, 1855. (Plates, p. 62.)

J is a screen cylinder with a spiral flanged cylinder I in its centre. The cotton being put into the gin, the saws separate the hulls from the cotton; and as there is not room for them to pass out of the gin with the seed, they are naturally thrown to the centre of the box, when the screen J receives them; the flanged cylinder I operates on and conveys them out at the end of the box. The seeds being heavy, and meeting with no obstruction, pass from the gin between the saws in the common way.

Claim.—The cylinder screen for the reception of the boll, hulls, &c., and the continued spiral flanged shaft, arranged inside of said cylinder screen, as explained, for the purpose of working out said boll, hulls, &c., as explained, or otherwise substantially the same, and that will produce the intended effect.

No. 13,441.—JOHN SIMPSON.—*Improvement in Cotton Gins.*—Patented August 14, 1855. (Plates, p. 62.)

The nature of this invention will be understood from the claim and engravings.

Claim.—Making the alternate saws of a greater diameter than the intermediate saws, in order that no two adjacent ones may seize the same fibres, and thereby break them; but at the same time to gin as completely and rapidly as if the saws were all of the same diameter.

Also, arranging the brushes, which sweep the smaller saws upon alternate wings, projecting out from the centre as much farther than the intermediate wings which bear the brushes for sweeping the larger saws, as said saws project beyond the others, for the purpose of rendering the brushes of a uniform and suitable length.

Also, arranging the mote-board I so as to slide backward or forward, for regulating the strength and direction of the blast, and properly separating the motes from the cotton; and also to be used as a lid to entirely close said space, when the gin is not in use, substantially in the manner set forth.

No. 13,484.—A. D. BROWN, assignor to MARGARET L. BROWN.—*Improvement in Cotton Gin Saws.*—Patented August 28, 1855. (Plates, p. 62.)

The teeth of the saws are arranged in a series of curves eccentric to their axes, or, what is equivalent, in a series of tangential lines. By this means, with a proper arrangement of the saws relatively to each other, it is rendered impossible for any two saws to catch the same fibres across a rib and thereby cut or break it.

The inventor says: I am aware that cotton-gin saws have previously been constructed in segments of circles; but I regard that as a totally different arrangement, as the teeth are arranged in the same circle; and I do not claim any such arrangement.

But I *claim*, arranging the teeth in a series of curves *b b* eccentric to the axis of the saws, or what is equivalent, in a series of tangential lines, substantially as set forth.

No. 13,641.—H. H. FULTZ.—*Improvement in Cotton Gins.*—Patented October 9, 1855. (Plates, p. 62.)

The object of constantly presenting a fresh surface of cotton to the action of the saws as it passes along, is to prevent the staple or fibres of the cotton from being cut by the saws, and to cause the cotton to be more perfectly ginned.

Claim.—Giving the cotton to be ginned, within the feed-box and directly over the saws B, a spiral or twisting motion by means of the plates *c*, or an equivalent device, so that the cotton will pass from one end of the feed-box to the other, and have a fresh surface presented successively to the action of the saws as it passes over them, for the purpose as shown and described.

No. 13,815.—LEWIS S. CHICHESTER.—*Improvement in Cotton Gins.*—Patented November 20, 1855. (Plates, p. 62.)

b is the table on which are laid the pods of cotton to be ginned. Above the leather-faced roller *c* is placed the metallic roller *g*, the journals of which are mounted in swinging frame *h*, which latter is pivoted at *i*. By throwing forward this frame, (see position of frame represented in dotted lines,) the peripheries of the two rollers will be separated.

In front of the upper roller is the guard plate *j* with its edge nearly touching the periphery of roller *c*, and also a little distant from the upper roller when thrown forward. The seed is discharged at *l* between the table and the plate. A brush *m*, as long as the rollers, is attached by arms *n* to the upper bar of the swinging frame, and its face is so placed that when the frame is thrown back it is in contact with the periphery of both rollers.

I *claim*, giving to one or both of the rollers of a roller-gin the separating motion, substantially such as described, to separate the rollers for discharging the seed after the fibres have been separated as set forth.

I also *claim*, the guard and discharge plate, substantially such as

described, in combination with the two rollers of a roller-gin, having the separating motion, substantially as described and for the purpose set forth.

And I also *claim*, the cleaning and collecting brush, arranged substantially as described, in combination with the ginning rollers, substantially as and for the purpose set forth.

No. 13,898.—MAJOR B. CLARKE.—*Improvement in Machinery for Opening and Feeding Cotton to the Gin.*—Patented December 4, 1855. (Plates, p. 62.)

The teeth of the comb *c g* project from the comb-back *g* and from the bottom of hopper *f*, for the matted cotton to rest upon. Ratchet-teeth are placed on one end of comb-back *g*, which are acted upon by click *i*, and by means of which the comb-teeth can be retained in any desired position. The teeth of the feeding roller *a* pass up beneath the teeth of the comb *c g;* consequently, when said comb-teeth are depressed, the teeth of the feeding roller will have free access to the cotton, and will carry large quantities under the bottom of gate *b*, to be operated by the fanning-beater *e* in rear of the gate. By elevating the gate, and depressing the teeth *c*, the teeth of roller *a* will be able to seize and carry forward into the machine a sufficient quantity of cotton, however damp it may be, and without danger of clogging up the feeding apparatus.

Claim.—The arrangement of the toothed feeding roller *a*, the adjustable gate *b*, and the adjustable comb *c g* with each other, substantially in the manner and for the purpose set forth.

No. 13,981.—ISAAC DAVIS.—*Improvement in Machinery for Whipping Hair.*—Patented December 25, 1855. (Plates, p. 63.)

When the hair enters the cylinder at *i*, it is instantly struck by the flexible rods *a*, revolving with shaft A, and thrown violently among the stationary rods *b*. If a lump be too large to pass between the rods, the latter, being elastic, will yield to allow it to pass; and it will be carried round by a rapid succession of blows between the rods, at the same time that its gravity and the current of air from above will impel it downwards, until finally it is thoroughly whipped and driven out at *k*. As the hair is entangled and impeded in its downward course by the rods, it cannot descend as rapidly as the dust; hence the latter is effectually separated from the former. The shaft and rods, rapidly revolving, act like a fan and draw the air in at *i*. The register *j*, at the bottom, may be opened to admit air; and if the discharge of air by the fan through aperture *k* is supplied in part from the bottom, it is obvious that less will be drawn in at the top. Thus hair can be caused to be fed in more or less rapidly.

Claim.—A combination of a series of long, slender, and elastic revolving rods, with a similar series of stationary rods, arranged and operating within a cylinder as set forth, for the purpose of whipping hair

Also, in combination with the foregoing, a register in the bottom perforated head of the cylinder, for the purpose of regulating the strength of the downward current in the cylinder, and insuring a due admixture of air with the whipped hair as it leaves the machine.

No. 12,321.—SIDNEY S. MIDDLEBROOK, JAMES B. BLAKSLEE, and CHARLES F. BLAKSLEE.—*Improvement in Machinery for Felting Hat Bodies.*—Patented January 30, 1855. (Plates, p. 63.)

Claim.—The employment or use of the two beds or plates E J corrugated on their inner surfaces, substantially as shown, the upper bed or plate E having an up-and-down and also a lateral vibratory movement given it by cams C, or their equivalents, and the lower bed J being elastic or yielding, for the purpose of subjecting hat bodies to a rolling motion under requisite pressure, and thereby thoroughly felting the same, as described.

No. 12,353.—S. E. PETTEE.—*Improvement in Pressing Hats and Bonnets.*—Patented February 6, 1855. (Plates, p. 63.

The inventor says: I do not claim the pressing of hats by machinery, nor the use of heated materials, or damp cloth, as such.

But I *claim*, the combination of the curved heated bed-plate A with the roller H, for the purpose of pressing hats and bonnets, whereby I am enabled to use a rolling pressure, in contradistinction from a sliding pressure given by smooth irons, or any other substantially the same.

No. 12,386.—WILLIAM FUZZARD.—*Improvement in Machinery for Felting Hat Bodies.*—Patented February 13, 1855. (Plates, p. 63.)

The roller C^1 is first moved a suitable distance from the roller C by operating the screw E, and the hat bodies to be felted are rolled up by hand and placed in the fold at the lower part of the endless apron G. Roller C^1 is then moved near roller C, a rotary reciprocating motion is given to the drum F, and the hat bodies receive a similar motion within the apron and underneath the rollers; the requisite pressure is given the hat bodies against the rollers by depressing the outer end of the swinging frame B, which has its fulcrum in *a*.

The inventor says: I do not claim the corrugated rollers C C^1 separately; for they have been previously used, although differently arranged from those described.

But I *claim*, the employment or use of the corrugated rollers C C^1, placed in a swinging-frame B, in combination with the endless apron G, the above parts constructed, arranged, and operating in the manner and for the purposes as herein shown and described.

No. 13,005.—Lansing E. Hopkins.—*Improvement in the Process of Manufacturing Hats.*—Patented June 5, 1855.

The inventor says in his specification:

The fur having been cleaned by blowing in the usual manner, I proceed to form a bat or hat body, or what in some cases is termed a shell. In this process I arrange a solid-surfaced fixed cone upon its stationary table, and around it an annular ring or revolving table closely fitting the same, to avoid escape of steam; and upon this revolving ring or table is a cone perfectly solid upon its conic surface, but having its base upon, so that it may set over and cover, the stationary steam cone, (which is the inner one,) and is fixed to the table. The outer cone is perfectly smooth upon its outward or conic surface, is not perforated, and depends upon the wetted surface to retain the fur upon it when it is revolving. I convey a body of hot steam into the interior of the stationary cone; this impinges against the cone so as to heat it, and thus the space between it and the revolving cone, which causes the fur to dry to a sufficient degree to harden it, so that it may be handled and removed from the smooth cone without the use of any inlayer, and also dispense with the necessity of dipping in hot water for the purpose of hardening, so that it may be handled. Having set the revolving cone in motion, I apply a jet of steam to impinge against the outer surface and dampen it. This I effect by means of pipes so arranged as to cause every part of the surface of the cone to receive a like amount of pressure and dampness from the steam.

In the common way of conveying in delivering fur to the cone, where hats are formed by machines, I deliver the fur to the solid cone, except that the mouth of the delivering chamber is to be regulated so as to deliver the fur in greater or less quantities on given points or parts of the cone, at the will of the operator; so that the fur may be deposited, as in the operation of feeding by hand in case of hand-made hats, more at the bottom or brim, and less at the top of the cone or tip of the hat. The pipes of steam are attached to the adjustable wings of the mouth-piece, so as to move with and be regulated by them, and are of peculiar construction adapted for the purpose.

Part 2d. This part of my newly invented process of making hat bodies, relates to the bringing of the hat down to the desired size, and is called sizing or planking hat bodies. Although several machines have been attempted for the purpose, nothing as yet has proved fully complete, with sufficient economy to induce their general introduction.

This machine is a semi-circular concave, having a beater with a vibrating motion, whose operating face is corrugated, although it may be used plain; it has, besides, a continuous and endless apron, peculiar in its construction, and this runs over a friction roller which causes it to continually advance in the desired direction. At the bottom of the concave box or receiver I place a small quantity of water, just sufficient to immerge the bags of hats; I then introduce at the bottom, and underneath the body of water, a jet of steam, which is to heat the water to boiling. I shall now take a number of hats, from one to twenty-four dozen, be the same more or less; these I introduce into bags properly confined, so that they may be readily withdrawn from the water, there being perhaps one or two dozen in a bag. These bags I place within the revolving apron, and between the corrugated beater and concave of the box within the boiling water. I then set the beater in motion, jointly with the roller carrying the apron, when the back and forward motion of the beater beats up the bag of hats, and the onward motion of the apron keeps the several bags in continous revolution, and the beater is constantly and rapidly knocking them up against the side of the concave box. I next take out the bag of hats and croze them in the same manner as hand and machine formed hats usually are, that is, fold each one where it is too much fulled, and expose them where fulling is most required; and this is repeated as often as is necessary, until the hat is brought into the desired size, when it is forwarded to the next part of the process presently to be described. In this, I begin by light blows upon the bags of hats, and increase the force and motion of the beater as the state of hardness requires, until the operation has completed the sizing of the hats.

Part 3d. This relates to the sticking, scalding, and beating up of hats. After the hat has been sized, as herein before stated, it is dried; when it is shaved or singed in the usual manner by hand. If it is a felt hat, is then stiffened, formed into its proper shape, and dyed. If it is to be a napped hat, it is to be treated in the like manner, when it is again immersed in hot water; this will cause the fur to adhere to it. I now place the body upon a wooden or other solid cone, and give it a revolving motion. (Next a chamber for the delivery of fur, having its regulated mouth and steam jet, as described in the forming machine in the first part of this specification, is brought into use.) The steam is then let upon the body, and the fur, prepared in the usual manner, is thrown in upon the cone, where it adheres, until the quantity of nap is put upon the bat which is desired. The hats will have to be turned as in the hand process, for the purpose of napping the under side of the brim.

I now proceed to my new process of nesting up, which is as follows: I make a soft bag or cone of sponge or other suitable material, and upon it place a flannel cloth, upon the top of which I place a hat upon which the nap has been stuck, and upon this another flannel cloth, and then another hat, and so on, until I get the desired number of hats packed or nested; this may be more or less, from one dozen to twenty dozen in a nest. They are now ready for scalding in, which is performed as follows, viz: A cylinder of wire cloth, or perforated metal, is provided, and is fixed so that one of its ends can be removed, so as to introduce the cylinder or nest of hats; this perforated cylinder is arranged so as to have journals upon each of its ends or heads, upon which it may revolve. The hats thus nested are then put into the cylinder, the last being considerably larger in its interior than the nest is on its exterior, so that the rolling of the metal cylinder will cause the nest of the hats to roll in an opposite direction. I next provide a steam-tight box, having the necessary journal boxes, and at or near its bottom introduce a jet of steam to the desired heat and pressure. I also have a stop-cock near the bottom of this box, by which any water which will become condensed may be drawn off; as contact with water might tend to wash the nap from the body. All this being provided, I give to the perforated cylinder a rocking motion to and fro, while in the confined steam-box, and this is

to be continued during the option of the operator, and until the nap is thoroughly scalded in.

My plan of "beating up naps" is much like the hand process of accomplishing the same result. I provide a table or plank, as it is termed by the trade, the plank part resting upon a bed-piece, and having a water-tight box around it, something larger than the plank itself; to this bed I give a slow reciprocating motion to the extent of about its own length, so that it will move to and fro under the beaters. The beaters consist of a row of thin sticks placed in a line, in a rocking shaft, so that they will beat down upon the hats or table at each rock of the shaft; that is, they rise and fall as the shaft rocks. A quantity of hot water is placed in the box, just sufficient to float over the top of the plank, when in this and upon the plank are placed the napped hats. A jet of steam is then let into the water to keep it hot; a stop-cock being also provided by which to draw off the surplus water. All this being arranged, the beater is put in motion, beating down upon the table, and meanwhile the plank, having been covered with hats, is also put in motion backwards and forwards; thus the hats are continually being beat during the option of the operator, until the operation is complete, and the hats are sufficiently cleaned.

I do not claim the principle of manipulating while under water for the purpose of working in the nap, or for the purpose of beating up the nap, as referred to, and before patented.

But I *claim*, a complete hat body by means of the manipulations and process described, including the forming, felting, or sizing, and the sticking, scalding in, and beating up of naps, without regard to the peculiar machinery which may be used to produce the combined result of beating, or otherwise manipulating in hot water, for the purpose of manufacturing a hat by a complete and continous range of mechanical operations, as a substitute for the dipping and rubbing on a plank by hand, as described.

No. 13,013.—ANDREW RANKIN.—*Improvement in the Manufacture of Hats.*—Patented June 5, 1855. (Plates, p. 63.)

The scalding chest *c* contains a cradle c^1, which latter runs on wheels on the bottom of the said chest. The cradle is provided with a set of rollers *d*, around each of which rollers two hat bodies are rolled and fastened; the envelopements rest on the bottom of the chest, and are rolled on it as the cradle moves to and fro. Above the cradle, and resting on the rolls of hat bodies, the board *f* is placed, which is to operate similarly to the human hand. This board *f* is suspended on the road (rider) *e*, which is allowed to slide up and down on rods *h h*, by which means the rider is always kept parallel with the bottom of the chest, and the board or hand *f* (being free to vibrate horizontally) is constantly kept level. The hand is worked by a vertical lever *i*, the fulcrum pin i^1 of which (inserted in one of the several fulcrum holes) slides freely between guide posts *k k*, so as to follow the horizontal motion of the hand, and permit it to bear its whole weight upon the rolls of hat bodies. A pitman *l* serves to vibrate the lever. To raise the hats out of the water in the chest, the cradle is attached to the hand by four cords;

and by means of a fall attached to the upper end of lever *i*, the whole can be lifted above the water into the position represented in the engraving.

Claim.—The employment of the rider for controlling the action of the hand, constructed and arranged substantially as specified, and in combination therewith the upright lever with movable fulcrum for operating the same.

Also, uniting the hand *f* and cradle by cords, whereby the hats are readily raised out of water to be handled, and the cradle is held in place to receive a new set of rollers.

No. 13,304.—PHINEAS EMMONS.—*Improvement in Machines for Sizing Hat Bodies.*—Patented July 24, 1855. (Plates, p. 63)

The hat bodies rolled up and wetted (by dipping them into the first compartment of water-box A) are placed at the edge of throat *c* on partition B, and are rolled against the face of the revolving disc D, which immediately carries it around with it and through the water and out at the opposite side, where it is deposited on the table M comparatively dry, in consequence of the pressure applied to the hat bodies between the disc face and the face of the partition B, by means of a weighted lever H acting against the collar K of the disc shaft.

Claim.—The water-box, having the partition or graduated pressure board therein, in combination with the vertical disc wheel, having a ribbed or corrugated face and self-adjusting weighted levers, the same being made and combined substantially as set forth.

No. 13,613.—PETER ARNESON, JORGEN PEDERSON, and HANS REES.—*Improvement in Preparing Materials for Hat Bodies.*—Patented October 2, 1855. (Plates, p. 63.)

The delivering boards *k* (which form the spaces in feed box B, for the reception of the various kinds of fur or other materials used for manufacturing hat bodies) can be set at different distances so as to proportion properly the relative quantities of the materials. The serrated plate and rollers *e* C and D serve to loosen the fibres of the materials, and to draw the same from the feed-box into the draught or blast passage, at the same time preventing the admission of large foreign substances into the machine. Figure 1 represents a vertical longitudinal, and figure 2 a vertical cross section.

The inventors say: We do not claim the shell F and conical head *g* separately; nor do we claim the box H separately; for they have been previously used.

We *claim*, first. The combination with a feed-box, having adjustable partitions therein, so that the material to be used may be proportioned in quantity in its different apartments; the machinery for taking it therefrom, and thoroughly mixing it in said proportions, preparatory to its being used in hat bodies, as described.

Second. We claim, the combination of the two cylinders C D and plate *e*, constructed as shown, viz: The cylinder C, having serrated

plates *l* attached to its periphery, and the plate *e* provided with a serrated edge, for the purpose set forth.

Third. We claim, the combination of the box H with the endless apron J; the shell F and conical head G, with the wings or blades *g* at its end, whereby the materials are thoroughly mixed and discharged from the machine in a loose and light state, and may be delivered, without handling, to the next machine.

No. 13,614.—PETER ARNESON, JORGEN PEDERSON, and HANS REES.—*Improvement in Machine for Manufacturing Hat Bodies.*—Patented October 2, 1855. (Plates, p. 64.)

By adjusting the plate *b*, the feed of the material may be regulated. The cylinder D takes the material from feed-cylinder C, and throws it upon the horizontal part of apron F, which latter carries it to the rollers *g g*, between which it passes on to cylinder *h*, which latter carries it around upon the next apron H, and so on through a number of rollers *g h* and aprons H (the engraving represents only one set of them). The material, in being carried around by rollers *h*, is sufficiently loosened to allow the hair, which is mixed with the fur, to fall upon the shaking screens I^1, (the hair being heavier than the fur,) and through the screens into boxes I; while any good fur which may have escaped the rollers *h* will (in consequence of its light loose state) not pass through the screen, but will pass down between the boxes I upon apron E, which carries it up between the two inner sides of aprons E F, and deposites it again upon the horizontal portion of apron F. The cylinder *z* takes the material and throws it into the conductors X X, and a blast throws the material on the hat formers R. The outer ends of the conductors can be inclined by adjusting frames Y, so as to correspond with the obliquity of the faces of the formers; and the mouth of the conductor can be contracted or enlarged at any point by set-screws g^1, so as to throw more or less fur on certain parts of the formers.

The inventors say: We do not claim the boxes I, screens I^1, cylinders *h*, and rollers *g*, for they have been previously used; neither do we claim the formers R, nor the fans P, for they also have been used.

But we *claim*, first. The combination of the endless aprons E F, cylinders C D, and plate *b*, and brush cylinder G, arranged substantially as shown, for the purpose of feeding the material in a proper state to the series of cylinders *h* and the formers R.

Second. We claim, the weighing apparatus formed of the levers *t t*, ring *v*, and weight *z*, or constructed in any other way when the weighing apparatus is so arranged, that the former, while in motion, and the fur is being thrown upon it, may rest upon the weighing apparatus, and the former, exhaust, and fur, by their weight, counterbalance or raise the weight Z, when the proper quantity of fur has been thrown upon the former to form a hat body.

Third. We claim, the guide or conductors X X, constructed of India rubber, and provided with the adjustable frames Y Y at their outer ends; said frames being provided with set-screws g^1, and arranged substantially as described for the purposes set forth.

Fourth. We claim, the employment or use of the slide or cut-off W, and the movable bed-piece or platform T, operated automatically as shown, or in any equivalent way, for the purpose of regulating the blast and stopping the supply of fur to the formers, as described.

No. 13,698.—WM. W. CUMBERLAND.—*Improvement in Felting Hat Bodies.*—Patented October 23, 1855. (Plates, p. 64.)

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I *claim*, first. The arrangement and combination, in the manner substantially as set forth, of the hollow cone F, and solid cone G placed within it; the large ends of said cones being uppermost, having a wedging space between them of a proper size and angle, whereby the hat body, placed between them in the wedging space, will tend to tighten itself by its own weight in the space as it is rolled between the cones, as fully set forth.

Second. The combination and arrangement, in the manner substantially as described, of the reciprocating yielding roller frames L L with the table B, one of them having such a motion around the shaft D as to croze or change the position of the hat body by the friction of the rollers upon the hat body upon one side, and the friction of the hat body on the table on the other side.

Third. The combination of the weights K K, the roller frames L L, levers I I and J J, and the points *j j* attached to the cone F for the purpose of lifting the weight of the cone F, and thus diminishing the friction of it upon the collar of the shaft D, on which it rests below.

Fourth. I do not claim felting hat bodies by means of rubbing surfaces carrying a roll between them, nor by means of an elastic cone carrying a roll.

But I claim as my invention, partially felting hat bodies, enclosed, in their more tender state, in a hollow elastic cone of vulcanized India rubber, or other suitable material, lined with cloth; the larger and uppermost, in which the hat body is placed in an open conical form, corresponding to that of the cone by means of a process of bending or crimping, produced by the revolution of the elastic cone between two surfaces at a less distance from each other than the diameter of the cone, but not so near to each other as to cause the sides of the hat body within it to rub against each other, or the hat body to form itself into a roll.

No. 13,963.—ISAAC SEARLES.—*Improvement in Felting Hat Bodies.*—Patented December 18, 1855. (Plates, p. 64.)

Fig. 2 represents a bottom view of one of the planking tables D, two of which are shown in fig. 1. C is a cone covered with a woollen pad. The cone is first covered with a body and then a cloth, then another body and another cloth, and so forth, and is finally wrapped up in a proper covering. The cone, with its contents, is then placed into the tub, as represented in fig. 1. Water and steam are then admitted, and the bed B revolved, when the whole circumference of the cone will be

brought into contact with the grooved surface of B. The bodies are then taken off the cone, rolled up, and placed under the planking tables D, a sufficient number of times to thoroughly finish the operation of planking and sizing.

The inventor says: I do not claim the construction of a wooden cone, or of a set of planking tables having their lower faces grooved separately; nor yet the construction of a horizontal revolving bed inside of a tube.

I *claim*, the combination of the circular revolving bed B, with one or more planking tables, and one or more cones, constructed and operating substantially as described.

No. 12,456.—D. W. Hughes.—*Improvement in Hemp Brakes.*—Patented February 27, 1855. (Plates, p. 64.)

The unbroken material is placed, while breaker C is drawn back (breaker C being reciprocated by a pitman L) across the blunt edges of breakers B B, which are brought closer together or farther apart (see dotted lines in fig. 2) by means of treadle J and cord G, (the operation of which parts is apparent from the engraving,) according as the material is finer or coarser. The action of C, by driving the material against and between B B, cracks and breaks up the wood. As the operation progresses, the operator gradually presses down the treadle to make B B approach each other; and as the fibre is divested of woody matter, it is allowed to be driven by breaker C further in between B B. When the operation is finished, the operator raises his foot from the treadle, and the springs F throw apart the breakers B B.

Claim.—Arranging and applying the breakers B B so that they may be brought, while the machine is in operation, to the proper distance apart, to suit the nature of the material to be operated upon, and may be caused to approach each other or nearer to the line of operation of their corresponding breaker C, as the operation progresses, substantially as set forth.

No. 12,472.—George D. Allen.—*Improvement in Machines for Cleaning Sisal Hemp and Stripping Seed from Broom Corn.*—Patented March 6, 1855. (Plates, p. 65.)

The lever M being depressed by the foot of the operator, so as to allow the prongs to spring open, the leaves are inserted between the prongs. The foot then being raised, the weight O and levers G G close the prongs upon the leaves whilst they are drawn through, when the lever may again be depressed and the operation repeated. To remove the seed from broom-corn, the operator seizes the butt ends, and inserts the brush ends between the prongs, and draws it through, so as to pull off the seed.

Claim.—The combination of the prongs C, arranged substantially as described, with the spring-levers G G, or their equivalents, constructed and operated substantially in the manner and for the purpose set forth.

No. 12,896.—Robert Cushman.—*Improvement in the Stop-motion of Knitting Machines.*—Patented May 22, 1855. (Plates, p. 65.)

The pinion L, which (gearing into L^1) revolves the needle disc D, is fast on shaft L^2, to the outer end of which is fastened the toothed clutch N. The corresponding clutch N^1 is attached to the driving pulley O, which revolves freely on the shaft when the clutches are out of gear. The fork *a*, at the end of traversing bar P, serves to set the clutches into or out of gear, which can be done by means of hand-lever Q. The bar being left free to the action of spring R, the clutches will be separated, and the interior portion S^1 of the friction clutch S^1 S (which is attached to fork *a*) will be forced into the part S, which is fast on shaft L^2, and the machine will be stopped instantly. An upright rock-shaft *b*, which has its bearing in standard U, has on its under end an arm *c*, which (when the clutches N N^1 are in contact) catches into notch *d* in the end of bar P, and is held there (by means of spring *e*) while the machine is in motion. The lever *f* is fitted to vibrate freely in the upper end of rock-shaft *b*, and is provided at one end with a plate *h*, which rests upon the ends of levers *i* i^1 *j*, so as to be raised by either of them and carry the lever *f* between the teeth of gear L, and turn the rock-shaft *b*, so as to release arm *c* from the notch, and allow spring R to act and stop the machine.

If the fabric is imperfect, or one or more stitches are dropped, the finger W catches into the fabric and is moved by it, so as to turn shaft V^2 and vibrate arm W^1, thereby releasing lever *j*, and raising lever *f*, and thus stopping the machine, as above described. The post *x* supports the bars *l l* and *n n*, between which bars the yarn passes, as it enters the machine, under the hooks on the outer ends of the levers *i* and i^1, so as to hold them up, so long as the yarn runs in properly; but if one of the yarns breaks, so as to let the hook and lever fall, the opposite end of the lever raises lever *f*, and the machine is stopped, as above described.

The inventor says: I do *claim*, 1st. The finger W, placed in contact with, and resting against, the fabric, so arranged that when the fabric is too imperfect to support the finger W, it will vibrate and stop the machine, substantially in the manner described.

2d. I am aware that an apparatus has been applied to knitting machines to throw off or release the driving power, when the yarn supplied to the machine broke or run out, so as to allow the machine to stop. Therefore, I do not claim, broadly, the application of a stop-motion for that purpose, when used without a friction or other clutch, to stop the machine instantly when the driving power is released; but I do *claim* the lever *f*, actuated by the levers *i* and i^1, in combination with the rock-shaft *b*, and the friction clutch S and S^1, when arranged and operated substantially in the manner described, so that the instant the thread, or one of the threads, breaks, the motion of the machine is arrested.

No. 12,933.—JONAS B. AIKEN, assignor to JONAS B. AIKEN and HERRICK AIKEN.—*Improvement in Knitting Machines.*—Patented May 22, 1855. (Plates, p. 65.)

This improvement is intended to obviate a difficulty existing in machines as heretofore constructed, where the latches frequently rebound and rest upon the hook or barb of the needle, which is thereby closed at a time when it should be open to receive the yarn. A is the needle latch regulator, the points *a a*^{1} entering the barb of the needle and throwing the latch over upon the shank; the hole *c*, for the passage of the yarn, being made through the arm B which carries the regulator. The latch *e* will be held down by the regulator until the yarn is laid into the hook.

The inventor says: I do not confine myself to the exact form and construction herein described, but intend to make such variations therein as may be found necessary to accommodate the latch opener to the various machines to which it may be found applicable.

Claim.—1st. The needle latch regulator, constructed and operating in the manner substantially as herein described and for the purpose set forth.

2d. The needle latch regulator, in combination with the yarn carrier, operating substantially as herein set forth.

No. 13,165.—THOS. FOWLER.—*Improvement in Knitting Machines.*—Patented July 3, 1855. (Plates, p. 66.)

A detailed description of this machine would take up too much room to be given here. Its general features will be understood from the claims and engravings.

The inventor says: The distinguishing characteristics of my improvements in rotary knitting machines for making ribbed work, are expressed or indicated in the following statement of what I claim.

1st. I *claim* combining a revolving radiating series of horizontal fixed hooked needles, and a series of vertical movable hooked needles, that are so operated within and by a revolving slotted cylinder, or its equivalent, and by cams, as described, that the two series of needles shall operate together, and with one, or more than one, set of appliances, each consisting of one sinker and two pressers, and make cylindrical ribbed work, substantially as set forth.

2d. I *claim* combining and arranging the set of movable needles with the revolving slotted cylinder, and one, or more than one, set of stationary cams, each set consisting of the cam E and a depression and an elevation in the cam ring D, as described; so that the movable needles shall be successively carried outward to cast off the old stitches from the radial needles, and then downwards to cast off the old stitches from themselves, and finally, upward and inward to allow the yarn to be again fed upon the radial needles in their revolving course.

And the following improvements, viz:

1st. I *claim* the inside stitch-guide F, constructed and arranged with thew to sets of needles, as described, to help to cast off the old stitches of the radial needles, and to increase the distance between the old stitches and the new ones, upon the movable needles, at the same time that their barbs are depressed.

2d. I *claim* the outside stitch cam G, constructed and arranged as described, to help cast off the old stitches of the movable needles.

3d. I *claim* the cam *a*, constructed and arranged as set forth, to assist the return of the moveable needles to, and to retain them in, the position they occupy during the feeding of the yarn upon the radial needles.

No. 13,289.—JOHN PEPPER, assignor to THE "FRANKLIN MILLS."—*Improvements in Knitting Machines.*—Patented July 17, 1855. (Plates, p. 66.)

The needles H rest, and are capable to slide, in groves *c*^{1} of a stationary bar *e*. The rear end of the shank of each needle is bent upward, and enters a groove *h* in the under side of a horizontally reciprocating bar K. (See arrows, fig. 1.) The yarn-guide L is secured to said bar K above the needles, so as to slide with it along the series of needles. In the rear of and below the yarn-guide the groove *h* is made V-shaped, (see dotted lines, fig. 1,) so as to impart to each needle a forward and backward movement, in order to enable it not only to seize the yarn, but to move its fly *g* forward beyond the stitch on the shank of the needle. The reciprocating motion of bar K is intermittent, and, at the times the bar remains stationary, the sinkers perform their motions. The sinkers *o* are attached to a bar Q, which receives an upward and forward motion at proper times. Those of the sinkers *o* which are directly behind the rib-needles P, have no holes. The upward motion is for casting off the loops formed upon the front portions of the hooks of the sinkers. The forward motion of the sinkers is for casting the loops over the hooks of the needles H. The rib-needles P, each one in front of some one sinker, the hook of which is cut away, work between the rest of the sinkers; they are attached to a bar U, adjustable by screws S, so as to vary the length of the rib-loops.

The rib-needle bar moves forward and backward together with the sinker-bar, and receives a proper upward and downward motion by cams, etc.

If plain work is to be done, the rib-needle bar and rib-needles are swung out of the way. (See dotted lines, fig. 2.)

The inventor says: I do not claim a rotary set of rib-needles operating in connexion with a stationary cam, in the manner as represented and described in letters patent granted to me on the sixth day of December, 1854; nor do I claim making the needle stationary, and employing, in connexion with such, a movable set of sinkers or jacks, whereby the stitches are joined by the successive movements of the sinkers or jacks, between the needles.

But I *claim*, making the plain work needle frame or bar stationary, its needles movable thereon, and to operate, in connexion with sinkers, or their equivalents, as described, and applying thereto a movable or sliding cam-bar K, or its equivalent, so as to operate the plain-work

needles in succession, in manner as explained; the advantage of such not only being that no forward movements of the sinkers are necessary, in order to bring the loops of the yarn into the hooks of the needles, but that such simplifies the machine, and thereby correspondingly diminishes the cost of its construction.

And, in combination with the hooked sinkers and ribbed needles, made to operate substantially as described, I *claim* the series of cast-off sinkers, or those formed without hooks, the same being arranged in the sinker-bar, and not only so as to admit the rib-needles to work between the hooked sinkers, but so as to render the machine capable of performing either plain or ribbed work, as specified.

I also *claim*, making the rib-needle take the place of the front or hook of the sinker, in forming the loop for the rib-stitch.

No. 13,561.—WALTER AIKEN and JONAS B. AIKEN, assignors to HERRICK AIKEN and JONAS B. AIKEN.—*Improvement in Knitting Machines.*—Patented September 11, 1855. (Plates, p. 66.)

On the exterior surface of the hollow circular plate A are grooves for the reception of the needles. These grooves are longer than the needles and of sufficient size to hold them steadily, and at the same time to allow them to slide freely back and forth. The needles are flush with the surface between the grooves. The plate is made conical for the purpose of extending the distance between the shanks *x* of the needles further apart than the barbed heads, which arrangement facilitates the movement of the needles while passing through the cam-groove from *c* to d^2, during the revolution of the cam-groove wheel C.

I is the device for regulating the length of the loops. When it is desired to make a longer loop, the needles must descend lower in the groove *o* for that purpose. This is effected by depressing the regulator I and tightening nut *g*; and *vice versa*, when a shorter loop is required. The regulator is made of such a shape as to drive the needles abruptly down the groove.

The inventors say: The general form and construction of the several parts of our machine are new; but we shall confine our claim to the most essential parts, as these cannot be materially varied in construction, in the principles which govern their action, or in the nature of the results produced.

1st. We *claim* the construction of the hollow circular needle-plate, having grooves in its outer surface, as described, for the object specified.

2d. We *claim* the loop-regulator, as described, for the object specified.

No. 13,586.—CLARK TOMPKINS and JOHN JOHNSON.—*Improvement in Knitting Machines.*—Patented September 18, 1855. (Plates, p. 67.)

Bevel-wheel *g* moves bevel-wheel *f*, fastened to hub of the needle cylinder F; the spur-wheel *a* is fastened to and revolves with the needle cylinder, and moves pinion *b*; pinion *b* is fastened to pinion *c*, of the same size as *b*, and thus drives wheel *d*, which is of equal size with wheel *a*, and is fastened to the central spindle E, which spindle turns freely within stud G; consequently the spindle revolves in the same direction and with the same velocity as the needle cylinder (pinion *c* works through an opening in stud G, as will be seen in the engraving).

The circular plate S is fastened to the spindle E, and thus revolves inside of, and simultaneously with, the knit fabric *w*; so that all parts of the web shall extend from the circular row of needles, in a uniform direction, toward the axis of the machine, for the purpose of making the action of the knitting-wheels more equal than has been the case heretofore. The oval plate C is fastened to, and revolves with, the spindle E, to give such shape to the web that the circular rows of stitches shall be drawn off evenly and laid in straight lines upon the take-up roller. The web-flattening bent rod D is fastened to plate C, and extends to within the slotted bottom-bar of the take-up frame K, thus causing the frame to positively revolve in the same direction and simultaneously with the needle cylinder, to keep the knit fabric straight, or without twist, while being drawn off and wound up by the take-up rollers A B.

The inventors say: We *claim*, 1st. The manner in which we cause the frame which carries the take-up mechanism to revolve in the same direction and with the same velocity as the needle cylinder, as specified and for the purpose set forth.

2d. Combining the web-shaping plates S and C with the take-up mechanism, substantially as described for the purpose specified.

No. 13,621.—JOSEPH POWELL.—*Improvements in Knitting Machines.*—Patented October 2, 1855. (Plates, p. 67.)

A is the front needle-bar, B the back one, connected by slides C to the frame. The two sets of needles move simultaneously upward; when at its greatest elevation, the needle-bar B comes in a state of rest, while the bar A tips over into an inclined position, and both sets of needles interlock, as seen at *a* and *b*, figs. 1 and 2.

These motions are produced by the action of dissimilar cams placed on the main shaft H^2.

The cams c^1 act to raise the slides C, the cams c^2 to lower them, and the cam *c* acts to cause the tipping of the front needle-bar A, and consequently of the needles *a*. These cam motions are produced in combination with the rollers d^2 d^3, and levers d^1 d^2 d^3 d^4.

It is required that, before the needles descend to cast off their loops, the front row must be elevated to a vertical position, and stand so as to form a line parallel with the back ones. In order to accomplish this, the bar A must be allowed to turn on its hinge-pin *d*, so that the front edge may drop down. As the cams *c* and c^1 rotate, the lever d^2 will drop first into the cavity, and descend to some point, as, say, *x* on *c*, fig. 4, while the slide C is still held up by the cam c^1, by reason of the roller d^3 not yet having reached its depression, as clearly seen in the fig. 4. From *x* on *c* to the bottom of the cavities the descent is alike,

thus allowing the two bars A and B to descend together, and thereby keep their respective sets of needles in the proper vertical position.

In ascending, the same order is preserved. At d^1 is a link connecting the front edge of the needle-bar A with the tipping-lever; and this is fixed in such manner as to become disengaged from the end of its lever d^2 at certain times, that is, when the machine is engaged on plain work; for, when out of gear, the bar A no longer tips over, although it moves up and down with the guides C, consequently its row of needles is not engaged. This disengagement is effected by the mechanism composed of draw-bolt g, arm h, on the upright post b^2, and second arm h^1, extending from the same end which comes into contact with stop C. The re-engagement of the link upon the pin f, on the withdrawal of bolt g, is governed by a spring; i i^1 are the presser-bars upon standards i^2 i^3; m, fixed on stationary rail k, and m^1, on movable rail k^1, are the cast-off plates, as seen in figs. 1, 2, and 6.

The web hangs between these casting-off plates, and passes down under the frame to the take-up roller. At this part of the machine some delicate movements have to be performed, in order to ensure certainty in its working, and this relates to the casting-off of the loops. As loops are formed at the same time on both sets of needles, which have to be cast off together, it is found that the weight of the web hanging between was such as to cause a great strain or drawing upon the needles, especially when the loops had got over the barbs and near the top of the needles—the needles here being of double thickness. To overcome this an easement is effected by a slight vertical motion of the back set of needles, and, immediately after that, by a like motion of the front cast-off bar m^1. The back needle-bar is attached to the slides C, by the pin d, by means of an eye at B^1. This eye is elongated so as to allow of some play, and as seen by the dotted lines below d in fig. 3. Attached to the eyes are two springs C^1, which pull upward, as shown. To each eye B^1 there is a down-pull l, which connects with cross-lever l^1, passing beneath the main shaft and hinged to the back of the frame; and to operate upon this pull is a cam having an acute point, seen at l^2, the operation of which is such that, when the needles have descended so that the loops to be discharged have been pushed up the shanks and over the barbs, and approached that point where the strain commences, the point of the cam l^2 shall be just passing along the top of its bearing piece l^3 on the cross-lever l^1. The top of the back casting-off plate stands a little higher than that of the front one, whereby the cast-off will be effected from the back set of needles first; and so soon as this has taken place, the point of the cam l^2 must have passed the top of its bearing piece, thereby permitting the back needle-bar B to rise on the pin A to the extent of the elongation of its eye, and which rising is effected by the action of the spring C^1, since the needle-bar is not now held down by the cross-lever b^1. The front casting-off plate now rises by the cam I, figs. 1 and 2, acting to raise the bar k^1 through the lever I^1; and this throws off the loops on the front row of needles. The front presser-bar is to be disengaged at those times when no work is to be done on its row of needles.

At n, figs. 1 and 6, are seen the latches on the back needle-bar. The under edges are bevelled, and they are hinged to the top of the studs

a feather-spring keeping them up in the position represented. As the needle-bar descends, the bevelled edges strike against the edge of the presser-bar and forces it against the barbs of the needles, holding them closed until the new loops are up and the last course thrown off; they then get clear, and the presser-bar flies back. When the needles ascend again, the flat tops of the latches strike against the edge of the presser-bar so as to turn them down against the force of their feather-springs, and this allows them to pass by without acting on the presser-bar until the next downward motion. The latches on the front needle-bar have a different arrangement for setting. This is because the bar tips over and shifts the place of the studs which hold said latches, and also because they are to be wholly disengaged at all times when the front set of needles are not in action. The inner lower ends of these latches are bevelled, as seen at n^1, to press the bars on descending, as is the case with the back ones. On the back is a locking-spring, seen at o, fig. 6, which can ride into two recesses o^1 o^2, on the back. This sets the latch in the positions in which it is thrown, in passing by the presser-bar, on the upward ascent of that bar: for, as the top of u^1 strikes on the under side of the bar, the latch is bent down to clear it, and the spring rides into the recess o^2. Thus, if there were nothing in the way to shift the latch back, it would go by said presser-bar, without acting on it on the next downward stroke.

To set the latch, therefore, it is provided with a short arm o^3, which is brought up to strike against a pin or arm p by the elevation of the front edges of the needle-bar A, when that is raised by the link d^1. This throws over the latch and sets it, as in fig. 2, ready to act upon the presser-bar. When, however, the link d^1 is unhooked, as the needle-bar will be no longer tipped over, the arm o^3 does not reach the pin p, and the arm accordingly plays up and down clear of the presser-bar, which it should do, as at that time no loops are formed on the front set of needles. The sinkers lie horizontally, being arranged at the back of the needles and at right angles to the back set, as shown at r, and their jacks hinged in a line parallel at r^1, the sinkers and jacks being held in place by pressing through a metal rack supported by a bar s on the frame. The motion of both jacks or sinkers is horizontal; the sinker is finished at the end, which plays between the needles, with the usual fork to sink the loops in the ordinary form. The sinkers are also pushed between the needles by the action of a slur-cock s^1, fig. 2, which, in this case, plays against the ends of the jacks, instead of on their tops, as in some of the old frames. There are two springs acting upon the jacks; one is a locking-spring r^2: and there is a projection on the jacks at r^1, which shows how the sinkers are held back. The springs named are always tending to force the jacks forward. The slur-cock, as it passes along, strikes the ends of the jacks just below the end of the spring r^2, and pushes them so far as to force the projections r^1 beyond the other spring r^3; the other spring r^2 then forcing them along their full distance.

In fig. 2 is a cam working by a bevel-gear from the main shaft, being a groove cut in the side of an eccentric-wheel. In this a pin, having on it a friction-wheel H^1, travels, the front being attached to a lever K, and thus a vibratory motion is imparted. The upper end of cock K is

connected with a slide-bar K^1, to which the slur-cock is attached, and from this slide-bar connexion is formed with another one standing over the needles, as seen at J. This effects the movement of the yarn-guide. The part for returning the sinkers, and carrying them clear of the needles, provides a self-adjusting means for varying the depth of the loops, and thus weaving the course slack or stiff.

This part consists principally of two bars, one within the other, and suspended to the frame, so as to move back and forth in the direction of the sinkers.

The first or outer bar is seen at *t*, and the arms by which it is suspended at t^1, figs. 1 and 2. Upon this is a rack t^2, through which the sinkers play. It is by the vibrations of this bar that the sinkers are pushed back, after having been operated upon by the slur-cock; as it also regulates the distance, the springs r^3 can throw them forward. On each jack there is a notch cut, as seen at r^4, fig. 2. When the sinkers are to retreat, the bar *t* moves back, and the back edge of *t* must carry along the sinkers. The locking-springs r^2 ride past the projections r^1, and thus lock the whole row. The bar now moves towards the front of the frame, and stops at such distance as it is intended to allow the sinkers to return in forming the loops.

The second bar is for the purpose of regulating the extent of forward motion the bar *t* shall have at different times, in order that the slack or stiff work may be woven as before mentioned. The second bar is seen at *u*, and lies under *t*, extending the whole length inside of the main frame. It has at each end a sloping part, as seen at u^1, fig. 5. While it is carried back and forth with the movement of the main bar *t*, it has also a motion of its own along the bar from right to left; and by this means different parts of the slope are brought opposite to the point of a regulating screw u^3, figs. 1 and 5, which is fixed permanently to some convenient part of the frame. It has a milled head which receives the edge of a gauge-spring u^4. Thus it will be seen that the main bar *t* will be stopped by the point of the regulating screw striking against the sloping part of the bar *u*, and therefore, by shifting the bar *u* along to the right or left, the movement is arrested sooner or later, as may be. The general operation of the machine is as follows:

The bar *t* tends always towards the front of the machine by the pressure of springs, one of which is seen at t^4, figs. 1 and 5, where it sets against the projecting end of it.

On each end of the main shaft, but outside of the main frame, is a cam *v*; these act against lever v^1, fig. 1, the upper ends of which levers strike the bar *t*; these, therefore, push back the bar, and thus the jacks are set in their locking-springs.

As the cam releases the bar, it comes forward by the force of the springs t^4, until arrested by the points of the regulating screws u^3; which forward motion is more or less, according to the position of the bar *u* before named. The sloping part of that bar represents adjustments for sinking the loops for ribbed and plain work; the deepest part is when the work is to be woven ribbed, the next when woven plain on a single set of needles. These come into play during the operation of weaving a garment or cuff of a shirt, and are actuated by a cam G, figs. 1 and 3, as at each revolution of G one set of needles is thrown off,

as before described; so at that time must the bar *u* be shifted to reduce the throw of the sinkers, so that only the yarn required for a plain web will be fed. To accomplish this, the arm h^1 is extended beyond the vertical shaft G^2, where it takes hold of a pin h^3, figs. 3 and 5, connecting with the shifting-bar *u*; and the movement occasioned by the striking of G against h^1 shoves the bar *u* along, so that at the next vibration of *t*, the point of the regulating screw u^3 will strike the highest part of the slope on *u*, and keep the bar *t* from coming so far forward. This then arrests the motion of the sinkers sooner, and they accordingly sink the loops shallower and as required for plain work. Every revolution of the main shaft H^2 produces one complete course; and in weaving a garment a long piece of web must be woven before any of those shifting parts will be brought into play a second time. At H^4 is a worm wheel, which operates to turn the vertical shaft G^1, notch by notch of the toothed-wheel attached. The number of notches in this wheel is the same as the number of courses required to complete a garment or article, as a cuff. As such articles are made in a continuous web, it is necessary that some finish be given, as well as a means for separating them apart. This is done by forming at each end what is known as a "welt." This is a few courses woven plain with a draw-thread, which, being taken out, separates the articles and leaves a row of loops to be taken up by the needles on the frame which is engaged in weaving the shirts to which the cuffs are to be attached.

Claim.—1st. So combining two sets of needles, such as are commonly employed on knitting-frames, that they may be brought into joint action, and have loops formed on both of said sets, at one and the same time, and thus form a ribbed fabric, as described.

2d. The arrangement of the needle-bars and the two pressure-bars, so combined that, when both sets of needles are in action, both pressure-bars will also act upon the barbs of the needles, as described.

3d. The self-setting latches in combination with the needle and pressure-bars, as described.

4th. The combination of the regulating bar *u* with the shifting bar and the set-screws, for regulating the throw of the sinkers and depth of the loops, as described.

5th. The manner of discharging the loops—that is to say, casting off those of one set of needles a little in advance of those of the other set, and giving to the first set of needles an upward motion, as soon as the cast-off has been effected from them, for the purpose of relieving the strain, as set forth.

No. 13,693.—JOHN H. DOOLITTLE, assignor to the "AMERICAN HOSIERY CO."—*Improvement in Knitting Machines.*—Patented October 16, 1855. (Plates, p. 68.)

The frame cams on the driving-shaft, levers, rock-shafts, and all other parts of this machine (except those claimed as improvements) are made substantially as described in the patent issued to Rufus Ellis of Northampton, June 1851.

I construct the feed motion by a bar A, having projecting teeth on the front end, which fit into the spaces between the needles, as repre

sented at *a* in fig. 3. This bar slides backward and forward horizontally in a guide of bar *b*, moved by lever B. This lever B is worked by cam C, and is supported by the fulcrum D, and held up to the cam by the spiral spring E ; and its lower end works in a slot *c* in the block *d*.

The front end of bar A also receives a lateral motion by means of bar *b*, which is attached to the small bar *f* by a joint-screw *e*. This small bar *f* receives a longitudinal reciprocating motion from right to left, or *vice versa*, by means of the double projecting pin *g* working in the cam groove *h* or *i*, figs. 3 and 4.

The feed motion is reversed by means of the inclined planes *k* and *l* attached to the needle tighteners, so that when the needle bar C is passing in the direction indicated by arrow, fig. 5, the inclined plane R will pass under the end of the spring-bar *m* and raise it, which raising will depress the left-hand end of bar *f*, and force the projecting pin *g* into the cam groove *h*. When pin *g* approaches the curved part of the cam, it will move the needle-bar the distance of one needle to the right, ready to knit the next stitch. When the needle-bar G is at the end of the right-hand motion, the inclined plane *l* will raise lever *n*, and of course force pin *g* into cam-groove *i*, which, being of different shape, feeds the needle-bar in the opposite direction.

The ears of the series of needles are attached to two studs H and I on the needle-bar C, which latter slides in a dove-tail groove. Pin *p* is attached to stud I, which pin is provided with two eyes, through which a pin passes to connect the needles. The upright H is attached to needle-bar G by means of a binding screw, so as to be movable at pleasure, and have a slot in the top into which passes the piece K, so that it will be secure in the slot and recess, as seen at *r*. To the left-hand edge of this piece K there are also two loops, which serve to hold the joint pin which attaches the needles to the piece as seen at *s*. By this means any desired number of needles can be attached and tightened with the greatest ease, and their number increased or lessened. The apparatus for counting the number of courses that are to be knit, (as for the heel of a stocking,) is worked by the means of two cams, L and M, (on the upright sheet of the cams which give the feed motion,) engaging the horizontal sliding-bar N. When the small feeding-bar *f* is raised so as to be worked by the groove in the upper cam F, the rod O will raise the bar N so that the cam L will take hold of the catch part *t*, and draw it to the left nearly against the cam-shaft, which will cause the upright P to force forward the dog or hand U, and revolve the counting wheel one notch. When the left end of lever *f* is depressed, the cam M draws back, so that the counting wheel will be revolved *one* notch for every two courses knit across the heel. When it is determined how many courses are to be knit across, half the number of holes is counted off from the end of the block *v*, and there is inserted a pin as *w*, so that when the count-wheel is revolved sufficiently to bring the pin *w* against the end of the block *v*, it will force back the end of the bar Q so as to release the catch, when a spring will force the bar Q longitudinally to the right, and by means of a clutch-lever throw the driving-pulley out of gear, and stay the

knitting. The longitudinal motion of the bar N also gives a longitudinal motion to the rock-shaft I, which works the yarn-guide O through the medium of the connecting-lever U, so as to cause the yarn guide to bring the yarn across the needles in the desired direction. whichever way the feed motion is working. The yarn-guide O is made with a spring, to allow knots or other inequalities to pass through without breaking the yarn.

Claim.—1st. The method of producing the feed motion, by means of a feed bar, with teeth formed upon it, of proper shape to engage with and move or feed the series of needles, substantially as described.

2d. The method of reversing the feed motion by means of the inclined planes *k* and *l*, spring bars *m* and *n*, swinging bar *p*, and the cam grooves *h* and *i*, when constructed, arranged, connected, and made to operate in the manner substantially as described.

3d. Attaching the blocks or inclined planes *l* and *m* to the needles in such a manner that they will always operate at the end of the course without reference to the number of needles used, substantially as described.

4th. The method of working the counting apparatus, in combination with the method of throwing the machine out of gear, when the parts are arranged, constructed, and made to operate substantially as described.

No. 13,750.—Arasmus French.—*Improvement in Knitting Machines.*—Patented November 6, 1855. (Plates, p. 68.)

Hoop *a* (open at *c*, so as to serve the same purpose as the ends of the common knitting-needles used by hand for forming the stitch) is suspended in clamps *d*, in such manner that two opposite clamps sustain the hoop, while the clamps are alternately opened so as to allow the work to be fed in either direction. The clamps consist of two sliding parts, *d e*. The circle B receives a reciprocating circular motion from eccentric C. The points of wedges *h* attached to circle B pass through transverse slots in the part *e* of the clamps and force it back, thus opening the clamps. When the wedges are withdrawn, the clamps are again closed by India-rubber springs *g*, so that they will be alternately opened and closed at every stitch, and so that while two of them are holding the hoop, the other two will be open and allow the work to be gradually fed by the operation of the needle in taking off the loop. The needle-bar is supported in a hollow socket *k*, secured to arch-bar F by a pin *l*, so as to allow it free motion in all directions. The point of the needle describes a small circle, corresponding to the motion of the rear end of the needle-bar, pivoted to the eccentric G, which also works on the eccentric C. The arch-bar F can be moved longitudinally by means of jointed piece K, working against slide *n*, or drawing it back by bar *p*, which is effected by a pin or pins *o*, set in the holes in the face of the circle L, which circle is revolved by tooth *q* on eccentric C. There are as many pins used as it is desired to narrow times in knitting round. As the arch-bar sustains the needle-holder, a slight longitudinal motion will cause the needle to take two loops from the point of the hoop at once, and make but one stitch from them.

Claim.—The combination of the eye-pointed needle D with the hoop *a a*, when constructed, arranged, and made to operate substantially as described.

2d. The method of opening and closing the clamps *d d d d*, for holding the hoop *a a*, by the use of the cams or wedges on the circle B, when worked by the same eccentric which works the needle, when the whole is constructed and made to operate substantially as described.

3d. The method of narrowing by giving a longitudinal motion to the arch-bar F, when constructed, arranged, and made to operate substantially as described.

No. 13,811.—Timothy Bailey.—*Improvements in Knitting Machines.*—Patented November 20, 1855. (Plates, p. 69.)

The sector g^3 and wheel g^5 are secured to shaft g^2; wheel g^4 turns loosely on said shaft; ring g^6 rests loosely upon the inclined face of wheel g^5. The finished tube of yarn passes down between the wheel g^5 and ring g^6, as shown in figure 3. The shaft g^2 is suspended from arm *g*, fastened to revolving ring *f*; as shaft g^2 is carried round by the revolution of ring *f*, the wheel g^4 revolves by friction against the yarn-tube, and carries back said tube at the points of contact towards the butts of the needles, thus removing an already formed stitch out of the way. As these stitches leave the wheel, they are received by the sector g^3, which holds them back until ready to be acted upon by the wings or burrs i^2, which lands said old stitches as hereinafter described.

The stud *h* carries upon the bent axle h^1, first, a small toothed wheel h^2, and subsequently the sinking burr h^3. The teeth *x* on wheel h^2 are equal in face, or nearly so, to the space between the needles at the points where said wheel travels over the needles, and the teeth therefore mesh between the needles, which therefore constitute the rack which causes said wheel h^2 to revolve upon its own axis, as that axis is carried around by the ring *f*; other teeth x^1 x^1, upon the same gear-wheel, take into corresponding teeth upon the sinking burr h^3, and this burr, therefore, revolves *in pari passu* with the gear h^2.

Upon h^3 are wings or peculiarly shaped screw-threads x^2 x^2, corresponding in number with the teeth *x*, and of sufficient elevation above the general contour of the burr h^3 to enable them to sink down a loop of yarn between each needle and its neighbor, the yarn being delivered through the hole in z^1, and through a small aperture in a plate h^4 attached to the stud *h*. The levers or wings h^2 are much thinner than the space between two needles, but the teeth *x* cause each wing to enter accurately in the centre of the space, and do not permit the wing to grind against one side of each needle, as would be the case if the burr h^3 was revolved by the direct action of the needles against its wing; the loop is, therefore, by means of the use of the gear, sunk regularly in the centre of the space; there is room for knots and uneven spots of yarn, and there is but little danger of cutting the yarn, as in a shear, by nipping it between the side of each needle and the wing, or screw-thread. The small depression at a^4 in each wing receives the thread, and, pressing it down between the needles, is carried

by the same, and slid under the beard until it reaches the head of the needles, forming it into a loop.

Upon the axle i^1, attached to stud *i*, revolves a burr i^2, also having wings, to which is attached the pressing conoid i^3. The axis i^1 is inclined at a considerable angle to the radii which the needles represent, and the wings i^4 on burr i^2 enter behind the old stitch, and gradually shove it forward over the needle beards, and towards the head of the needles. While they are performing this operation, each beard is held down by the revolving conoid i^3, which has formed in it helical grooves, so shaped that each groove takes in each beard at its throat, and gradually rolls it down towards its points, where the landing-wings land the old stitches over the beard.

The landing-burr, and the pressing-conoid thereto attached, are revolved by the needles acting as a rack against the wings i^4, which also act as cog-teeth.

Two or more rollers *o o* are secured in a proper frame; on the axis of one of these rollers is secured a toothed wheel o^1, and that axis is prolonged and passed through a hole o^2 in a plate o^3 pivoted under the apertures at o^4; this plate, therefore, may oscillate in a horizontal plane, and the hole o^2 is so large that the shaft passing through it can move to and fro easily. The knitted tube passes between these rollers, so also does the shaft g^2; and these rollers hug the tube tightly, and are supported thereby; their weights, therefore, act as a feed weight to the tube, and the rollers descend with it. Any one point, moreover, in the rollers or their frame, will describe an egg-shaped curve, compounded from the planetary motion of shaft g^2 and the sliding motion of the shaft in hole o^2. Just below the oscillating plate o^3 is secured a species of rack o^5 with three or more teeth *y*; if the rollers with their frame be now supposed to be clasped around the finished tube, and around shaft g^2, and rolled upwards along said tube as high as the shaft in hole o^2 will permit, they will not be able, on account of the dogs o^6, to roll down over the surface of the tube, but they will descend as the tube descends in receiving an accession of new stitches at the upper end thereof; but while these new stitches are forming, the rollers and their frames, and consequently the toothed wheel o^1, will describe egg-shaped curves, and the path described by o^1 will at certain times pass over the rack o^5. When so many rows are completed, and the tube and roller-frames fall so far that the teeth on *o* touch the thin rack-teeth *y*, then will these rack-teeth cause the wheel o^1 to rotate as it passes over them, and will, consequently, force the whole frame to climb along the tube of knitted stuff and take a new hold. The frame, even while climbing, is supported by, and consequently weights the tube: and when the frame falls again so that the teeth of wheel and rack are again in contact, the frame climbs as before.

Claim.—1st. Actuating the sinking or other burrs by means of a gear-wheel, whose teeth are actuated or rather acted upon by the needles, as a rack, whereby the wings in said burrs are freed from contact with the needles, and do not nip the yarn tightly between said wings and needles, substantially in the manner and for the purposes described.

2d. Carrying back the old stitch, and holding it back by means of a

disc-wheel and segment, having a planetary motion, as set forth; and also the leading of the finished cloth through a ring, or its equivalent, surrounding a shaft, having a planetary motion, whereby the action of the drag weights is properly adjusted upon different portions of that circuit of the cloth which is being acted upon by the needles and levers, substantially as specified, and in combination with a cloth or knitted tube, to which is imparted substantially such a revolving motion as is described.

3d. A self-adjusting climbing drag weight, constructed substantially in the manner set forth.

Lastly, a stationary series of needles in circuit, when constructed and arranged substantially in the manner described, in combination with revolving burrs driven by independent gearing, and travelling from needle to needle, whereby the turning of the finished cloth on its own axis is avoided, and all difficulties incident thereto obviated.

No. 12,771.—R. L. Hawes, assignor to Robert Rennie.—*Improvement in Machines for Dressing Lawns.*—Patented April 24, 1855. (Plates, p. 69.)

The goods enter the machine over the bar P, the selvages being put upon the pins *y* of wheel M M^1 at a point S, where these points approach nearest to each other. As the wheels M M^1 revolve, the points continually recede from each other until they interlock with those upon the hoops D, to which the fabric is transferred, the brushes N N^1 serving to press it down upon the hoops. The hoops or rings D surrounding the drying cylinder B are adjustably attached to discs E E^1 by screw-bars *b* and nuts *c*. Two eccentric rods *f f*^{1} hook over pins *e* *e*^{1} on radial arms H H^1, which arms vibrate freely on hollow bearings C; the pawls *g g*^{1} upon the ends of arms H H^1 operate upon inclined teeth *h h*^{1} projecting from the face of the discs E E^1. When the pawl *g* moves forward striking-tooth *h*, it carries disc E and hoop D a certain distance; when the pawl moves back, it steps over the teeth *h*, and communicates no motion to the hoop. As the eccentrics are set at an angle of 180°, the hoops and selvages will be moved alternately, and the rigid adhesion of the warp and weft threads will be broken, which gives proper pliancy to the material.

Cords *p p*^{1}, with one end attached to vibrating arms H H^1, and the other to springs *g g*^{1}, pass around pulleys *m m*^{1}, and impart to them and their sleeves *l l*^{1} a back and forth motion; and the sleeves (by means of tooth *o* on the sleeve and pawl *n* on the rollers *k* and *k*^{1}) communicate an intermittent rotary motion to the rollers *k k*^{1}, which rollers turn freely on stationary shaft K. The roller sections *i i i* revolve freely and independent of each other on th ir shaft. As the selvages alternately leave the machine, they pass between the rollers *i* and the corresponding one of the rollers *k* or *k*^{1}, and as these revolve intermittently, the selvage is alternately drawn off.

The inventor says: I do not claim finishing lawns by causing the selvages to advance alternately as the goods through the dressing machine, as this is done upon the machine described in Newton's London Journal, conjoined series, vol. 32, page 77.

But I do *claim* the stationary heating cylinder in combination with the hoops D, having an alternate intermittent revolving motion, in the manner described, and for the purpose set forth.

2d. The sectional roll I, in combination with the rollers *k k*^{1}, operating substantially as described for the purpose of drawing the selvages alternately from the machine as set forth.

No. 12,120.—Abram Brigham.—*Improvement in Looms.*—Patented January 2, 1855. (Plates, p 69.)

The treadles are of the common form, and provided with a tappet, on which the cams operate to move the harnesses. On the last cam upon the outward side is cast a lip wide enough to operate on a slide, to which is fastened a tappet in the same manner as to the treadles. The slide extends no farther forward than the tappet, and is not attached to the harnesses, but to the last treadle. This slide is provided with one or two slots, sufficiently long to clear the lip in moving back or forward, when the loom is weaving the tube. One slot moves on the pin in the stand which holds the treadles to the back girt. The other slot moves on a screw or stud pin made fast to the last treadle, but slides easily on both. While the tube is being woven, this slide and tappet are held back far enough to clear the lip on the last cam. When the bottom is to be woven, the slide and tappet are brought forward to operate on the lip, and the treadle assumes the position shown in dotted lines in figure 6. At *c* is shown, on the hub of the cam, a convex surface for self-adjusting and fastening the cams. Figure 7 shows an intermediate cam with four concave surfaces on both sides of the hub shown at *r*, and corresponding in size with the convex ones in figure 1.

Claim.—1st. The above described mode of locking together and adjusting two or more cams on one shaft, viz: by means of the convexities and concavities applied to them, essentially as specified.

2d. The combination of the movable or sliding tappet *t*, and the extra cam or lip *p*, with each other on the main cam or its shaft, and the treadle, the whole being made to operate together, substantially in manner and for the purpose as stated.

No. 12,225.—Joseph Welsh.—*Improvement in Looms.*—Patented January 9, 1855. (Plates, p. 70.)

When the returning shuttle strikes the picker E, which, being in contact with the upper end of the face of the spring-lever G, causes it to yield slightly, (thus easing the blow of the shuttle,) the lever instantly recovering its position, the shuttle-box commences to move, and one of the planes of the block *f* thereon being in contact with the projecting pin *g*, the upper end of the lever G is necessarily forced along the plane, and the picker following in contact therewith, under the action of its spring, is necessarily also separated from the point of the arrested shuttle, which is thus allowed to be moved by the box freely, up or down, as the case may be, and the other shuttle brought in proper position before the picker, as the upper end of the spring-lever G returns upon the other plane, and is arrested by the stop.

The inventor says: I do not confine my claim to the precise construction and arrangement of the lever G as shown, nor to the precise mode shown of causing it to produce the effect described;

But I do *claim*, in combination with the lay, the lever *g* and cam *f*, when arranged substantially in the manner described, so that in every change of the shuttle-box, the picker shall be released from contact with the shuttle by a positive motion.

No. 12,229.—Wm. Tongue, assignor to Himself and James Buckley.—*Improvement in Looms.*—Patented January 9, 1855. (Plates, p. 70.)

The treadles of the loom being in connection, as before described, with the heddles, and these, as just explained, with the continuous cord A, through the medium of the wires *a*, levers D, and double pulleys C, when any one, or any number, less than the whole of the treadles, is depressed, the corresponding levers of heddles necessarily follow, uplifting all the others, and each heddle-leaf being kept separated laterally from the others, by means of the rack G, their motion up and down is steady, free, and accurate.

The inventor says: I do not claim the double pulleys C, nor the levers D, nor the wires *a;*

But I do *claim* the combination of the continuous cord A with the pulleys B and double pulleys C, substantially and for the purpose as herein described, irrespective of the number of the double pulleys C or pulleys B, as these are intended to be increased or diminished, as the number of sheds wanted may require.

No. 12,236.—John H. Allen.—*Improvement in Temples for Looms.*—Patented January 16, 1855. (Plates, p. 70.)

When the lay beats up, it strikes the two arms E F, and bears their spring against the screw; and as the arms are made to project beyond the front surface of the spring, the spring will operate with a double action upon the shaft of the lower jaw, in a manner conducive to the preservation of the temple. Immediately after the temple clasps the cloth, the same spring that closed the jaw throws the temple backward and outward, thus keeping the cloth fully extended the entire length of the reed, and causing the temple to make its greatest draught upon the cloth at a time when the cloth is free from all tension. The temple then holds the cloth completely extended until the reed again strikes it, thus entirely preventing any draught of the cloth coming upon the reed, and at the same time leaving the selvage-thread free from all outward strain, which the reed naturally makes upon them when it is driven forward towards the cloth.

A represents the upper-jaw bar of the temple, whose jaw is shown at *a*. B is the bar of the under-jaw or arm C, whose jaw is shown at *c*. The joint pin *f* is supported by the hinge-plate D, forming the joint of the temple.

Claim.—Arranging the turning joint of the temple about midway between the ends of the shaft of the inner jaw, in combination with applying the spring G, so that it shall rest at or near its middle against the adjusting screw K, and at its ends against the two arms from the said shaft; the same enabling me not only to nearly, if not entirely, balance the temple, and prevent it from undue pressure on the cloth, but to obtain from the spring a double action on the shaft, or an action on each side of the turning joint, by which the advantages in operating the temple and preserving it in correct operation are obtained, as specified.

No. 12,274.—James Eccles.—*Improvement in Looms.*—Patented January 23, 1855. (Plates, p. 70.)

The lever A oscillates with the lay F, and in consequence of each vibrating from different centres (D and H,) the pin E will describe a certain way within the slot in the rod A. When the lay is furthest from the cloth, the pin E is at the top of the slot, thereby holding the lever A and picker G forward in the shuttle-box C. As the lay F and lever A move forward, the pin E descends and lever A rises, (see dotted lines I and K,) so that when the reed strikes the cloth, the pin E will be found at the lower part of the inclined slot of lever A, which will then have receded from the shuttle in box C. Thus a lateral motion is given to the picker G by the pin E traversing the slot of lever A, as the lay F vibrates to and fro.

Claim.—Moving and holding the picker forward in movable shuttle-boxes, for the purpose of stopping the shuttle thereby, and causing the picker, after having stopped the shuttle, to recede, substantially as described, and for the purpose set forth, by the action of the lever A and pin E, or their equivalents.

No. 12,293.—George Copeland.—*Improvement in Looms.*—Patented January 23, 1855. (Plates, p. 71.)

The general features of this improvement can be understood from the engraving and claims; a more detailed description would take up too much space.

The inventor says: I *claim*, 1st. Placing the cams G G G and G^1 G^1 G^1, which operate the two sets of harness, upon two shafts F and F^1, carried by opposite arms of lever-beams K K, which are capable of rocking upon a fixed shaft D, with which the cam-shafts F F^1 are geared, and from which they receive the motion, substantially as described, relatively to each other, to change the operation of the harness.

2d. The method described of securing the lever-beams K K to maintain the proper position of the cam-shafts, for one mode of operating the harnesses, and changing their position for the other mode of operating, by means of a spring or springs *c c* or equivalents, or hook *e* and a disk N or equivalent, carrying a stud *k*, all operating and acted upon substantially as set forth.

3d. In weaving the closed part of the fabric or bottom of the bag, I claim giving the lever-beams a continual rocking movement on the shaft D, for the purpose of enabling them to be caught by the hook *e*, and

secured in position for weaving the open part of the fabric, as soon as a sufficient length of closed part or bottom has been woven, and the hook escapes from the stud *k*, which holds it during the latter weaving operation.

4th. Though I do not claim the race-ways in the same loom, with two shuttles which move simultaneously—one leaving its thread in the upper, and the other in the lower of two sheds opened one above the other—

I claim, for the purpose of throwing and catching the two shuttles simultaneously, pivoting the shuttle-boxes to the end of the lay, substantially as described, so that they may by a vibrating or swinging motion move opposite to the upper or lower race-way, as required.

5th. I claim the manner described of operating the two shuttle-boxes, so that both may move simultaneously to and from the position, by throwing and catching the shuttles, by connecting both with a lever T, which is arranged to work under the lay, and receives the required motion from a treadle and cam, or other analogous means.

6th. I claim the slots in the bars *p p*, which form the upper race-way, for the purpose of enabling the weft-thread, which is being carried through the warp, to draw directly, or nearly so, from the filling point of the cloth or fabric.

No. 12,457.—WILLIAM V. GEE, assignor to the "ATWATER AND BRISTOL MANUFACTURING CO."—*Improvement in Looms.*—Patented February 27, 1855. (Plates, p. 71.)

The ends of the treadles *d* are connected with levers *f*, (mounted at right-angles to the line of the treadles,) and these are in turn connected with the inner ends of two double sets of levers *g g* and g^1 g^1, to the outer ends of which the several leaves of harness *h* are suspended by wires *i* or by cords. The treadle-frames descend by their weight; and they are drawn up when required by the action of the cams d^1 on the treadles, and their connexions with the levers to which the harness leaves are suspended. The harness is divided into two sets, one half suspended to the lower set of levers *g g*, and the other half to the upper set of levers g^1 g^1; and each set must be complete in itself, the number of leaves in each set depending upon the fabric to be woven. One half of the warp-threads for each web are passed through the mails of one set of harness, and the other half through the mails of the other set; so that each set can weave a complete web of a given width, or both sets may weave a web of double that width. The one set of treadles actuates both sets of harness; but if one set be lifted and kept up, then they will only actuate the other set. When weaving the entire width, both sets of harness are kept in action; but when a button-hole is to be formed, the action of one set is suspended and lifted up, that the shuttle may pass under the warps governed by it, whilst weaving the web on the other side of the button-hole, whatever may be its length, which is effected in the following manner: The two sets of levers *g g* and g^1 g^1 are each set divided into two parts, one extending from near the middle to the right, and the other to the left. They turn on fulcrum pins i^1 and i^2, and their outer ends rest in stirrups j^1 j^2, one at

each end, and adapted to slide vertically in grooves in the two beams *k* and k^1 which enclose the levers. These stirrups are connected each to the outer ends of levers arranged in pairs *l* and l^1, one pair for each set of stirrups, the two levers of each pair being connected by a pin on the end of one working in a slot in the other, so that one will work the other; and one of each pair is connected, by a rod *m*, with one of the sliding-bars *n* and n^1, so that when either of these bars is drawn down, the two stirrups connected therewith will be lifted up, which will in turn lift one set of levers *g g* and g^1 g^1, and thus elevate and suspend the action of one set of harness whilst the other continues to operate. The bars *n* n^1 are drawn down by treadle *o* o^1, actuated by cams *p* p^1 (the action being in opposite directions, by having the two treadles *o* o^1 connected by rods with the opposite ends of balance-lever *q*). Treadle *o* is connected, by a joint-link *r*, with a slide *s*, which works on ways *t t*, by which connection the slide is made to move up and down at every rotation of the cam-shaft; the bars *n* n^1 carry a spring-catch *u* u^1, and whenever either of these catches is forced towards the slide *s*, it takes hold of it in its descent and draws down the bar; and as the bar is notched at *v*, to receive a spring-dog *w*, it is held until the dog is drawn out. Thus the two bars are drawn down to lift up either of the two sets of harness, or liberated to permit the harness to be operated by treadles. The time when either set of harness is to be lifted and be liberated, and the length of time that they shall be suspended and kept in action, is determined by a cam-barrel *x*, with four cam divisions, 1 2 3 4. Cam-barrel *x* receives slow motion by worm-gearing, and the four divisions are so disposed as to act each on one of four spring-levers a^1 a^2 a^3 a^4, the first two corresponding with the bars *n* and n^1, so that when a depression of the divisions in the cam-barrel passes under either of the two levers, they are permitted to be forced by the tension of their springs, and thereby to force in the spring-catches *u* u^1 on the bar *n* or n^1, so that the slide *s* will catch hold of, and thus draw down the appropriate bar, which is there held by the spring-dog. The circumference of this cam-barrel, its velocity relatively to the other parts of the loom, and the distance between the several depressions in the second and third divisions of the cam-barrel, determine the periods when either of the two bars *n* n^1 shall be drawn down to suspend the action of either of the two sets of harness. The other two divisions determine when the bars shall be liberated, which is done by the two spring-levers a^3 and a^4, each of which carries a pin b^2, which passes through the corresponding dog *w* that holds down the bar; and the depressions in these cams permit the levers to descend, so that these pins may pass through sufficiently far to be acted upon by a cam projection on slide *s*, which forces the spring-dogs out of and liberates the bars.

Claim.—The method of forming button-holes in the process of weaving suspender webbing and other fabrics, by mounting the loom with two or more sets of harness, each governing all the warp threads on one side of the intended button-hole, and each set being lifted and suspended, substantially as and for the purpose set forth.

Also, connecting each set of harness under the before-named method of weaving fabrics with button-holes, with a bar or slide governed by

a cam and catch, or the equivalent thereof, to suspend the operation of either set of harness, substantially as described.

Also, in combination with the mechanism described, for lifting and suspending the action of the sets of harness or any equivalent therefor, the mechanism for determining the period of the suspension of the action of the several sets of harness, or any equivalent therefor, substantially as and for the purpose specified.

No. 12,565.—Lewis Van Riper.—*Improvement in Looms.*—Patented March 20, 1855. (Plates, p. 72.)

The loom is provided with a pair of heddles K and L of the usual construction, operated by treadles M and cams N in the usual manner, so as to open a shed at each beat of the lay; and if the action of these heddles upon so much of the warp-threads as are passed through them is not counteracted or modified, plain cloth will be the result. But a small portion of the warp-threads are passed through the heddles, while the greater part of them are passed through the eyes of a series of needles *a* and *b*, placed in front of the heddles, though every alternate thread of that part of the warp which is to be woven into gauze-fabric is passed through these needles. The purpose of the needles is to intertwist together between each weft-thread, alternately to the right and left, every pair of warp-threads through them; that is, one thread of the upper series of needles and the corresponding thread of the lower series are intertwisted or twined together to the right after one weft-thread has been thrown, and to the left after the next weft-thread is thrown. To produce this effect it is only necessary that the warps of the two series of needles should be crossed at every second pick; for their return from the crossed to the parallel state produces the reversed twining.

The upper series of comb-teeth or needles *a*, is attached to and projects downward from a bar *o*, which is free to be moved up and down on the guide-rods *d* and d^1. From the upper side of this bar two flexible or jointed standards *e* and e^1 project, which are pivoted to the inner ends of small balance beams $f\,f^1$, whose fulcra are on arms depending from the beam P, which connects the standard Q, which support the harness. The lower series of needles *b* rest upon a second cross-bar R (which is guided in the same manner as bar O). This bar R is connected by link-rods $g\,g^1$ to the outer ends of the balance beam $f f^1$. Under this arrangement, when one of the bars with its series of needles is depressed, the other will be simultaneously elevated. This elevation and depression is effected in this instance by connecting the lower bar R by means of link-rods $h\,h^1$ to the extremities of arms $k\,k^1$, that project from a rock-shaft S, which derives motion from a cam T on the cam-shaft *j*, which cam is of peculiar construction.

This cam is of the grooved variety, and its groove *l* in shape very nearly resembles the figure 8; so that a pin *s* on the end of the lever or arm k^2 which traverses this groove, will give to the arm two reciprocating motions or vibrations for each revolution of the cam. This groove *l* in the cam is capable of being changed in form by means of a pair of hinged shutters or gates *m*, so that the pin *s*, after traversing one half the figure 8, will pass over by a cross groove *n*, and retrace its path through

the same half of the figure instead of traversing the other half. When the cam is thus made to pass by or skip one half of the groove *l*, the arm k^2 only makes one vibration to one revolution of the cam-shaft. The vibrations of the arm k^2 are made to vary, so as to give a variable motion to the needles from and towards each other, for a purpose that will be hereafter explained.

The journals $o\,o^1$ on which the gates *m* turn, extend through the cam to the side of a rod *p*, so that the gates may be simultaneously opened and closed. One of the cranks is fitted with a pin *q*, which under certain circumstances strikes a spiral guide or cam *r* on the end of a lever r^1, which, by its peculiar shape, operates to turn the cranks about 60° of a circle, more or less, so as to open and close the gates *m*, and thus vary the shape of the groove. When the lever is turned so as to bring the guide *r* without the range of motion of the wrist-pin *q*, the cam-pin *s* traverses the whole groove *l*; but when the groove is brought within the range of motion of the pin *q*, the latter runs on it, and opens the gates, which are closed immediately after the passage of the pin *q* round the guide by the spring p^2, which bears on one of the cranks or their connecting-rod, when the cam-pin only traverses the half groove *l*. The guide-rod *r* is moved into and out of the range of the revolution of the crank-pin *g*, by means of the joint-action of a cam *u* on the cam-shaft, and a cam *v* on the side of the rachet-wheel *w*, by which the cloth-beam is turned to wind up the cloth as fast as it is woven. The cam V on the ratchet-wheel is a segment of a ring of about seven-eighths of a circle. The office of this annular segment is to hold down one arm t^1 of a bell-crank T^1, which holds the other arm *t* in a position more remote from the ratchet-wheel, than if the arm t^1 were not held down. This holds the front extremity of the lever r^1 towards the middle of the loom, and keeps its opposite end with the guider out of the range of the crank-pin *y*, and the pin *y*, projecting from a branch arm to the guide, out of the range of the cam U.

When the space between the ends of the annular segment V is brought over the arm *t* of the bell-crank, a spring *w* acting upon the arm t^1 will pull it towards the ratchet-wheel, and cause the other arm to rise and enter the notch or space between the ends of the segment. This will throw the front end of the lever r^1 towards the ratch-wheel W, and move its opposite end towards the cam, bringing the guide-scrole *r* within the plane in which the crank-pin *g* turns and the pin *n* within the plane described by the projection u^1 of the cam U, so that the gates *m* in the grooves *l* of the cam will be opened to allow the cam-pin to traverse one part of the groove, and then cross back and traverse it again, making a single vibration of the arm for one revolution of the cam, instead of allowing the pin *s* to pass round both ends of the groove and give two strokes or vibrations to the arm for one revolution of the cam. The arm *t* remains in the space or notch *v*, except for an instant during each revolution of the cam U, when it strikes the pin *u* in passing, and, turning the lever r^1, withdraws the arm from the notch for an instant, which will permit the ratchet-wheel to turn if the requisite number of weft-threads have been woven into the roll to make a transverse stripe of plain cloth of the width required,

which in the example of cloth represented in the drawings is five weft-threads.

The ratchet-wheel w is turned and the cloth wound up, by means of a ratchet-arm x on a vibrating lever X. This lever is bent at the point, so that a portion of its outer end is inclined to the radius of arc in which the lever turns. This inclined end of the lever passes between a pin y projecting from the side of the sword of the lay, and another pin just above it ,which projects from the side of an arm z; so that when the lay moves forward to beat upon the weft, the pin z will press against and slide along the upper side of the inclined part of the lever and depress it, which will have the effect of pushing forward the ratchet and turning the wheel W, which turns the pinion Y, that gears into a wheel z on the cloth-roll C and winds it up. On the return back of the lay, the pin y will strike and slide along the under-side of the inclined part x^1 of the lever, elevating its inclined end and depressing the opposite end, which will pull back the ratchet, ready to be again pushed forward to turn the wheel w and the notch on the next forward stroke of the lay.

The arm z projects down from a shaft z^1 on the back of the lay, which rests in bearings in brackets z^2. Another arm 2 projects upwards from this shaft z^1, and is jointed to a bar 3 on the lay, to which the reed is attached. This reed-bar 3 is constantly pressed forward by two springs 4 on the back of the lay, and when the weft-thread is beaten up, the reed will yield and press these springs back; which protectsthe web from being beaten up too forcibly by the reed, and also insures its being beaten up equably, provided the cloth is taken up at the same speed with which it is woven. This take-up is insured by making the yielding of the reed wind up the cloth. This is done by the bar pressing the arm z back, when the reed strikes up the weft. The resistance of the weft to being beaten up, turns the arm z with its pin forward, and causes it to turn the lever down; if the reed should not be forced back, the pin 5 would remain so far back of the inclined end of the lever x^1 that it would not press it down on the forward movement of the lay, and therefore, on that beat no winding up would take place, although a weft-thread would be put in. Now, this will render the explanation of the unequal feed easy.

Where the warps are twined together, the weft-thread cannot be beaten nearly so close together as where the warps are not twined; therefore, whenever the arm t of the lever T^1 drops into the notch of the cam V, and the twisting of the warps ceases, the reed will meet with less resistance in beating up the weft, and but little if any winding up of the cloth will take place until a sufficient number of additional weft-threads are thrown across to compensate the twining, which in the example of cloth shown in the drawing is five picks, when the feed will be resumed and the notch of the cam turned past the arm t, while the latter is withdrawn by the cam u, as hereinbefore described, and gauze will again be woven until the notch of cam V again comes round to the lever and suspends the twining. The needles for twisting the warp are of two kinds: one a^1 and b^1, with long eyes or mails; the other a and b, with short eyes. Those with short eyes are designed to move the warp-threads back and forth whenever they move, while those with

long eyes are designed to move the warps in one direction only, and to move freely over the warps in other directions without moving them.

The eyes of these needles are at a short distance from their ends, and the end from the eye outwards is beaten into the form of a thin wedge, and bent as represented, while the shank of the needle is round or of any other suitable form. These needles are fastened, by the end most remote from the eye, to a stock or bar, so that each series of needles with its stock resembles a comb. The needle-bars, or stocks, have a series of equi-distant holes set out for the needles; and a sufficient number of the long-eyed needles are set in at one end to make a strip of plain cloth of the required width for selvages. Next, a series of short-eyed needles are placed in the stock, omitting one hole adjacent to the long-eyed needles, for the purpose of permitting the lengthwise stripes to be woven in the web without crossing the thread. The number of short-eyed needles thus placed must correspond to the number of meshes required in the stripe of gauze. Next, a long-eyed needle is inserted; then a space of one hole is left, and another series of short needles are inserted; and so these operations are repeated until the comb is complete. The upper comb of needles should be commenced to be inserted at the opposite end of the stock from that at which those in the lower comb are inserted, in order that the long-eyed needles may be placed at opposite sides of the spaces in the two combs.

Instead of bending the points of the needles, they might be made straight; and those of one series inclined towards those of the other series, so that their tapered points might overlap, as they do when bent. The stock of the lower series has a lateral as well as an up-and-down motion, and the object is to carry the threads which pass through the eyes of those needles alternately to the right and left of the threads which pass through the eyes of the upper series of needles, preparatory to moving them up and down to form the shed. This gives the twist between the warps. This lateral movement of the needles takes place while they are at their lowest position with the two series of warp-threads separated to form a shed, and preparatory to being raised; and it is effected by means of a spring-lever i vibrated by a cam j or groove round the surface of a cylinder that runs to the right and left alternately, in which groove a pivot traverses that projects from a vibrating treadle i^1, to the front end of which the lever i is connected. The lateral motion of lower needle-stock is limited by an arm 6, which projects down from it between two brackets f, having adjustable set-screws to limit these vibrations of the needles.

I *claim*, first, intertwining the warp-threads in the manufacture of gauze-fabrics, by the employment of needles having a compound motion, substantially as described.

2d. Constructing the needles for working the warps with flat or thin and crooked ends, substantially as described.

3d. The arrangement of the needles in two series; and giving to one or both series a compound lateral and longitudinal motion, to intertwist the threads which the two carry, and at the same time open a shed for the insertion of the weft-thread, substantially as described.

4th. The method described of working the needles so as to cause

them to raise and lower, and intertwine the warps, alternately with simply raising and lowering them, to adapt them to weaving gauze and plain fabrics alternately.

5th. The combination of the needles and heddles, operating automatically, substantially as described, so as to form a web of reticulated bars or strips of plain fabric with the spaces between the bars or strips filled with gauze.

6th. The combination of the yielding reed 3, the lever with the pin 5 on its lower end, the pin *y* on the sword of the lay, the ratchet-lever X, with its double inclined planes X^1, for the pins to act upon, and the ratchet-wheel W, with the cloth-beam, for the purpose of winding up the woven fabric at a variable rate, substantially as set forth.

7th. The combination of the mechanism for winding up the woven cloth with the cam U, and the intermediate devices for the purpose of effecting the requisite changes in the variable cam T.

8th. The variable cam T, for the purpose of changing the operation of the needles, as set forth, to adapt them to weaving plain and gauze fabric, alternately set forth.

No. 12,593.—David S. Harris.—*Improvement in Looms.*—Patented March 27, 1855. (Plates, p. 73.)

D, shuttle-guard secured to the lay cap *b* by two staples *c c*, which serve as bearings. The rod D is cranked, to throw it forward over the shuttle race to enable it to lay over the shuttle, (see figure 2,) and the end nearest the shipper E is bent backwards over the lay cap to form an arm *d*, to be connected by a light rod *e* with the longer arm of lever *f*. The shuttle-guard is represented in figure 3 as being raised.

The inventor says: I do not claim the shuttle-guard, as I am aware that shuttle-guards substantially similar to that I have shown have been employed, attached fixedly to the lay, or, if movable, requiring to be moved by hand; and I do not confine myself to the use of a shuttle-guard constructed precisely like that described;

But I *claim* the connection of the shuttle-guard, in any way substantially as described, with the belt-shipper, in such a manner that when the loom is in gear, the guard may stand over the shuttle-race in such a way as to prevent the shuttle flying out of the loom; but when the loom is out of gear, the guard may be raised out of the way of the attendant, to enable threads to be picked out or drawn through the reed, or such other manipulations to be performed as may be necessary.

No. 12,596.—Wm. S. Irish.—*Improvement in Looms.*—Patented March 27, 1855. (Plates, page 73.)

The harness Q is placed between upright guides Q^2. The harness is provided with shoes P^1, one face of each presenting an inverted incline to the cams P, which are so arranged, that in their revolutions they act immediately and simultaneously upon the shoes, and thus

raise alternately the different leaves of the harness, which latter fall back by their own gravity.

The inventor says: I do not claim the harness-frame, uprights, cams, or shoes;

But I *claim* the method of raising the harness by the immediate application of the cams to the shoes, or projections of the harness, substantially as set forth.

No. 12,630.—Barton H. Jenks.—*Improvement in Looms.*—Patented April 3, 1855.—Ante-dated January 8, 1855. (Plates, p. 73.)

Whenever the shuttle-boxes C are lifted by the rod D, the movement of the sleeve Q up or down will force the wedge *d* of the arm P out of that notch *e* in which it may be (the notches *e* being formed on a rib projecting from sleeve Q); the wedge when forced out will be held by the rib between the notches, until the box is changed to the required position to present another shuttle to the action of the picker, when the wedge will drop into another notch, being forced therein by the spring M acting, through lever K, upon lever P. When the wedge *d* is forced out of the notches, the lower vertical arm *p* of lever P is moved outwards; this raises the horizontal arm P, and that in turn raises the horizontal arm K^1 of lever K, which moves the upper end of arm *k* outwards, thus permitting the spring-lever H to draw the picker outwards far enough to disengage it from the outer end of the shuttle, as shown by dotted lines in figure 2.

Claim.—The yielding-rest or support for the picker, arranged substantially as described, to break the sudden blow or concussion with which the shuttle impinges upon the picker, thereby preventing the filling of the cop from being jarred off and entangled, and relieving the picker from danger of being broken.

Also, separating or freeing the picker from the end of the shuttle by the same movement which shifts the shuttle-boxes, operating through a combination of levers, cams, and springs, substantially as set forth, or through levers, cams, or treadles, worked from any part of the loom.

No. 12,762.—J. G. Melville and William Brayshaw.—*Improvement in Looms.*—Patented April 24, 1855. (Plates, p. 74.)

Driving-shaft B carries two cams C and D, the one of which plays against lever E, and the other against lever F, both these levers having their fulcra adjustable in slots *a a*. The vibrations of lever F impart (by means of pawl J and ratchet I) an intermittent motion to drum G and its belt, which carries the lags *d*, into which are secured the figuring wires *e*, these latter being of different lengths, as usual in such machines. The end of lever E vibrates lever K, the back end of which rests against the wires *e*; its front end takes either into the ratchet teeth of segment M, or into those of segment N, or it plays between the two without touching either of them, according as the back end comes to rest against the long or the short wires, or against the lags, which carry no wires. When the front end of lever K plays between

the segments, the rack-bar Q (to which is pivoted, in *r*, the lifting-rod R which carries the shuttle-boxes S) will be stationary; as soon as lever K operates upon segments M or N, the teeth *i* will respectively lift or depress the rack-bar, and consequently the shuttle-boxes. When either one of the segments is operating the rack, this rack will also turn the other segment simultaneously, so as to keep it always in proper position to catch the end of lever K, when it is changed by the action of the wires from one segment to the other. Spring *m* takes into recesses 7 in the rack-bar, and serves to keep it in the position into which it has been brought by the action of lever K, without offering too much resistance to allow the rack to be moved by the segments.

The shaft T carries at its opposite end a toothed segment W, which serves (as is apparent from figure 2) to move lifting-rod Y and shuttle-boxes U always in a direction opposite to rod R and shuttle-boxes S, by which arrangement the two sets of shuttle-boxes are made to balance each other in their motions.

The inventors say: We are fully aware that a forked bar, through a series of cog-gearing and ratchets, has been used for operating the shuttle-boxes of looms. This we do not claim;

But we do *claim*, in combination with a vibrating bar or lever, one or more segments M N, whose perimeters are partially provided with cog and partially with ratchet teeth, for the purpose of operating the shuttle-boxes of figuring looms through the intervention of a straight rack, so that we dispense with several of the pieces heretofore used, and thus cheapen and simplify the mechanism, as set forth; whilst the same ends are obtained as by the more complicated machinery at present used for this purpose.

No. 12,780.—Laroy Litchfield.—*Improvement in Shuttles for Looms.*—Patented May 1, 1855. (Plates, p. 74.)

The pin *c*, when the spindle is in its operative position (figure 1), stands nearly in line with the spindle; and the spring *d*, by exerting its force above the pin *b*, throws up the heel *c* of the spindle against a bearing (the head of regulating screw *h* serving as such) in the body of the shuttle, and holds the spindle firm.

Claim.—The backward extension of the heel *c* of the spindle, as described, combined with the application of the spring *d* above the said heel, and above and in rear of the pin *b* on which the spindle moves in such manner as to hold the spindle in its operative position by throwing its heel upwards against a proper fixed bearing, substantially as herein described.

No. 12,781.—Ezra P. Marble.—*Improvement in Shuttles for Looms.*—Patented May 1, 1855. (Plates, p. 74.)

The operation of this improvement will be understood from the illustration.

Claim.—Attaching the catch C, which confines the bobbin or cop on the spindle to a pin *e*, which works perpendicularly through the spindle, and is acted upon for the purpose of throwing and holding the catch in operation by a spiral spring *g*, or its equivalent, and acted upon for the purpose of throwing the catch out of operation by coming in contact as the spindle is raised with a plate D, or other fixed stop, the whole operating substantially as described, for the purpose set forth.

No. 12,879.—Jeremiah C. Tilton.—*Improvement in Temples for Looms.*—Patented May 15, 1855. (Plates, p. 74.)

The spring-hook A is formed of a thin metal plate, with its front end bent downward in the form of a hook, and serrated as seen at *a*. The spring cloth-bender B, consisting of a broad thin metallic plate, is applied to the underside of the shank of the spring-hook; and when the loom is in operation, the selvage of the cloth C passes between the two parts A and B. The cloth-bender B bends the cloth upward in rear of the teeth *b*, as shown in fig. 2, it serving to insure the seizure of the cloth by the teeth.

By means of set-screw D and slot E, the distance of the front end of B from the teeth can be adjusted.

G is the shoe for supporting the temple upon the breast-beam of a loom.

The inventor says: I lay no claim to the spring-jaw temple, made and operated as above described,* nor do I claim the stationary or inflexible spur-plate temple, made of a rigid bar, provided with pins or points inclined at an angle to the direction in which the lay beats up;

But I do *claim* the combination of the serrated spring-hook and the spring cloth-bender as applied and made to operate together, substantially in manner as specified.

No. 12,941.—John Avery.—*Improvement in the Shuttle Motion of Looms.*—Patented May 29, 1855. (Plates, p. 75.)

The picker-staff F is so arranged (see engraving) that its action on the shuttle (hung in the usual way) shall cease when it has reached a perpendicular position (see dotted line). If the picker-staff would pass further, it would (after passing the perpendicular line) begin to depress the heel of the shuttle, and elevate its forward end, so as to cause it to shoot out of the loom. But *before* reaching the vertical line, the tendency of the staff is to depress the forward part of the shuttle, which is desirable in weaving.

Claim.—In contradistinction from the operating of shuttles by a staff having a rectilinear motion, however produced, is the hanging of the staff upon a fixed pin or centre, and so vibrating it in regard to the shuttle, as that the shuttle shall take its forward motion from the picker-staff always with its heel on the rise, and its point dipped towards the shed, by means substantially such as herein described, and for the purpose set forth.

*See the inventor's specification.

No. 12,970.—Daniel W. Snell.—*Improvement in Looms.*—Patented May 29, 1855. (Plates, p. 75.)

Arm E plays loosely on shaft F, and rests on the eccentric D, on driving-shaft B. The upper end of arm E carries pawl H, working into ratchet-wheel I, which latter is fixed upon shaft F; bevel-gear K is also fast on shaft F, and gears into wheel L on shaft M, the end of which shaft carries the worm N that works into wheel O on the yarn-beam shaft C. The parts described constitute the driving-machinery. The regulating apparatus consists of the following parts: R is the regulating lever which rocks on shaft F, and one end of which rests against the periphery of the yarn on beam C; the other arm being bent around gear K, and jointed to one arm of rocker-lever S, that plays freely upon shaft F, and carries a slide T, that covers a portion of the periphery of ratchet I, and is interposed between it and pawl H. The lever R moves towards the axis of the beam as the warp-thread is unwound from the beam, and at the same time its shorter arm will be depressed so as to move slide T, thereby exposing more of the teeth of the ratchet to the action of the pawl, which latter has a constant reciprocating motion. Thus the extent of rotary movement of the ratchet-wheel will be gradually increased as the diameter of the yarn-beam increases.

Claim.—In combination with the yarn-beam, and mechanism for producing rotary motion of it, mechanism made to operate substantially as described, and governed in its action by the varying diameter of the yarn-beam itself, as specified; the same producing upon the yarn-beam a positive let-off or regular delivery movement, that is independent of, or not governed or controlled either by any positive take-up mechanism, or any mechanism, to regulate the delivery of the warps by tension, and rigidly hold them when the lay beats up against the weft.

No. 12,981.—Jos. Welsh.—*Improvement in Looms.*—Patented May 29, 1855. (Plates, p. 75.)

On the entrance of the shuttle within the box, the swell attached to the back of the box is forced out in the usual position, which swell, being in contact with the finger K, causes its lower end to lift the latch B; so that in the forward motion of the lay the said latch comes in contact with the stop A, and the latch being confined within the slotted projection *f* of the rock-shaft C, this latter is caused to press back the projecing arm D, which is adjustably fixed upon the cylindrical stud E, thus causing a partial rotation of the said stud, which carrying with it the attached curved piece or picker-stopper I, allows the picker to recede in contact therewith the full distance required from the tip of the shuttle opposite thereto, before the shuttle-box commences to move; and when the shuttle is not in the box, the latch B, resting upon the lower part of the loose finger K, will sink with it sufficiently to pass beneath said stop A, so as to avoid any contact therewith; and thus the rock-shaft C, and consequently the picker-stopper I, is not actuated, and therefore the picker-stopper remains stationary, supporting the picker in position for receiving or throwing the next shuttle when required. Unless a

shuttle is in the box which may be opposite to the picker, no receding motion of the picker can take place; and also whenever a shuttle is in the said box, the picker-stopper I must always recede and allow the picker to follow, and thus be separated from the tip of the shuttle at every forward motion of the lay, and before the box commences to move; or, as it is sometimes necessary for only one shuttle to be used, and therefore no receding motion of the picker is required, the finger K has only to be shifted aside off the swell, and the picker will of course not be caused to recede. If the latch B is permanently elevated in the slotted end *b* of the rock-shaft, so as to come in contact with stop A at every forward motion of the lay, the picker-stopper will recede at every such forward motion whether the box moves forward or not.

The inventor says: I do not claim a yielding rest or support for the picker, either to break the sudden blow or concussion with which the shuttle impinges upon the picker, or for other purposes, as this device has been in use in England for some time, and also in this country.

Nor do I claim separating or freeing the picker from the end of the shuttle by the same movement which shifts the shuttle-boxes, as this principle has been discovered, and several devices for carrying out the same patented. (See patents granted to Barton H. Jenks, April 4, 1855, ante-dated January 8, 1855, and to Joseph Welsh, January 9, 1855.)

Nor do I claim holding the picker forward in movable shuttle-box looms, for the purpose of stopping the shuttle thereby, and causing the picker, after having stopped the shuttle, to recede, as and by the devices, or their equivalents, patented by James Eccles, January 23, 1855.

Nor do I claim the use of a shuttle-stopper as a picker-stopper, when the said stopper receives its motion from any part of the loom, and independently of the picker and shuttle-box, or either of them, as patented by me, October 3, 1854.

Nor, finally, do I confine my claim herein to the precise devices described and set forth, for conveying either the joint or several actions of the stop A and acting shuttle to the picker, as described.

But I *claim* actuating the picker-stopper by means of the shuttle which is required to be relieved from the picker, and so that the top or point of the same may be finally relieved as described, before the box containing it commences to move, substantially as described and set forth, or by means of the stud A in combination with the rock-shaft C, or its equivalent adjustable arm D and moving stud E, irrespective of the action of the shuttle upon the swell, substantially and for the purpose as described.

No. 13,022.—Wm. Whiteside and John Shinn.—*Improvements in Looms.*—Patented June 5, 1855. (Plates, p. 76.)

One end of lever T (pivoted in the middle) works on the cam S, and the motion is communicated to levers C by means of rods V to open the warp shed evenly both ways. At the lifting and depressing ends of the levers C are attached straps Q, which pass over the rollers F and connect with the travelling rods E in the loops O, and as the shed closes, the rods E will bring the hooks *a* to their proper position to be ready for

the next movement of the pattern-roller. The pattern-roller communicates motion to vertical levers J, which work upon a centre pin attached to the loom frame, so that the pattern-roller presses the top of the levers when it is necessary to draw the harness down and unconnect the top hook and connect the bottom hook, and so on, as the pattern is changed, by which means we get a variegated shed. Also, providing the loom with levers L, hung on studs attached to the sides of the loom-frame: on one end is a cam, operated on by the swinging plate K attached to the lay, which operates only in the backward motion of the lay, and as the lay gives back, the plates K will come in contact with the cams on the levers L and depress them at that end and cause the other end to rise, which is connected to the picking-staff's pulleys by means of straps, and gives motion to the pickers in the usual manner. Also, providing the rod *g* in front of the reed and made to vibrate on arms which are attached to studs or pins fastened on the back of the lay in such a manner that the rod will rise and fall freely in front of the reed. The rod *g* is connected to the rod I, which is an ordinary protecting rod with the protecting finger H on it, by means of the connexions *y*. On the rod I is a finger *e*, under which is a cam *c* attached to the loom-frame; as the lay goes back, the finger *e* comes in contact with cam *c*, causing the rods I and G to rise for the shuttle to pass under the rod G; and should the shuttle fail to enter the box, it will arrest the downward motion of the rod G, and cause the finger H on the rod I to strike the lever P on the breast A, which will shift the driving-strap and immediately arrest the further advance of the lay. Also, providing the loom with the staple or loop M attached to the rod *r* and placed on the front of the lay near the mouth of the shuttle-box, and operated by the swell N. As the shuttle enters the box it presses out the swell, and the staple falls across the race of the lay; and if there be no weft-thread across the opening in the race of the lay, the staple M will fall through the opening and strike the balanced catch U, which is placed a little below the race, so as to let the shuttle pass over it. If the thread is broken or the bobbins exhausted, the staple M will press the catch under the arm of the rod I at the connexion *y*, and cause the finger H to strike the lever P and stop the loom, as before described.

The inventors say: We do not claim the controlling of the whole series of harness, or a part of them, by one lever at the top of the loom, and a number of levers at the bottom of the loom;

But we *claim* the combination and arrangement of one lever at the bottom of the loom with one at the top, in such a manner as to control any number of levers of harness that may be desirable, and open the warp shed evenly both ways, as described.

2d. We also claim the combination of the guides, travelling-rods, the rollers F F, and straps connecting the levers C C, for the purpose of bringing the hooks to their proper place in time to be ready for the next movement of the pattern-roller, as described.

3d. We do not claim the vertical levers for the purpose of opening the warp shed; but we do claim them in combination with the wires W for the purpose of actuating the hooks as described.

4th. We do not claim the swinging plates K K; but we do claim the combination of the swinging plates K K with the levers L L, or the equivalent arrangement of the same, for the purpose of actuating the pickers, as described.

5th. We claim the rod G or its equivalent, so arranged with the rod I, that when the shuttle is arrested in front of the reed, it will cause the protecting finger H to strike the lever P and shift the driving strap, and immediately arrest the further advance of the lay, as described.

6th. The following we claim as an improvement on the machine of E. Burt, dated June 20, 1845, in which the said E. Burt claims the hanging weft protector on the race of the lay *itself*. The hanging of the loop on the race we do not claim; but we claim the balance-catch U, in combination with the loop M, and operated by the swell N, so that when the weft-thread is broken or exhausted it will immediately arrest the motion of the loom in the first forward motion of the lay, as described.

No. 13,152.—Jacob Senneff.—*Improvement in Machines for making Harness for Looms.*—Patented June 26, 1855. (Plates, p. 77.)

A detailed description of this improvement would occupy too much space to be given in this report. Its principal features, however, can be understood from the claims and engravings.

Claim.—1st. The method of winding the heddles on the shafts *s*, by revolving the tube R, through which the yarn is supplied from the spool at its end, alternately around the shafts and flanges J^2 surrounding the stationary cylinders J, as they pass through said cylinders, and guiding the same by the followers or guides S at its ends, passing through the cylinder spaces or slots M, communicating with each other, and delivering the yarn to the shafts during the revolutions of the tube, from the end of the grooved radial swinging arm T, turning loosely on its end as described.

2d. The combination of the adjustable spring T^3 and radial swinging arm T with the tube R, for delivering and tempering the tension of the yarn, as described.

3d. The combination and arrangement of the bent rods U on the rock-shaft V, alternately operated upon by the tension of the yarn as it is laid on the shafts *s*; eccentric cam 4; slotted bar X, having a notch 3 on its side, and enlarged at its lower end; hub 10, with the inclined surface corresponding with the inclined surface of the enlarged part of the slotted bar; and the horizontal, longitudinal and transverse sliding rods 8 *a*; the whole forming the essential parts of the apparatus for stopping the machine, upon the breakage of the yarn, in the manner set forth.

No. 13,186.—Samuel T. Thomas.—*Improvement in Looms.*—Patented July 3, 1855. (Plates, p. 78.)

A stud at the end of lever S is worked by a groove on the cam R. The lever has its fulcrum at T, and has its front end fixed to one end of a flexible strap U, whose opposite end is fastened to the picker-staff V, which extends into and works the shuttle-box W. The strap U is to be sufficiently stiff to force the picker-staff backwards imme-

diately after each throw of the shuttle, and while the lever S is moving in a direction towards the staff. Thus this stiff, and still somewhat flexible, strap performs both the functions of drawing the picker-staff and of forcing it backward.

The forked lever Y is applied to a stationary projection c^1, fastened to breast-beam E, and a small pitman d^1 is jointed to the upper arm of lever X, which pitman turns upon fulcrum e^1, and operates in connexion with a small rocker lever f^1, which works in lever X, and is composed of a shaft and two arms g^1 h^1. Arm h^1 rests and works against an inclined plane i^1, formed on the under side of the gravitating arm of pitman d^1, the other arm g^1 extending upward from the lever, and so that, when the catch-hook of lever Y falls downward, it may come into the path of movement of said arm, and thereby catch upon said arm, so as to cause lever f^1 to be rotated, and to produce the depression of the front arm of pitman d^1. When such arm is depressed and moved forward, it will be carried into contact with lever k^1 of the shipper l^1, and will move said lever so as to force said shipper off the shoulder or notch m^1 of its slotted guide-plate n^1. The helical spring o, fixed to lever f^1 and lever X, operates so as to retract f^1 when X moves backward. The gravitating arm of d^1, when relieved of the pressure of f^1, will fall and raise the front arm of the pitman entirely above the lever k^1, by which the shipper is actuated. Thus the only strain upon the catch-hook of Y is that which is just sufficient to move rocker-arm f^1 and the pitman.

The yarn-beam F is furnished with friction pulley p^1. One end of cord r^1 is fastened to lower end of lever s^1, which latter is suspended at its upper end. The other end of the friction cord is attached to pin t^1, which slides through ear u^1, extending from lever s^1. The helical spring v^1 serves to tighten the friction cord. The lever s^1 rests against spring x^1, so as to allow the yarn-beam to turn a little, and accommodate itself to strain or draught, produced by the beat of the lay or the springing of the harnesses.

Figure 2 represents a front view of the left end of the loom. Figure 1, a plan of the same. Figure 3, an end view of the same. Figure 5, a cross section of the loom.

The inventor says: I *claim* the improvement of working the picker-staff in opposite directions, by means of a flexible staff, having sufficient stiffness to move said picker-staff backward, when said strap is moved by a lever, substantially as described.

I also *claim* combining with the operating lever X and the forked lever y of the stop-motion, a lever or pitman d^1 and a tripping or rocker lever f^1, or the equivalent thereof; the same being for the purpose of operating the lever of the shipper, and relieving the forked lever y of strain, as specified; the said improvement enabling to be used a forked lever y, of great lightness and delicacy of construction, and capable of being operated by the finest qualities of weft and thread.

I do not claim applying a friction pulley and band to the yarn-beam; nor do I claim sustaining the warp by means of a guide roller supported by upright levers, operated with weighted levers, by two sectors and gears, and for the purpose of maintaining an equality of tension on the warp during the weaving operation;

But what I do *claim* is, arranging and combining the friction pulley p^1, the band r^1, the levers s, and spring X^1, or its equivalent, so as to operate together, and with respect to the yarn-beam, substantially as specified.

No. 13,187.—Samuel T. Thomas.—*Improvement in Looms.*—Patented July 3, 1855. (Plates, p. 78.)

Each of the harnesses H is supported by four cords, I I, two of which extend vertioally and are made to pass over two pulleys, K^1 K^1. From thence the cords are united to the upper end of one of a series of rocker-levers L; the lower arm of L being fastened to two other cords, I^1 I^1, which pass under pulleys K^2 K^2, and up to the lower part of the harness H. Thus the harnesses are confined to a vertical motion when rocker L moves upon its fulcrum M. The lifter R is operated by elevating bar S and depressing bar T, attached to vertical sliding-rods V and W, and the lifter moves the segment O and (by means of groove a and arm N) the rocker L. The shorter arm of each of levers f is made to rest against each of lifters R, (by means of weight h,) and joins i on the longer arms of f; these are operated upon by a Jacquard prism k and rotating pattern-card chain l, which (prism and chain) are moved up and down by proper mechanism, so as to carry them either towards or away from the levers, as occasion may require. The prism, chain, levers, lifters, segments, and rocker-levers, serve to regulate the movements of the harnesses.

Each set, G, of movable shuttle-boxes is sustained upon rod a^1, which slides freely up and down, and is connected to lever c^1 by link b^1, c^1 being jointed at its rear end to lever d^1, to which latter vertical movement is imparted by star cam f^1, upon a long shaft g^1. Between levers c^1 d^1 is a wedge h^1, affixed to slide-bar i^1, which slides freely in bearings fixed to lever d^1. Against a projection from the inner side of bar i^1, a stud extended from a lever m^1 or n^1 is caused to bear one of of these levers, viz: m^1, or that situated at the one end of the loom, turns freely on shaft o^1; the other n^1, at the other end of the loom, being affixed to said shaft. Thus one lever operates independently of the other.

The above-described machinery not only causes each series of shuttle-boxes to be operated independently of the other, and so that it may be moved to any desirable extent, while the other is either stationary or put in movement, but it serves to cause either of the series of shuttle-boxes to be moved (when necessary) double the distance of the other in the same length of time. This latter movement of either series of boxes is produced by its star cam f^1 and wedge h^1 over the same; the wedge, during the time the cam is elevating lever d^1, being moved between levers d^1 and c^1, over it, so as, in connexion with the star cam, to produce a compound movement of lever c^1 and the series of boxes connected with it.

On main driving-shaft B is a fly-wheel w^2 capable of free rotation thereon. The friction clutch-wheel v^2 is fixed firmly to the shaft B. When the fly is driven against and over the conical periphery w^2 of wheel v^2, the fly will revolve with the wheel v^2. Shaft b^2 of shipper ^{2} is connected with rocker-lever z^2 by means of rocker-lever d^2, and so

that, when the shipper moves towards its holding-shoulder e^3, it shall cause the detached fly to be moved towards and over the friction-wheel v^2, as described; a spring f^3 upon the shipper-shaft serving to produce a contrary movement of the fly when the shipper is thrown off its shoulder.

By means of the above-described arrangement of a fly or balance-wheel, the loom (whenever it is set in motion) can be started with a force sufficient to throw the shuttle with certainty across the race-beam. This fly can also be separated from the driving-shaft just prior to a stoppage of the loom, in order to relieve the loom of the momentum of the fly. The friction-clutch prevents the momentum of the fly from straining or doing injury to the mechanism set in operation by it.

To the periphery of v^2 a friction brake g^3 is applied, provided with a lever-latch h^3, which turns horizontally on or in the brake as a fulcrum, and is jointed to lever i^3, whose lower bifurcated arm straddles a toe projecting from the shipper-shaft. When the shipper is thrown off its shoulder, the hook of latch h^3 will be moved up against the side of wheel v^2, and will catch upon stud fixed upon the said side of wheel v^2. Thus the loom will be prevented from making a false pick, immediately after the filling-fork or weft-stop motion has been put in operation.

The left-hand half of figure 2 is represented as a section.

Claim.—Combining with each rocker-lever L and the lifter R thereof, an arm N, cam *a*, and sector O, or the equivalent or equivalents thereof, the whole being applied together, and made to operate in the manner essentially as specified.

Also, combining with the series of lifters R R and the pattern prism K a series of bent levers *f f*, or their equivalents, and imparting to the pattern prism vertical or up-and-down movements as described, the same being to produce advantages as stated.

Also, when the upper and lower sets of cords of a harness are supported by pulleys as described, applying both said upper and lower sets of cords to one and the same end of a lever operated by a cam, having a continuous rotation as described.

Also, combining with the star cam and lever, for moving a set of shuttle-boxes, a mechanism, substantially as described, for imparting an accelerated movement to the set of shuttle-boxes as explained, the said mechanism consisting of the additional lever d^1, the movable wedge h^1, and its operative mechanism as described.

Also, the above described arrangement of a Jacquard, the wires thereof, the impelling pawls, and the star cams and their shaft, whereby one Jacquard apparatus, applied at one end of the loom, is made to operate two independent shuttle motions of the loom, as explained.

Also, so applying to the main shaft a friction clutch-wheel and a fly or balance wheel, that the fly may run loosely upon the shaft, and be capable of being moved either towards or away from the friction clutch, in combination with so connecting the fly with the shipper that the said fly shall be moved laterally during and by the movements of the shipper, as described.

Also, combining with the friction-wheel and the shipper, as described, a brake mechanism for throwing said brake g^3 into and out of operation, as specified, such mechanism consisting of the lever-latch h^3, the projection 13, and spring f^3, as specified.

No. 13,217.—Rufus M. Dill.—*Improvement in Looms.*—Patented July 10, 1855. (Plates, p. 79.)

A is the shuttle-stop, attached loosely to the arm B of the lay, by the screws *a a* passing through slots *b*, to allow it to slide or traverse by the action of the stud *c*, travelling in the diagonal groove *d* as the lay beats back and forth, the top of the groove *d* being the arc of a circle described from the centre of the rocker H. The vertical arm of stop A is formed with two projections D D, projecting into the shuttle-box F the same distance as the picker C, and at such distance apart that when the bottom shuttle is in the position to be acted upon by the picker C, the top shuttle will be horizontally in line with the top projection (see fig. 1); and when the top shuttle is in the position to be acted upon by the picker, the bottom shuttle will be in line with the bottom projection. The face of the projections stand forward over that part of the stop that comes in contact with the picker, the width of the picker bringing the face of the projections vertically in line with the face of the picker (see fig. 2); thus, at each beat of the lay, making sure that both of the shuttles E E are forward in the shuttle-boxes to the extent of the forward traverse of the stop A, and the points of the shuttles, one directly over the other, rendering it impossible to get either shuttle far enough into the boxes to catch against the picker when the boxes change, whether they be thrown into the box by the action of the opposite picker, or placed in by hand after threading.

The inventor says: I am aware that a slotted lever, operated by a pin in the lay, has been used in looms with movable shuttle-boxes, to hold the picker forward, and thereby stop the shuttle, and therefore I do not claim such; but I claim a sliding bar attached to the lay, having projections adapted to each shuttle of a series at its outer end, and actuated from the inner end by a groove attached to the frame of the looms, substantially in the manner and for the purpose described.

No. 13,284.—Edward Wood.—*Improvement in Looms.*—Patented July 17, 1855. (Plates, p. 79.)

One end of link B is attached by a joint to the frame at *g*, and its other end is attached in like manner to the lower end of lever A, pivoted in *a*. When the lay is drawn back by the crank-shaft to its greatest distance, the lever A is thereby forced into a vertical position (see figs. 1 and 2); and when the lay is thrown forward by said crank-shaft to its greatest distance, the upper half of lever A is forced to an outwardly inclined position (see figs. 3 and 4). In position figs. 1 and 2, the picker *c*, in close contact with the upper end of the rigid unelastic lever A, receives the blow of the movable shuttle-box. In position figs. 3 and 4, the lever A has receded to allow the picker to recede entirely from contact with the point of the shuttle, which has been stopped; and the motion of the box, up or down, (which is re-

quired only during the forward position of the lay,) is thus permitted without the possibility of any interference from the picker.

The inventor says: I am aware that several combinations of devices are in use for the purpose of operating an elastic or yielding stopper for the picker of looms, and also for allowing the free motion of shuttle-boxes, which are dependent for their action either upon the shuttle itself or upon the motion of some part of the loom. I therefore do not claim the application of the principle for arresting the picker by a combination of devices, arranged so as to make the stopper elastic or yielding to the blow of the shuttle, and allowing the free motion of the shuttle-box up and down; but I claim the rigid or non-elastic picker-stopper A, constructed and arranged upon the lay substantially as described, and operated by means of the rigid link or curved rod B, or its equivalent, when in connection with the said stopper A and the frame of the loom, substantially and for the purposes set forth.

No. 13,322.—Horace T. Robbins.—*Improvement in Shuttle Guides for Looms.*—Patented July 24, 1855. (Plates, p. 79.)

The object of this improvement is to prevent the shuttle from flying out. When the shuttle rises up so as to come in contact with the pulleys, the point of the shuttle will always strike below the centre of the pulley, and consequently it gives it a rolling motion and guides it into the box.

The engravings exhibit only one-half of the guide A with the pulley B, the other half being exactly alike; *x x* is the centre line.

The inventor says: I do not now claim the shuttle guide A, as that was secured to me by patent granted September 14, 1852; but I now claim an improvement on said former invention, which consists in furnishing the shuttle guides with pulleys B B, or equivalents, substantially in the manner and for the purpose described.

No. 13,382.—John Broadbent.—*Improvement in Looms.*—Patented August 7, 1855. (Plates, p. 79.)

The plates E E¹ are pivoted at *b*, so that they may be capable of a limited swinging motion back and forth, for the purpose indicated in the fourth part of the claim, the rods *b²* attached to the plates forming a guide for the stocks F F¹, to which the hooks are secured. The filling-hooks *c c* take the filling-thread through the first half of the warp, holding it extended across them for the hook *d* of the opposite set of hooks to take it off and draw it through the remainder, when the said hooks pass one another in the centre of the cloth and return again; the hooks with their stocks are attached to the picker-staves G G¹, which work through slots in E E¹.

Supposing the lay has closed the last shot, one of the levers *e* or *e¹* (for instance *e*) strikes the bar J, and throws forward the board E and filling-hook stock F, and the lever *g*, immediately escaping from the notch *h*, falls into place to secure the filling-hook stock in its forward position; at the same moment the Jacquard machine comes into operation and raises a thread of filling at the right-hand end of the loom, as shown in figure 1, one end of the thread being fast to the selvage. As the lay begins to move back, the cam K¹ throws down lever L, and thereby brings down tending-fork *j¹*, which places the thread across the front of the filling-hook stock F¹. By this time the lay has been moved about half-way back, and the cams H H¹ throw the picker-staves and filling-hooks towards the centre of the web. As the hooks advance towards each other, the right-hand hooks *c c* take the thread as shown in figure 1, and, with the thread extended between them, carry it far enough into the shed for the point of the hook *d* to pass it. When the staves have carried the filling-hooks as far as necessary, they strike the lower ends of the levers *g g¹*, and in so doing throw the end of *g* opposite to notch *h*, and thus allow the board E and stock F to fall back. The return of the filling-hooks and drawing through of the filling is completed some time before the lay beats up. Just as the lay beats up, the wedge-piece *p* of picker G strikes the tongue *q*, and gives the stock F a sufficient movement for its hook *d* to unhitch itself from the filling-thread before the lay falls back again.

Figure 3 represents a plan of only one end of the loom, the other end being similar in construction.

Claim.—1st. The insertion of the filling-thread by means of two hooks or sets of hooks, arranged to operate one on each side of the cloth: one to carry the filling-thread to the middle of the shed, where it is met by the other, which takes the threads from the first and returns with it, thus drawing the thread entirely through the warp, substantially as described.

2d. The employment of the said two hooks or sets of hooks, each as a deliverer to give the thread to the other, and receiver to receive the thread from the other, alternately, as described, by which means a good and fast selvage is made on both lists of the cloth.

3d. The employment of two tending-forks *j j*, made in any form, and arranged and operated in any manner, substantially as described, to conduct the filling-thread into proper positions to be caught by the delivery filling-hooks.

4th. Giving the two filling-hooks or sets of filling-hooks, each in turn, a sufficient movement laterally to the path in which they move, to insert the filling, for the purpose of enabling one to pass the other in the shed to take from it the filling-thread, substantially as described.

5th. I claim giving the receiving-hook a sufficient movement toward the middle of the cloth, after it has drawn the filling through, and before the falling back of the lay, substantially as set forth, to disengage it from the thread of filling which it has just drawn through.

No. 13,413.—James Smith, assignor to Himself and Wm. Botterill.—*Improvement in Temples for Looms.*—Patented August 7, 1855. (Plates, p. 80.)

This temple is provided with one or two pairs of toothed rollers, J J, the teeth of which stick into the cloth slightly, and as they are inclined outward from the centre of the cloth, the cloth is stretched and held uniformly as the cloth passes out over the cylinders of the loom.

The caps *m*, hinged at O, are readily lifted, which admits of getting at the rollers in the event of the bending or twisting of the pins. The temple, being attached to the yielding bar *h*, and at the same time pressing up against spring *b*, admits of easing off the lay-beat, and, reacting, returns the temple to its proper position.

The inventor says: I am fully aware that burrs, toothed and serrated surfaces, have been formed for many purposes; and knowing that a variety of wooden rollers, with pins inserted, have been used for rollers, I wish to be understood as disclaiming such devices, and instead confine myself solely to the following:

I *claim* the temple roller formed with solid raised conical-shaped pin-teeth, having a hinged cap to its case, all attached to a flexible rod *h*, in combination with the forked spring *c*, *d*, *d*, when adjustable in brackets *e*, *f*, *g*, the whole arranged substantially in the manner described, and constituting my improved temples.

No. 13,571.—Wm. V. Gee.—*Improvement in Looms for weaving Suspender Webbing.*—Patented September 18, 1855. (Plates, p. 80.)

The general features of this invention will be understood from the claims and engravings. A detailed description would occupy too much space to be given in this report.

I *claim*, 1st, the method described of forming button-holes, or other holes, in suspender webbing and other fabrics, by weaving one side of the hole continuously, from the weaving of the full width of the web, then running back the net the length of the hole, and proceeding with the other side of the hole.

2d. The employment for operating the harness of a sliding lifting-carriage E, furnished with a number of catches *a a*, corresponding with the number of leaves of harness, said catches being employed below the harness opposite the lifting-bars *c c* thereof, and being allowed to fall into the notches of the lifting-bars of their respective leaves of harness, or being thrown out by a corresponding number of levers *f f*, which are operated upon by a patent cylinder G, or its equivalent, substantially as described.

3d. The method of throwing off all the levers *f f* from the pattern cylinder at every stroke of the loom, to admit of the turning of the cylinder, by attaching all the said levers to a superior lever H, which is operated upon by inclined surfaces *i j*, upon the connecting-rod of the lifting-carriage E, substantially as described.

4th. The mechanism by which the suspension of the operation of that part of the harness which carries that part of the warp which forms the side of the hole which is first woven is effected, consisting of a rock-shaft s^1, carrying catches *s s* to hold up the harness, and a finger lever *t*, attached to the lifting-carriage E, to act on a cam s^3, or its equivalent, on the said rock-shaft, the said finger-lever having imparted to it, by suitable means, a vibrating or side-to-side movement, at the termination of the weaving of each side of the hole, to actuate the rock-shaft to throw the catches *s s* in or out of operation, substantially as described.

5th. The method of returning the pattern cylinder to the position for commencing the pattern after the weaving of the hole, by fitting the cylinder loosely to its shaft, and furnishing the end of the shaft with a fixed slide R to receive a movable slider R^1, which is raised at intervals by a lever, operated by a cam on a shaft U, parallel to and geared with the cylinder shaft, and at the end of the formation of the hole suddenly falls over a step on the cam and throws down the slider, and thereby causes a fork z^1 on the cylinder to operate on a stud z^2 on the cylinder, and return it positively to the required position, substantially as described.

6th. Forming those dents of the reed which correspond with that part of the warp which forms that side of the button-hole which is to be first woven with a backward crook *n*, above or below the plane in which the closing of the sheds takes place; in order that, by raising or lowering that part of the warp of which the first woven side of the hole is composed, the said woven side may be allowed to go back the length of the hole, without obstructing the lay, in weaving the other side of the hole, as fully set forth.

7th. I claim the method of liberating the take-up roll from the pawls m^2, m^3, to allow the backward movement of the web, and re-engaging it with the said pawls, by means of the lever M, the hooked-bar *g*, the catch g^1, and the arm *r*, all operating substantially as described.

8th. I claim fitting the arm *r* loosely to the take-up shaft, and engaging it, by means of a pawl r^1, with the ratchet, and providing a fixed stop r^2 to arrest the said arm at a suitable point, whereby the take-up shaft is caused to carry the said arm *r* the requisite distance from the catch g^1, corresponding with the length of the button-hole, and then the arm to become stationary till the ratchet is liberated, and then to return with the ratchet, to throw out the catch g^1, substantially as described.

9th. The application, in connexion with each of the let-off rolls *o o*, of a brake-lever o^1 and a spring-lever *g*. The said levers operating, as described, to control the let-off, and the spring-lever acting as a backward take-up to take back the web, to weave the second side of the hole, substantially as described.

No. 13,724.—James O. Leach.—*Improvement in Looms.*—Patented October 30, 1855. (Plates, p. 81.)

Four harness frames (each one working independently of the other, and not in pairs, one ascending and the other descending) are pressed upwards by springs, and moved downwards by levers E G H I, to which they are connected. These levers are pivoted to the rear beam K of the loom-frame, their front ends being guided by a grooved frame attached to front beam L. The treadles are worked by cams *e f g h i k* on the shaft M: figure 2 representing them in the position to execute one portion of the work; figure 3, after a change has been made to perform another part of the work, as indicated in the first part of the claim. The cams *j* and *k* are immovable on the shaft, but *e f g h* are attached to a sleeve sliding on the shaft a distance a little more than the thickness of a cam, in order to bring the friction-rollers attached to the

treadles under their proper cams. The machinery so shifts the cams that the harnesses change their positions at proper times—some of them being up, some down, so as to weave bags and solid pieces alternately. When the cloth is taken from the loom, it presents in its length a series of two bags together, separated from two others by a solid web, so that, by cutting the fabric across through the centre of the hollow part, two bags are the result; or by cutting across through the solid part, and then cutting across through the lengthwise centre of the web, two bags will be produced.

The cams are shifted by means of lever N, which latter is worked by connecting-rod P and eccentric R, the shaft of which eccentric is supported by brackets extending from beam K. The bevel wheel S at the bottom of said shaft is partially toothed, and receives motion from main shaft M by means of gearing W V T. The wheel S has three teeth left out both sides of the centre, so that whenever wheel T has turned S nearly half round, it ceases to move it further for want of a cog to act upon; just as it arrives at this point it brings a cam projection X on the surface of the shaft against a stout spring Y, which presses upon its inclined face in a way to force it forward in the direction of its previous motion, and carry the first cog beyond the vacancy and within reach of wheel T. The cogs, however, are prevented from taking into each other by a projection *y* on the shaft, a similar one being on the opposite side of the shaft, a little lower down, against which the end of the stop lever Z rests. The ends of lever Z receive motion around fulcrum z^1 by means of horizontal cam *m* attached to worm-wheel *n*, operated by worm *p* on the shaft of ratchet *r*, which, in turn, is operated by pawl *t s* and lever *w* pivoted to the upright arm *q* of the lathe frame. When the cam *m* has raised the end of lever Z above stop *y*, then the spring Y presses the cogs of T and S into connexion, so as to carry wheel S half round and shift the eccentric and cam. When half round, lever Z drops, and the operation above described will be repeated. The successive stoppages of wheel S are to allow the cams to remain in their alternate positions the proper times to permit the weaving apparatus to complete its successive stages of work.

I *claim*, first, the combination of arrangement of the shifting-lever N, connecting-rod P, and eccentric R, operated by the gearings T and S, or their mechanical equivalents, substantially in the manner described, for the purpose of varying the movement of the loom harness or heddles so as to produce solid or tubular fabric with the same warp, and vary the solid or tubular weaving so as to produce bags of any desirable capacity.

The mechanism substantially as described for determining and regulating the intervals between the shift of the cams, viz: stops on the shaft of the eccentric, governed by a stop-lever, said stop-lever being operated by a horizontal cam, which is itself turned by a ratchet wheel, whose pawl is driven by the oscillating motion of the lathe, in combination with the partially-toothed bevel wheel.

No. 13,848.—L. B. Jillson and Geo. Sparhawk.—*Improvement in Bag Looms.*—Patented November 27, 1855. (Plates, p. 81.)

Wheel G turns loosely on shaft H, and has such a number of teeth as to make one revolution during the weaving of a bag. By the time the notch in disc I arrives opposite the spring pawl *p*, the pin *m* will have arrived in contact with finger *q*. After pawl *l* has entered the notch in I, the next descent of lever B^1 (the levers being worked by pitman D) causes the pawl to move the disc, independently of the wheel G, far enough for the pin *m*, acting on the finger *q*, to drive rod *r* and fork *t* to the left, (which fork *t* covers the ends of four of the slides,) so as to shift the position of the four slides *k*, which happen to be opposite to it, to be in readiness to regulate the opening of the shed to weave the bottom of the bag when they are severally brought into their operative position by the revolution of the cylinder. After passing their operative positions, these slides are severally shifted back again to the right hand by coming in contact with an inclined piece *u*.

The inventors say: We do not confine ourselves to the particular mechanism by which the rising and falling movement for the purpose of opening and closing the shed is effected, what we consider to be the important feature of our invention being applicable to many other lifting arrangements for opening and closing the shed;

But we *claim*, 1st, placing the two sets of studs of the pattern cylinder, for weaving the si les and bottom of the bag, in slides *k k*, fitted to the cylinder, to slide longitudinally thereto, substantially as described, so as to admit of the changing of the harness motion from weaving the sides to weave the bottom of the bag, or *vice versa*, by shifting the whole or any number of the said slides, according to the number of picks desired in the bottom.

2d. The combination of the sliding-rod *r*, having a fork *t* and finger *q*, with the notched disc I, carrying the pin *m*, the pawl *p* or its equivalent, the worm-wheel G, and the endless screw *l*, on the cylinder, all operating substantially as described, for the purpose of shifting the slides in the cylinder to change the operation of the harness.

No. 13,936.—Erastus B. Bigelow.—*Improvement in Looms for Weaving Pile Fabrics.*—Patented December 18, 1855. (Plates, p. 81.)

The pile-wires *l* are formed with a head and eye on one end (see figure 6). The latch or hook *m*, for drawing the pile-wires, has a sliding motion on way *t*, towards and from the selvage S of the cloth C; the hook *m* has also a vibratory motion on the screw *o*, and is pressed towards the pile-wires by the spring *p*, and is prevented from swinging too far by the stop-pin *q*. When the hook comes into position figure 5, and as the bevelled end *r* strikes the head of the pile-wire *l* to be acted upon, the hook locks on to the straight part *s* of the eye; then as the hook recedes from the selvage S of the cloth C, it draws out the said pile-wire *l* (see figure 2, which represents it about half way out).

When the hook has nearly completed its outward movement. the carrier which is to receive the pile-wire from the hook, and which is

represented in figures 3 and 4, comes into the position represented by dotted lines in figure 2, and the hook draws the head of the pile-wire into the socket of said carrier, and a bar y^1, forked at its end, a^2 a^2, rises up to receive the other end of said pile-wire as it is drawn from the cloth; then, when said carrier and forked arms are thus armed with a pile-wire, they move in unison back to the point where said wire is to be inserted in the shed of the warp; then the forked bar stops, and the carrier moves towards the selvage of the cloth, sliding the pile-wire upon the forked bar until the wire is fairly introduced into the shed; then the forked bar drops down to make way for the carrier, which completes the insertion of the wire, and moves forward with it to the face of the cloth, and holds it in position until otherwise secured.

Claim.—The employment of a latch or hook, for successfully drawing the pile-wire from the cloth, when said latch or hook is constructed and operated substantially as specified.

Also, in combination with said latch or hook, for drawing out the pile-wires, the apparatus which receives the outer or head end of the pile-wires from said latch or hook, and transfers them to the face of the cloth, when said apparatus is constructed and operated substantially as specified.

No. 14,000.—George W. Smith.—*Improvement in Looms for Weaving Wire.*—Patented December 25, 1855. (Plates, p. 82.)

The warp-wire having been secured in the carriage E at *g* and *d*, motion is communicated to the driving-shaft. The reed I of the loom is like that of other looms, but instead of being attached to a vibrating lay, it is secured in a carriage or lay I^1, which works on horizontal ways I^2, and is operated by levers J^2 and connecting-rods J^3; and instead of having a direct movement back and forth to beat up the filling-wires *c*, it has two distinct movements as hereinafter described. When the lay I^1 is thrown back ready for its preparatory and least forward advance, the shed is open, and filling-wire is put in; the preparatory advance of the lay brings this wire to the position shown at c^1 in fig. 1, ready to be operated upon by the crimpers, (consisting of two corrugated plates *m* m^1, with additional recesses 5, to receive the warp-wires at their points of intersection with the filling,) at the same time laying it parallel with the face of the reed, or square with the warp. As the lay retreats the crimpers commence closing, and after its retreat has terminated the lay remains stationary long enough for the crimpers to finish their operation and commence their opening; the final and most forward advance of the lay then takes place, the lay passing right through the open crimpers, and beating the crimped wire up to its proper place; the forward movement of the warp-carriage takes place during the final retreat of the lay at the early part of its next preparatory advance. The slacking of the warp-wires by the screws *h h* takes place during the final retreat, or at an early stage of the preparatory advance of the lay; the lateral movement of the crimpers takes place during the final advance and retreat of the lay, so that when the crimpers close upon the next filling-wire, which is inserted and brought to the position of v^1, they crimp it to a form precisely the reverse of the last.

Claim.—1st. Giving the reed two movements, substantially as described; the first, for squaring the filling with the warp, and bringing it to a suitable position to be operated upon by the crimpers; and the second, to beat it up to its place.

2d. Giving the crimpers a movement latterally to the warp in opposite directions alternately, after the crimping operations, for the purpose of making them adapt themselves to the varying intersections of the successive wires of the filling and the warp.

No. 13,752.—John Harris.—*Improvement in Self-acting Mules.*—Patented November 6, 1855. (Plates, p. 82.)

The driving-shaft *k* is to have a continuous rotation in one direction. In consequence thereof, the two gears X and H and their shafts Y and G will be turned contrary ways. When bevel gear V is clutched to shaft E, such shaft will be rotated in one direction, and with a regular movement, and so as to produce a corresponding movement of the endless chain A. It is during this movement of the chain that the carriage of the mule is run out and the spinning of the yarn effected. When the chain is moved in the opposite direction, its movement is variable, to wit: it has first imparted to it a slow motion, and this while the faller of the mule is descending on the yarn. Next the chain has a quicker motion, until the carriage has nearly completed its inward course. During the remainder of the movement of the carriages the chain has a continued and quick decreasing speed, the object of which is well known. The said last three movements of the chain are effected by the barrel gear L and the eccentric cog-wheel M. The barrel gear, having a regular rotary motion, turns the eccentric cog-wheel with first a constantly decreasing speed, and next a constantly increasing speed. Affixed to chain A is a slider *s*, which slides upon rod L, the ends of which rod serve to operate the clutches *b* and b^1. As the slider *s* is alternately carried in contact with collar *f*, it produces the alternate shifting of the clutches *b* and b^1, the barrel gear L being unclutched with its shaft, while V is clutched to its shaft E, and *vice versa*.

The inventor says: I do not claim combining with mechanism for producing a regular backing-off movement of the carriage machinery not only for giving a slow motion to it during the first part of its running-in movement, or while the "fuller" is descending on the yarn, and a quicker movement afterwards, or while the carriage is running in; but, finally, a slower movement, decreasing to completion, of the extent of inward movement of the carriage;

But I *claim* the peculiar combination before described and applied to the endless chain, and for effecting such variable movement or running-in of the carriage, the same consisting of the driving-shaft G, the clutch apparatus thereof, the barrel-gear I, the eccentric gear M, and mechanism connecting the latter with the shaft E of the endless chain; the whole being arranged and applied substantially as specified to the mechanism for producing regular movement of the chain in a reverse direction.

No. 12,283.—Horace W. Peaslee.—*Improvement in Machines for washing Paper Stock.*—Patented January 23, 1855. Patented in England September 20, 1854. (Plates, p. 83.)

The nature of this improvement will be plainly understood from an inspection of the engraving.

The inventor says: I do not claim as new the revolving screen cylinder and stationary trough, with or without elevating hooks or lifters, arranged spirally or otherwise in the cylinder, for the purposes specified, nor yet, otherwise than as arranged and combined, the oblique curbs or pieces to direct the discharge from the cylinder, as such devices, differently arranged, employed, and combined, have before been used in ore-washing machines.

But I *claim*, in the washing of paper stock, the arrangement, substantially as shown and described, of the oblique curbs K, in continuous succession round the open discharge end of the revolving screen cylinder, and forming channels between them to conduct the stock continuously, as the cylinder rotates, beyond the discharge edge of the cylinder, when combined to operate together with elevating hooks *d*, within the cylinder, and serving to retain a copious supply of water in the cylinder for the proper washing of the stock, and to check the run of the stock through the cylinder to a speed in accordance with the conveying action of the cylinder or its elevating hooks *d*, as specified, to insure the full and regular action of the hooks on the stock, in the manner described, the whole operating together for the purpose as set forth.

No. 12,442.—Obadiah Marland.—*Improvement in Rolls and Driers for Paper-making.*—Patented February 27, 1855. (Plates, p. 83.)

The object of this improvement is to produce a surface without blemish, the deposited metal being peculiarly adapted to give a superior finish to the surface of the paper, and to produce such roll or drier at a cost greatly less than that of the copper or composition rolls now in use.

The inventor says: I have spoken of copper as the material used for covering the rolls and driers, but I do not confine myself to the use of this metal, as zinc, and perhaps other metals, may be employed; and I do not claim the use of any particular metal for the purpose, neither do I claim the covering of one metal with another by means of galvanic or electric deposition; but I claim the method described of making paper machine rolls and driers; a metallic foundation of the requisite strength and thickness being made use for the body of the roll, upon which a surface of copper or other suitable metal is deposited by galvanic or electric action, for the purpose set forth.

No. 12,798.—Milton D. Whipple.—*Improvement in preparing Wood for Paper Pulp.*—Patented May 29, 1855. (Plates, p. 83.)

The wood, sawed into short cylinders F, is submitted to the action of a grind-stone A, (revolving on axle B,) to reduce it to pulp. The relative position of the cylinders and grind-stone referred to in the second part of the claim, serves to preserve the fibres of the wood. The rack-bars R serve to constantly rotate the cylinders during the grinding operation, so as to present a very limited surface of the block to the stone.

Claim.—1st. In the process of preparing paper pulp from wood, first grinding the block upon the surface of a revolving stone or its equivalent, for the purpose set forth.

2d. Maintaining the block in such position with respect to the stone, that the fibres of the wood shall lie in the direction of motion of the stone, or very nearly so, for the purpose set forth.

3d. Rotating the block during the operation of grinding, for the purpose set forth.

No. 13,153.—William Adamson.—*Improvement in Sand-Paper Cutting Machines.*—Patented July 3, 1855. (Plates, p. 83.)

The revolving blade L, in coming into contact with and passing by the edge of the stationary blade K, cuts the paper P, between the two blades.

Claim.—The employment of thin elastic blades L L^1 and K K^1, of uniform thickness, so arranged that the revolving blade shall overlap slightly the stationary blade, in the manner and for the purpose substantially as set forth.

No. 13,412.—Louis Koch, assignor to Peter B. Sweeney and Michael Lacour.—*Improvement in Machinery for making Paper Pulp.*—Patented August 7, 1855. (Plates, p. 83.)

B are the feeding-rollers, and B^1 B^2 &c., the stretching-rollers referred to in the claim.

Claim.—The combination of a series of rollers, increasing gradually in diameter and speed, in proportion as the wood or fibrous substance is extended or pressed out; the face or circumference of one of every pair of the extending rollers having a greater speed than the face of its corresponding roller, producing thereby a slight dividing or separation motion in connexion with the pressure upon the substance, which separates each fibre, without destroying the same, for the purpose of making pulp from wood and fibrous vegetable substances, in manner substantially as described.

No. 13,229.—Samuel Pearson, Jr., and Wm. H. Gardner.—*Improvement in Rope and Cordage Machines.*—Patented July 10, 1855. (Plates, p. 83.)

Between the laying-frame A and the frame B there is arranged the lay-top K, which is a cone, having its external surface grooved longitudinally for the reception of the strands L M N, extending from the tubular nozzles *z z z* of the flyers U V W. A central hole for the reception of the twisted cord is made through the plate or bar *y*, of the frame O; such hole having its axis in range with that of the laying-flyer

and the laying-top, whose smaller end is placed at a short distance from the bar *y*, or one sufficient to permit a rope R to be wound several times around the twisted rope S. Rope R has one end fastened to frame O, and is wound about the rope S and the laying-top, and has its other end attached to weight T, which latter draws the rope R closely upon rope S and the strands from the flyer, and forms, as it were, a flexible tube through which said rope is drawn, thereby preventing any unevenness of laying or twisting of the rope, and imparting to it a smooth finish.

The frame C contains three other flyers, X Y Z, similar to U V W. Each flier of frame B has its twisting axis in line with one of the flyers of frame C. Motion is communicated from flyers U V W to flyers X Y Z by means of gearing f^1 g^1 g^1 g^1; each of the flyers X Y Z being provided with a connecting clutch h^1, so as to enable a person to throw the wheel g^1 in or out of gear with wheel f^1, on the axis b^1 of flyers U V W, so as to make the flyers X Y Z rotate or not.

The inventors say: We do not claim the combination of a laying frame or flier and a series of twisting flyers, each of which is made to operate one or more bobbins;

But we *claim* arranging two or more twisting flyers, or two or more series of the same, with the twisting axes of revolution of one of them in line with the others, respectively, and combining with each two flyers in line, hollow tubular necks a^1, (for the reception and support of yarn or strands from the bobbin as described,) and a contrivance or contrivances for either uniting or disconnecting such necks, so that the flyers of several series thereof may be rotated together or separately, as specified, in order that, when small sizes of rope are to be made, only one twisting flyer or series may be put in operation; and when larger sizes of rope are to be manufactured, two or more twisting flyers, or series thereof, may be combined and put in action together, and with one laying flyer, as specified.

And we claim the rope or strap R, and its weight T, or the equivalent thereof, in combination with the conical laying-tops K and the bearing plate *y*, the same being made to operate in manner and for the purpose of smoothing and finishing the rope, as described

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No. 13,309.—JOHN HARRIS.—*Improvement in Machinery for Making Rope.*—Patented July 24, 1855. (Plates, p. 84.)

The nature of this improvement will be understood from the claim and engravings.

Claim—1st. The described method of driving the flyers by means of the cone pulleys *h h* and the band or ring F, either the said band or ring, or the bearings *b b* of the flyers, having springs applied to keep the pulleys and band properly in contact with each other at all times, and the band or ring being movable in the direction of the axes of the flyers, to come in contact with a larger or smaller part of the cone pulleys, and thus vary the speed of the flyers and the twist of the strands, while the machine is in operation.

2d. Making the cans H H of polygonal form, to fit snugly between the pillars or side-pieces *e e* of the flyers, in combination with the springing collar I, applied to fit over the top of the can, whereby the cans are enabled to be quickly taken from the flyers and replaced.

No. 12,138.—SAMUEL PEARSON, Jr., and WILLIAM H. GARDNER.—*Improvement in Regulating the Size of Roving.*—Patented January 2, 1855. (Plates, p. 84.)

Motion is transmitted from shaft *b* to shaft S by means of band and pulleys. The shaft S and the surrounding tubular shaft T carry each a bevelled gear *r* and *s*, while brake-wheel R is provided with one or two bevelled gears *t u*, arranged between and made to engage with two gears *r* and *s*. A pulley on shaft T, and a pulley on heckle-chain shaft D, and a band around them, serve to transfer motion from shaft T to the chain. The shaft K of the lower draw-roller receives also its motion from shaft *b* by proper gearing. The fibrous substance passed through E is carried forward by the endless heckle-chain B through guide F, and between the drawing rollers. The size of the roving is governed by the speed of the heckle-chain, the drawing rollers being always driven at a regular velocity. A retarding of the heckle-chain will cause the roving to become smaller, as the heckle-chain will deliver the material slower, and so *vice versa*. There being much inequality in the thickness of the sliver, in order to produce an even thread there is to be in every change of the thickness of the sliver a corresponding movement of the heckle-chain. The sliver becoming too large, forces upward the upper draw-roller, and thereby elevates the brake-lever Q that bears upon the brake-wheel R, thereby causing said wheel to slip. Now, just in proportion as the wheel is allowed to so slip, the motion of the heckle-chain will be retarded; and should the sliver become so thick as to elevate the brake entirely clear from the wheel, the chain will remain stationary till the sliver allows the brake to come down again upon the wheel: namely, when the brake is lifted entirely off the wheel R, such wheel is left free to rotate upon shaft T, and it will so revolve, or be made to revolve by the action of the bevelled gear *r* in its gears *t u*, such gears travelling around in the gear *s* without revolving it or producing any motion of the shaft T. The moment, however, that the brake-wheel is retarded, or has its motion arrested, the gears *t u* will be stopped from rotating around shaft S, and will put the gear *s* and shaft T in rotation.

Claim.—The combination of the brake Q (forced downwards by a spring or its equivalent), the brake-wheel R, the shafts S and T, and the connecting gearing of such shafts as applied to the draw-rollers and the gill or heckle-belt, and made to operate and produce effects substantially as hereinbefore stated.

No. 12,581.—AUGUSTUS E. BIGELOW.—*Improvement in Preparing Woollen Roving.*—Patented March 27, 1855. (Plates, p. 84.)

10 are the spindles passing up through rings 35, which are provided with travellers in the usual manner of ring-groove spinners. The draw-

ing heads are mounted on standards 33, as in other throstle-spinning machines; but, instead of three sets of rollers, there are but two sets, each consisting of one driving-roller 12, the two rollers 12 being so geared together that the front roller will turn so much faster than the rear one as to give the required amount of drawing between them. Above them are arranged, in the usual manner, the cap or pressure rollers 11. The twisted roving, in passing from the back to the front set of rollers, is drawn out equally. As the front set of rollers, by their more rapid travel, draw out the fibres, whilst the back rollers simply hold back, the roving is of the required size for the thread at or near the front rollers, so that the twist is constantly running from the back towards the front rollers, and the roving being thus untwisted near the back rollers, the drawing out of the fibres to elongate the roving will take place near the back roller; each fibre, in succession, being drawn forward the moment its back end is liberated by the back rollers.

The inventor says: I do not limit myself to such special mode of construction, as the same mode of operation may be obtained by the mere substitution of equivalent means. But I *claim* the mode of operation specified, of spinning woollen yarns from previously twisted roving between two sets of draw rollers, substantially as specified, in combination with the subsequent twisting in the same direction by ring-groove travellers, flyers, or other equivalent devices, substantially as specified.

No. 13,629.—HUMPHREY M. GLINES, assignor to JOHN M. STANTON and SIMON F. STANTON.—*Improvement in Machinery for filling Seine Needles.*—Patented October 2, 1855. (Plates, p. 84.)

The wheel J turns wheel K and shaft F and the cam disc L, which is fastened to said shaft; wheel S turns the wheel S^1, which latter is fastened to a short shaft T. This shaft T has the gear U of eighteen teeth fastened to its upper end, to drive the wheel V of sixteen teeth, which turns loosely on shaft F, and is fastened to the hub of bevel gear Q, which latter turns within a recess in the disc L. The bevel wheel Q operates a bevel pinion P, the disc L having a suitable opening for the pinion P to work through. It will be seen from the above that Q will turn faster than L. The shaft O of the pinion has its bearing in the journal-box N, which projects from the outer edge of the disc. The shaft O terminates in an elastic fork *a a*, which clamps the needle R. Thus, it will be seen that the needle, while it revolves together with the disc, at the same time rotates around its own axis. The arm W, which supports and guides the twine *c* from the spool to the needle R, is pivoted in *f* to stand *x*, and rests on a support Z, which latter carries a friction-roller *k*, working in cam-groove *b*, in the face of the disc. The groove is so shaped that the support Z, and with it the front end of arm W, will be alternately elevated and depressed so as to carry the twine into the score *e* and under the tongue *d* of the needle R, as the score or the tongue arrives under the end of the arm W. The needle R, when filled, may be removed.

Claim.—Giving the needle a rotary motion around its own centre, both longitudinally and transversely, by means of devices substantially as described, or their equivalents, in combination with a vibrating delivering arm, or its equivalent, so constructed, arranged, and operated as to supply and deliver the twine, or other material, to the aforesaid needle, substantially as described.

No. 12,146.—DANIEL T. WARD.—*Improvement in Sewing-Machines.*—Patented January 2, 1855. (Plates, p. 84.)

The needle 3 is so connected with the slide *h* that this latter comes up as the needle descends; thereby the point of the needle passes between the rows of bristles 9, which are arranged within the forked end 8 of the slide *h*. Instead of these bristles, springs might be used, as the inventor says. As the needle draws up again, the bristles hold on to the thread, and draw the same out sideways as the slide *h* retires, holding on to the same sufficiently to form a good loop for the shuttle or the looper 14 to pass through, the bristles releasing the thread when pulled on, to allow the needle to operate again.

The inventor says: I do not claim any particular method of moving the needle; neither do I limit myself to using my improvement with the arrangement of needles and levers to the same, herein shown; but what I desire to secure by letters-patent is: I *claim* the sliding fork 8, with or without the bristles 9, to detach the thread from the sides of the needle, or form a guide to the loop for the passage of the looper or shuttle, in the manner and as described and shown.

No. 12,233.—JOTHAM S. CONANT.—*Improvement in Sewing-Machines.*—Patented January 16, 1855. (Plates, p. 84.)

The improvement consists in the use of an endless circular feeder D, revolving continuously, so as to supply the cloth to the needle *a* (on vibrating arm L), without the necessity, at any time, of stopping the machine for the purpose of attaching the cloth to the feed-bar, as has heretofore been the case.

The pins *c* are to insure the motion of the cloth with the feeder.

Claim.—An endless rotary cloth-feeder, in combination with a reciprocating needle or needles, substantially as described.

No. 12,247.—HEZEKIAH B. SMITH.—*Improvement in Sewing-Machines.*—Patented January 16, 1855. (Plates, p. 85.)

Figure 3 represents the needle W. The finger Y is so constructed as to turn on a screw as seen at figure 2, which is screwed into a part of stand S; and under this finger there is arranged a spiral spring V, which is coiled around the outside of the portion of the stand to which the finger Y is screwed, the upper end of this spring passing through the hole drilled through the inner end of the finger Y, and the lower end of it made fast to the ring *u*, this ring being adjustable by having a set-screw in it to set it in the required position to give the proper pressure on the finger Y. T is a stop, the lower end of which is

screwed to the arm S, and the upper end of it answers for stopping finger Y, as it is pressed forward by spring V. The finger Y, revolving on arm S, will draw in the thread so as to form the back stitch. As soon as the needle and thread pass up through hole *a*, in table A, the finger Y, being revolved with and by arm S, brings the outer and curved part of this finger in contact with the thread, carrying it around far enough to draw up the stitch sufficiently tight, and then releasing the thread by turning back far enough to allow the thread to slip off from the end of the curved part of the finger, which is accomplished by the thread requiring an increased power to draw in the thread, and this power acting on the finger overcomes the resistance of spring V, turns it sufficiently to allow the thread to be released from the finger, and then the finger instantly regains its former position by the action of the spring, pressing it back towards stop T, the feed at the same time carrying forward and back the cloth to give the required length of stitch.

The inventor says: I do not claim a two-pointed needle having an eye in its centre, as this has been patented to J. J. Greenough; neither do I claim any other part, device, or thing claimed or patented in said Greenough's patent;

But I *claim*, 1st. A slit or fissure formed in a needle, so as to be opened by any proper pointed instrument, and the thread inserted in this fissure, and then moved near to one end of it; then by removing the pointed instrument the two elastic or spring sides of this fissure close together and pinch and hold the thread so that the needle can be operated to sew a straight or curved seam, and a through or back stitch, essentially in the manner and for the purpose set forth.

2d. I *claim* the finger Y, so arranged and operated (on the arm *s* by means of the spiral spring, the ring to adjust this spring, and the stop T, or otherwise) as to draw the thread through the cloth so as to draw up the stitch and then let go of the thread, by the revolving or moving of this finger and the arm *s*, or equivalent, essentially in the manner and for the purpose set forth.

No. 12,322.—JOHN B. NICHOLS.—*Improvement in Sewing-Machines.*—Patented January 30, 1855. (Plates, p. 85.)

The material C is placed between the guide-bars A and B, by which the binding D is applied equally upon each side of the same; the blade of the upper guide-bar A is elastic, so that it accommodates itself to any variation in the thickness of the material, and holds it and the binding firmly in position while they are sewed together. E is a movable slide, against which the edge of the material rests, and this slide is made adjustable to accommodate bindings of different widths. It is attached to the shank *d*, which is held by the clamping-screw *e*. F is the feeding-wheel, G the sewing needle.

Claim.—The combination of a binding guide with a sewing-machine, meaning to claim the combination of mechanism whereby the operations of directing or applying the binding to the edge of any material and sewing it thereon, are conducted by automatic process.

No. 12,336.—SALEM WILDER.—*Improvement in Waxing Thread for Sewing-Machines.*—Patented January 30, 1855. (Plates, p. 85.)

C is the needle-carrier, J the eye on the needle-carrier through which the thread K passes from the bobbins L to the needle H; M the wax reservoir, attached to the needle-carrier, and provided with an India-rubber bottom *a*, which is so arranged between plates *b b* as to be capable of being compressed by means of screws *c c*. The thread is carried through proper holes in the plates and India-rubber bottom.

Claim.—So applying the wax-holder to the frame or arm of the machine, and between the needle and the eye of the needle-carrier, that the vertical movements of the carrier shall cause the thread to be moved or drawn up and down through the wax-holder and its elastic bottom, whereby the saturating of the thread becomes improved, as specified.

Also, the combination of an elastic bottom, or partition, and its compressor, with the wax-holder, the same being to regulate the application of the wax to the thread, and to prevent its escape from the wax-holder, essentially as described.

No. 12,364.—ISAAC M. SINGER.—*Improvement in Sewing-Machines.*—Patented February 6, 1855. (Plates, p. 85.)

The top of the needle-bar *b* is hinged to the carrier *c*, to which a vertical vibrating motion is imparted. The spring *h* forces the bar and carrier slightly apart when the needle is out of the cloth, the set-screw *k* regulating the extent of this motion. Lever *l* has its fulcrum in *m*; its upper end is constantly pressed inward by means of a spring *p*, so as to impart to the feed-hand *n*, at its lower end, a tendency to withdraw from the needle *a*. The lever is acted upon at the required time by one arm of lever *q*, which has its fulcrum in *r*, the other arm being operated by the cam projection *s* on the cam *e*, which works the needle-carrier. As the needle descends, so soon as its eye has passed through the cloth, the cam projection acts upon *q* and moves the lever *l*, the feed-hand *n*, and the needle, and with it the cloth, to the required distance to space a stitch. The hold-pad then comes down on the cloth to hold it during the forming of the stitch, and the feed-hand is permitted to be forced back by the tension of spring *p*, the screw *u* regulating the extent of this back-motion. Thus the motion is imparted to the needle to give the feed-motion at its junction with the cloth, avoiding all tendency to bend it or loosen it in its socket.

Claim.—Imparting the feed-motion to the needle to move the cloth or other substance, to determine the space of the stitches to be made therein, by a feed-hand, or its equivalent, receiving the required motion from the mechanism and acting against the needle, in close proximity to or in contact with the cloth, substantially as and for the purpose specified.

No. 12,389.—Geo. H. Horn and Benj. H. Horn.—*Improvement in Sewing-Machines.*—Patented February 13, 1855.—(Plates, p. 85.)

The needle (fig. 1) is hollow, and the thread passes out through the hole *z* in the side of the needle; thus the thread is protected from the usual wear in the eye, and is less liable to be tangled in use. The shuttle 22, which is formed in any usual manner to slide against the side of the shuttle-box, is prevented from moving, except when operated on by the forceps, by causing the same to pass under and against a clamp 23, which is kept against the shuttle by spring 24. A slide 29, to which is imparted the proper reciprocating motion, carries the fixed jaw 30 of the forceps and movable jaw 32, set on a fulcrum 31, and with a spring 33 to keep the jaws closed; the moving jaw 32 has a point which enters the eye O on the end of the shuttle to move the same. For each vibration of the needle the forceps make two strokes, first passing through the loop of the thread, seizing the shuttle, pulling it through, and then returning the same beneath the clamp, leaving it, and returning ready to pass through another loop; hence it is necessary at the first stroke to open the forceps and allow them to close on the eye of the shuttle, and at the next vibration to open the forceps and keep them open until they retire clear of the eye of the shuttle. This is effected by means of an arm 34 from the moving jaw 32, which is operated on by a pin 35, which is on the end of a lever which receives the proper motion to produce the above result.

The inventors say: We are aware that sewing has been effected by two threads—the one being carried by a shuttle, the other by the needle, therefore we do not claim the same; and we are aware that the stitch has been pulled tight by the motion of the needle and needle-carrier. And we do not claim the shuttle. But we are not aware that forceps have ever been used to pass through the loop of thread and open the same, thereby insuring the opening of the loop and preventing tangling; nor do we know that the shuttle has been drawn through a loop by means of an eye on the end, thereby avoiding all liability of the shuttle not passing into the loop; and where the shuttle is forced through the loop as the needle draws up, its thread has to pass between the rear end of the shuttle, and the part has forced the shuttle forward, which is liable to break the thread.

We *claim*, 1st. A hollow needle with an eye in the side to pass the thread, as specified.

2d. We claim opening the loop by means of forceps, thereby insuring that the loop is properly opened, and avoiding tangling of the thread, as specified.

3d. We claim drawing the shuttle through the loop by means of the eye O, or its equivalent, on the end of said shuttle, as specified, thereby avoiding the risk of breaking the loop when the shuttle is forced through the same, as specified.

No. 12,402.—Edwin A. Forbush.—*Improvement in Sewing-Machines.*—Patented February 20, 1855. (Plates, p. 86.)

The article to be sewed is clamped between jaws M M, which are supported by a carriage N, which travels on rails B. Two carriages L have awls P attached to them to form the stitch-holes. (The engravings exhibit only one of the carriages L.) The two needles Q have the point at one end and the eye at the other end, like the common sewing-needle. Each of the carriages L supports a needle-carriage T, which moves horizontally between ways U U, elevated upon said carriage L. On the inner end of each carriage T is a horizontally rotating bearer V, which is to support the bearer which lies upon the top of it, and is held down upon it by means of one of two vertical sliding clamps *a b*. Each of these two clamps is placed within one of two vertical shafts *c*, which are supported by and made to rotate freely within a horizontal arm *d* that projects from carriage T. A slide *f* slides horizontally through frame *e;* and while moving in either direction, one of its inclined planes *g h* forces downwards one of the clamps, while the other inclined plane is so moved as to allow the other clamp to rise upwards. When the carriage L is moved towards the work (by means of vibrating lever K) the shaft *c* is turned 180° of a circle so as to turn the needle around and present its point towards the work, and the needle passes through the awl-hole previously made. This done, the carriage T is stopped; but the carriage L moves still on, until the awl passes through the work. During this motion of L, the cam e^1 acts against the slide *f* so as to cause the needle to be relieved from the pressure of the clamp *a b*, which previously held it, and to be grasped at the point by the other clamp *a b*, so that, during the next retreating movement of T, the needles will be drawn in opposite directions through the work. After they have each been drawn a short distance through the work, the jaws of each set of thread-nippers S S are made to grasp the thread R and hold upon it firmly so as to draw it into the work during the further back movement of T. The needles, before they are grasped, are propelled forward by propellers a^5 a^5, one of which is fixed to each carriage L. The upper end of arm K, when acting against carriage L, extends into notch S^2 in the carriage. Just previous to the end of forward motion of the carriage, a locking spring-bolt t^2 applied to carriage L is met by cam u^1, and drives forward over notch S^2, and in rear of K. This takes place just before a pin v^1 (projecting upwards from the bolt) meets and passes by the end of a longitudinal ledge w^1 on the under-side of T. When T stops, L continues its forward motion; the pin in the meantime being slid along the side of the ledge. During the next back motion of K, it bears against the bolt and forces L and T backwards on rails C; during this, the nippers draw the thread through the work, the friction of carriage T offering sufficient resistance. As soon as the thread is drawn tightly into the work, the back motion of T will be arrested by the thread; L, however, continues until pin v^1 passes beyond the rear end of ledge w^1. Now the spring-bolt will be released and thrown back by its spring a^2 and away from K and notch S^2. Now L stops; K, however, continues its back motion to its whole extent, and is then again brought forward to move

forward carriage L, as above described. Thus the machine operates under the constantly decreasing length of the thread; for, as soon as the thread is drawn into the work, whatever may be its length between the nippers and the work, the back motion of T will be stopped as soon as such length is drawn tight by the nippers.

One end of cord k^2 is fastened to the frame of the machine, and, after passing around pulley m^2 on slide d^2, (to which slide the nippers c^2 are attached,) its other end is attached to the upper end of vibrating arm K. As K moves back, it draws on the cord so as to elevate the nippers, so that they receive the thread in the space r^2 between them, when said thread is drawn out to its extreme tension. At the next advance of K or T and L, the nippers and slides d^2 will fall by their gravity and carry the thread with them so as to prevent it from being entangled. When the thread is drawn through the work, it will be pulled out of the nippers by the power which draws it through the work. In order to prevent the weight of the nippers, slides, &c., from being thrown upon the thread so as to break or displace the needle, while the latter is being turned 180°, the following contrivance is applied: s^2, with pulley t^2, slides freely on inclined way e^2. A cord u^2 passes around said pulley, one end of which is fixed to the frame of the machine, and the other end to a carriage x^2 sliding upon rod o^2. A spring y^2 causes x^2 to slide on o^2 with the proper amount of friction. On the top of x^2 there is a projection z^2 and a spring-catch a^3. While K retreats, it strikes and moves catch a^3 so as to let K slip by. When K next advances towards the work, it strikes shoulder b^3 of catch a^3 and moves x^2 forward until z^2 strikes carriage L, whatever may be its distance from the work. The further advance of K causes a^3 to be disengaged from K. By the movement of x^2, the slide s^2 will be elevated to a suitable position for the upper slide to rest upon it, so as to relieve the thread from any downward pressure of the upper slide.

The inventor says: I would remark that I do not lay claim to any method of drawing the thread through the work by seizing the needle by a pair of pincers, and performing the whole operation of drawing the thread close into the work by draught on the said needle; nor do I claim a mode of drawing the thread into the work by means of a tripping roller moved by an endless chain;

But I claim combining with the carriage T the clamps *a b* and bearer V, or mechanism which draws the needle through the work—a set of pincers S S made to firmly grasp the thread between the needle and the work, and to be so moved away from the work as to draw the thread firmly into it, as specified.

And in combination with the said machinery for holding the needle and drawing it through the cloth or work, I claim machinery or mechanism, viz: the rotary shaft *c*, the clamps *a b*, and the bearer V, operated as described, or their equivalents, for rotating the needle, or turning or rotating it around 180 degrees, or end for end, as above specified, such mechanism allowing me to make use of a common or ordinary needle made with one eye and but one point, as described.

I also claim the combining with the nippers S S, and the vibrating arm K, the carriages L and T, the spring-bolt, and contrivances for operating it, as set forth; the same being not only to draw the thread into the work with sufficient tension, but to do so under any change in the length of it, essentially as specified.

I also claim the combination of the rotating-bearer V, the two needle-clamps *a b*, and the vertical rotary-shaft *c*, as operating together, or operated substantially as described, and for the purpose of holding, releasing, and reversing the needle or turning it around, substantially as above set forth.

I also claim to combine with the rotary-bearer V, and its clamps and shaft *c*, or machinery for holding, releasing, and directing a needle into the work, a propeller a^5, operated or made to operate substantially in the manner, and so as to force the needle into the work, as specified.

I also claim to combine with the spring-nippers b^2 c^2, or machinery for taking up the slack of the thread, and preventing entanglement of the thread, while the carriages are being moved towards the work, the sliding carriage S^2, or mechanism operating as described, for preventing the weight of the said spring-nippers b^2 c^2 and their slide d^2 from being thrown upon the thread so as to break the needle or displace it while it is being turned round, as set forth.

No. 12,577.—Thomas J. W. Robertson, assignor to T. J. W. Robertson and Alfred E. Beach.—*Improvement in Sewing-Machines.*—Patented March 20, 1855. (Plates, p. 87.)

The inventor says in his specification: I describe the feeding operation first, supposing the dog to be raised from the surface of the cloth, and hanging against the screw *g*, as indicated in dotted lines in figure 1. I will now suppose the needle-slider and the wiper to be rising from the cloth, by which action the wiper *j* will push aside the arm *h* of the three-armed lever to the position in which it is shown in full lines, and in so doing will depress the arm *c*. The feed-bar F during the above operation will slide along the point of the screw *g* until the dog *f* bears upon the cloth, after which the dog will be caused to slide the cloth along the table in the direction of the arrow. When the needle-slider and wiper *j* descend, the wiper in pushing aside the arm *i* will raise the arm *c*; and as the dog is by that means withdrawn from contact with the cloth, the feed-bar will fall back to the screw *g*.

I do not claim in itself as new the arrangement of the feeding-dog and spring-clamp, separately operating upon the cloth on its one or outside surface, as such has before been done by the alternate action of these devices.

Neither do I claim of itself a separate and constant spring pressure applied to the outside surface of the cloth when the feeding-bar or dog is otherwise arranged to operate in connexion with the spring-clamp or hold, as specified.

But I *claim* the combination of the spring-clamp D with the feeding-bar or dog *f*, constructed, arranged, and operating together against the cloth on its one side or surface, substantially as set forth.

No. 12,754.—E. Harry Smith, assignor to Wheeler & Wilson Manufacturing Company.—*Improvement in Sewing-Machines.*—Patented April 17, 1855. (Plates, p. 87.)

The needle, being passed through the cloth, in its withdrawal throws out a small bow or loop O, figure 5. The shuttle, owing to its adjustment in relation to the movements of the needle, is made to catch this loop, open it, and pass a bobbin through it, as in figure 4. The needle now begins to descend, and, passing through the cloth, takes up a part of the loop which is around the shuttle, and draws it in between the shuttle and the button J, by which it is propelled. As the shuttle continues its revolution, and the needle its descent, the button J is turned on its axis or made in any way to assume the position shown in figure 6, when the loop is entirely released from the button J, and allowed to be drawn off the shuttle, and remains around the heel (figure 6) until the needle again ascends, when the point of the shuttle enters a second loop, as in figure 3. As the shuttle continues its revolution, the first loop is slipped off the heel and drawn up by the enlargement of the second. Thus every stitch is tightened by the passage of the shuttle through the loop, which is to form a part of the next stitch.

The inventor says: I am aware that machines have been before constructed in which a rotary shuttle has been used, and also that a machine has been made which is the subject of a patent granted to Allen B. Wilson, and dated June 15, 1852, in which a combination is used of a bobbin with a rotating hook, which operates upon the loop in such a manner as to throw it over the bobbin. But I would have it understood that I make no claim to any such rotating hook, or any rotary shuttle, except that represented and described in the accompanying drawing and specification.

I therefore *claim* a discoidal shuttle, having its bearings in its periphery and revolving around its own axis, when constructed substantially in the manner and of the form described.

And as a means of propelling the shuttle, I claim the employment of the lune-form button, constructed as described, which has a movement on its axis in the manner set forth, for the purpose of allowing the thread to slip alternately into and out of the concave in its periphery, and thus pass off the shuttle.

No. 12,573.—George W. Stedman.—*Improvement in Sewing-Machines.*—Patented March 21, 1855. (Plates, p. 87.)

By turning eccentric *k*, the slot *i* can be made shorter or longer; thus causing the needle, sooner or later, to be thrown back, thereby effecting a longer or a shorter stitch.

The finger M is attached to the rocking-shaft C. The finger recedes when the needle descends, and advances when the needle rises. As the finger recedes the loop is retained by spring *p*, till the needle descends between it and the beak *m*, just in front of shoulder *n*, which spreads the loop for that purpose. As the finger recedes further the loop is pulled away from spring *p*, and is drawn up to the cloth.

The inventor says:

I *claim* feeding the cloth along by means of the needle acting as a lever against it over a fulcrum *t*, the needle-carrier being driven for the purpose with a crank motion or its equivalent, substantially as set forth.

In connection with the above motion of the needle, I also claim regulating the length of stitch by the combined action of the slot *i*, of adjustable length, and the slight spring *j* or its equivalent, for throwing the needle away from the fulcrum when disengaged from the cloth, substantially as described.

I also claim the construction of the finger M, with a thin-pointed beak *m* for entering the loop, with a wedge-shaped shoulder *n* for spreading the loop open to receive the needle in turn, and with a spring *p* for retarding the motion of the loop, arranged and operating in combination with the needle, substantially in the manner and for the purposes set forth.

No. 12,798.—George W. Stedman.—*Improvement in Sewing-Machines.*—Patented May 1, 1855. (Plates, p. 87.)

Claim.—Feeding the cloth or other material along by means of a pin *a*, or its equivalent, playing in a revolving shaft B, which, at the proper moment in each revolution, brings it in contact with a stationary cam M or its equivalent, whereby the pin is pressed into the cloth, but again recedes therefrom as soon as freed from the cam, substantially as herein set forth.

Also the cam M, constructed substantially as described, when arranged upon a movable arm or its equivalent; so that, by simply adjusting its position, the length of stitch can be varied at the will of the operator.

No. 12,826.—Henry B. Odiorne.—*Improvement in Guides for Hemming and Cording.*—Patented May 8, 1855. (Plates, p. 87.)

The retainer G is intended to keep the cord H securely in its place within the hem before it is stitched, and to keep the said hem down afterwards. The spring-guide F acts as a gauge for the width of the hem, while its elasticity allows inequalities in the fabric to pass.

The inventor says: I do not claim an adjustable spring-guide for a sewing-machine, nor do I claim the combination of a guide for the cord with a hemming-guide, as in the patent of S. C. Blodget, upon which invention I conceive I have made a marked improvement.

But I do *claim* the curved retainer G, with its notched end *h*, in combination with the shoe *d*, for effectually keeping the cord in contact with the inside of the hem of the fabric, while the said hem is being operated upon by the needle and thread of a sewing-machine.

No. 12,856.—JOHN CHILCOTT and JAMES SCRIMGEOUR.—*Improvement in Sewing-Machines.*—Patented May 15, 1855. (Plates, p. 87.)

The material is placed between disk D and roller E. As the roller revolves it will move the material, and (by friction) also the disk, which turns freely in the bed-plate F, and through the centre of which the needle works. The axle *d* of the roller is attached to a sleeve *e*, which is capable of being turned freely around head C by forcing it (the sleeve) up against spring *i*, and raising it, so that the teeth at its lower edge *g* will be above the clutch *f*, which is fast to the head C. When moved round into the required position, the sleeve is again dropped into the clutch, which keeps it stationary.

Although the surface of the disk moves in circles, the distance it moves during every movement of the material is so short, that it comes sufficiently near a straight feed-motion, which, moreover, will be insured by applying a slight drag to the material in the desired line of feed. As the roller is capable of moving right round the needle, it is plain that the feed can be given in any line. The direction of the feed may be changed at any point by stopping the machine, with the needle in the work, to confine it in its place, before changing the position of the roller, and the work will proceed in a new direction.

The inventors say: We are aware that sewing-machines have been constructed so that their feed-mechanism might be varied to run the seam either longitudinally with or circularly round a cylindrical mandrel by substituting one set of feeding-rollers for another, and that these rollers have been arranged on one side of the material being sewn, to operate in connection with bearing-rollers on the other side, to prevent drag, and that such bearing-rollers have been made adjustable round the needle, to run in either one of the two directions of seam specified; such, therefore, we do not claim, neither do we use or claim a rotating table, with guide, on its face, to adjust the direction of the seam, as known to be old.

But we do *claim* the arrangement herein shown and described of the revolving disk D, within or on the fixed table, and having its axis in line with the needle, as specified, when combined to operate together with a roller E, bearing on the opposite side of the cloth, and made adjustable to any position in a circle round the centre of the said disk, to vary with facility and despatch the run of the seam in lines, on any side of the needle, without the aid of guides on the face of the table, and whether the revolving disk or bearing-roller be caused to move the cloth, as herein set forth.

No. 12,858.—HENRY W. DICKINSON.—*Improvement in Cording-Guide for Sewing-Machines.*—Patented May 15, 1855. (Plates, p. 88.)

The operation of this improvement is apparent from the figure.

Claim.—1st. A holder or presser A to a sewing-machine, formed with a groove *b*, to hold a cord in its place while being stitched into cloth or other material, for the purpose of forming a corded seam, in the manner described.

2d. Forming the face or bearing side of an adjustable guide B with grooves *g* so arranged as to receive and act upon a finished corded seam, and guide the cloth parallel while stitching another seam or sewing in another cord, as described.

No. 12,902.—CHARLES A. DURGIN.—*Improvement in Sewing-Machines.*—Patented May 22, 1855. (Plates, p. 88.)

When the needle has passed down through the cloth and has been drawn back far enough to form a bow of thread, the vibrating-hook T (which is pivoted to the plate N, against which the shuttle D works) is acted upon by a cam-pin on collar S of driving-shaft H, and shuts in between the thread and needle against the small yielding spring d^1, and holds the thread down until the shuttle has passed nearly through the loop, when the cam-pin releases the hook, which is forced back by spring e^1, while the forward motion of the shuttle in connection with the final upward motion of the needle causes the two threads to be drawn tight to form the stitch.

Figure 4 is an end view, and figure 3 a bottom view of the parts above referred to; figure 5 a detached side view ofthe hook.

Claim.—The vibrating-hook for holding down the thread during the partial passage of the shuttle through the loop, when arranged and operating substantially in the manner described.

No. 12,923.—T. J. W. ROBERTSON.—*Improvement in Sewing-Machines.*—Patented May 22, 1855. (Plates, p. 88.)

The needle *a* is worked in the usual way. The looper *b* is attached to lever *c*, which works on pivot *d*, which is secured in the frame of the machine a short distance below table A. Lever *c* has a spring *h*, applied to it in such a way as to throw up the looper as high as the under side of table A. (See figure 3.) It is provided with a slot *i*, to receive a pin *e*, which is secured to slider *f*, which works in fixed slide *g* parallel with the needle *a*. Slider *f* has a small eye or ring *j*, in line with the needle and large enough for the point of the needle to pass through, but not large enough for the needle to pass entirely through. During the greater part of the descent of the needle the looper is held up by spring *h;* but shortly before the descent terminates the needle enters as far as it can through *j*, and drives down the slider, whose pin *e* carries down lever *c* far enough to throw the point of the looper to the opposite side of the needle to that on which it stands when it is raised up to the table. The point of the looper works close to the needle as it passes it; and when the lever is allowed by the ascent of the needle to be raised by the spring, the looper passes into and extends the loop and retains it (see figure 3), until the needle passes and carries the thread through it to form the next loop. The fixed rounded piece *l* prevents the closing of the loop under the sharp edge of the hole in the table, and also prevents the loop from slipping over the point of the looper.

The strong black line represents the thread.

Claim.—So arranging and applying the looper *b*, or its equivalent, by which the loop in the needle-thread is extended or directed for the purpose of completing the stitch, that it shall derive its movement from the needle substantially as herein described.

No. 12,939.—Joseph Bond, jr.—*Improvement in Sewing-Machines.*—Patented May 22, 1855. (Plates, p. 88.)

This invention consists in producing the so-called "Howe's lock-stitch," by means of a spool-case caused to revolve horizontally, while the needle has a vertical movement. The spool-case rests and revolves on a ledge in a spool-case holder, the ledge as well as spool-case being so constructed as not to interfere with the needle-thread. The spool-case is a circular hollow box, with teeth on its outer edge; it has also on its edge a nose for catching the needle-thread, in place of a shuttle; the nose being arranged in regard to the above-mentioned ledge in such manner that, as the case revolves, the needle-thread passes perfectly free; within the case is placed the spool in such manner that both may revolve together, and radiating from the centre of the spool is an arm whose movement is entirely independent of the spool or case; this movement being given by the spool-thread, which passes from the said spool through a small hole at the end of the arm, and thence through another hole in the centre of the spool-cap towards the material to be operated upon. The spool-case is, with its spool, caused to revolve on the ledge within the holder by means of the teeth on the periphery of the case gearing into the teeth of a wheel on a vertical shaft, which has an irregular or differential revolving motion given to it by means of an elliptical toothed-wheel F, which gears into a similar wheel E on the driving-shaft B; thus causing the spool-case and spool to turn in such a manner that in some portions of a complete revolution, it turns faster than at others, causing a dwell or hesitation, which, in conjunction with the movement of the needle, effects the stitch. The spool-case has a nose L on its outside edge interrupting the teeth on the same. This interruption corresponds with the portions of the wheel H where the teeth are cut away, so that no impediment may be offered to the free movement of both wheels, the lengthened tooth *i* meeting a corresponding recess in the outside edge of the spool-case, giving further security to the due performance of the said movement.

The auxiliary lever X is operated by a peculiar-shaped cam W on the driving-shaft, for the purpose of taking up the excess of slack in the needle-thread independent of the motion of the needle, thereby requiring the vertical movement of the needle to be less than in other machines, and consequently allowing a greater amount of speed.

In the engravings the waved line represents the needle-thread, and the broken line the spool-thread.

The inventor says: I do not lay any claim to the feeding-apparatus, or to the method of actuating the needles;

But I do *claim*, 1st, the spool-case I, with teeth or their equivalents on its outer edge, and the nose L, for catching the needle-thread, in combination with the wheel H, having teeth cut away at *p*, substantially in the manner and for the purpose specified.

2d. The hollow spool-case I, with its spool M, in combination with the radiating arm N, or its equivalent, as shown and described.

3d. The auxiliary lever X, as operated by cams on the driving-shaft C, not for the purpose of controlling the needle-thread between the eye of the needle and the goods, as in Harris's and Howe's machine, nor for the purpose of tightening the stitch, as this is done by the needle-bar, but in conjunction with the spool-case I, so as to accommodate the needle-thread as it passes over the spool-case, thereby diminishing the extent of movement required in the needles of other machines.

No. 12,969.—Isaac M. Singer.—*Improvement in Sewing-Machines.*—Patented May 29, 1855. (Plates, p. 88.)

The cloth is pressed on to the roughened surface of the feed-wheel *d* by means of the pressure-pad *e*, (the needle working through a slot in the pad,) on the end of arm *f*, which turns on fulcrum pin *g*, secured to slide *h*, which is adapted to slide on the standard *i* of the needle slide. Spring *j* causes the pad to press on the cloth. The pad thus arranged moves with the cloth when advanced by the feed-motion of wheel *d*, and thus avoids the tendency to produce a wrinkle. So soon as the feed-motion has taken place, and the needle begins to enter the cloth, the pad is lifted up (by means of a cam on the needle cam shaft) that it may be forced back to its original position by the tension of the delicate spring *l*, which acts on the pad arm.

Claim.—In sewing seams in cloth and other substances by machinery, suspending the feed-motion for the purpose of causing the needle to perform two successive operations in one and the same puncture, to tie the seam, substantially as specified.

Also, connecting the pressure-pad with its slide, or the equivalent thereof, by means of a long jointed arm, substantially as described, in combination with the feed-wheel, or its equivalent, as described, so that the said pressure-pad shall move with the cloth or other substance, when fed forward for spacing the stitches, instead of making friction, which would tend to pucker or wrinkle such cloth, or other substance, as described; and by which, also, the cloth is relieved from pressure after the needle has entered, so that it can be turned freely on the needle as an axis, as set forth.

No. 12,984.—Addison Capron, assignor to Himself, James S. Dennis and Hervey M. Richards.—*Improvement in Sewing-Machines.*—Patented May 29, 1855. (Plates, p. 89.)

This machine serves for sewing hooks and eyes, or various articles, to a sheet of paper or other material. The secondary carrier D is provided with teeth, engaging with the gear E, supported on a stationary shaft G, which is upheld by arm F, extended from the main frame. H is a

coiled spring within the gear-wheel, with one end fastened to the wheel and the other to the shaft G. The object of so applying the needle to the main carrier is to prevent breakage of the former, should its point by accident be carried into the upper surface of the article to be sewed to the paper. When this happens, the coiled spring, although operating to press the secondary carrier downward against shoulder *a* of the main carrier, will yield sufficiently to let the secondary carrier remain stationary while the main carrier continues to descend.

Claim.—Combining the needle with the main carrier by means of a secondary carrier and a spring, or the equivalent thereof, applied to the main carrier, so as to operate substantially in the manner and for the purpose before specified.

No. 13,064.—T. J. W. Robertson.—*Improvement in Sewing-Machines.*—Patented June 12, 1855. (Plates, p. 89.)

The needle *a* passes through the cloth far enough to bring its eye below the point of the looper. When the needle begins to rise and leave the thread slack, it also begins to turn on its centre towards the point of the looper, and by that means throws the slack of the thread over the said point; and as it continues to rise, it draws the thread in the form of a loop over the looper, which, without detaining the loop, merely keeps it open and in a proper position for the needle to pass through it in its next descent; as tension is produced on the thread by the descent of the needle, the loop is drawn entirely over and off the looper, (the looper passing entirely through the loop.) The turning of the needle and needle-carrier *d* is effected by means of the pin *f* projecting from *d*, which pin, during the ascent of the needle, follows the curved surface of spring *g*, thereby effecting the turn of the needle. When arrived near the end of the ascent, the pin, catching under and sliding along the inclined under-surface of *i*, is turned back, and during the descent of the needle slides behind the spring *g* without being turned.

Claim.—Making a needle-thread single or chain-stitch, by means of a detached and loosely held looper *b* and reciprocating needle, arranged and operating together in such a manner that while the needle in its back-stroke draws the slack of its thread on to or along and around the looper, the looper, without detaining the loop formed by the drawing of the slack of the needle thread on and along it, guides and keeps the loop open, and the needle and its thread, in their next advance stroke, pass through the open loop, which, kept moving, and having the further feed of its own or needle-thread passed through it, as specified, is drawn entirely over and off the looper *b* to complete the stitch, substantially as described.

No. 13,065.—Isaac M. Singer.—*Improvement in Sewing-Machines.*—Patented June 12, 1855. (Plates, p. 89.)

The cloth is held between the pad *j* (on rod *k*, secured to the frame which carries the needle-carrier) and the periphery of the feed-wheel

c, by the tension of the spring *h* acting on the lever *f* (the wheel *c* being pivoted to the extended part *e* of lever *f*), and the lever and wheel will move towards and from the pad to follow the varying thickness of the cloth. The feed-wheel *c* is turned by a ratchet pawl (not shown in the engravings).

The inventor says: I am aware that the cloth in sewing-machines has been held to the periphery of the feed-wheel by yielding pressure, and therefore I wish it to be understood that I make no claim to this mode of operation.

I *claim*, feeding the cloth or other substance in sewing-machines by means of a wheel hung on a vibrating lever, or equivalent therefor, and borne upward by a spring or its equivalent, against the under surface of and in combination with a fixed pad, substantially as described.

No. 13,178.—Jean Pierre Molliere.—*Improvement in Sewing-Machines.*—Patented July 3, 1855. Patented in France, May 30, 1855.

A description and drawings, illustrating the various features of this improvement, would necessarily be too extensive to be given in this report.

I *claim*—of even date with the French patent for the same invention—

1st. The movable fulcrum *b*, of the graduated sliding-piece *d*, for lengthening or shortening the arm of the lever *b c*, in connection with the catches $f f^1 f^2$, of different lengths, whereby the movement of the rack-shaft O, or of the pinion P, can be varied at pleasure, so as to produce any length of stitch that may be desired; the whole arranged and operated substantially in the manner described.

2d. The guides T T^1 of the tooth-rack Q, and the rollers G G^1 G^2 for keeping in place the adjustable piece-carriers R R, and the tooth-rack Q^1, which steadily pushes forward the piece to be sewed, so as to secure a regular succession of stitches; the whole arranged and operated substantially in the manner described.

3d. The action of the hook or lever *h*, when the upper needle-carrier is ascending, upon the lever *i*, whereby the point *j*, bearing upon the rod *k*, makes it press the piece *m* against the piece *n*, so as to seize and hold fast the needles between the shoulders of the pieces *m* and *n*, at the moment when the lower needle carrier has driven them through the piece to be sewed; the whole arranged and operated substantially in the manner described.

4th. The lever F, and its two hooks X X^1, for passing beyond the line of sewing, and taking hold of the thread at the moment when the needles are held above the plates S S, and pulling it after them, and closing up the seam, together with the apparatus fig. 5, Plate I, for overcoming the obstacle arising from short threads; the whole arranged and operated substantially in the manner described.

5th. The stopping levers 4 and 4^1, fig. 7, Plate I, for arresting the two needle-carriers in their course when the thread breaks, which, by

throwing the ball 10 out of perpendicular, ungear the catches *f f*^{1} *f* by the piece K H, and so bring the machine to a stop; the whole arranged and operated substantially in the manner herein described.

6th. The sewing of every kind of seam, whether straight or crooked, by what is known as the shoemaker's stitch, in the manner substantially described.

No. 13,195.—Jerome B. Woodruff.—*Improvement in Sewing-Machines.*—Patented July 3, 1855. (Plates, p. 89.)

The needle-arm (made in imitation of a bird) is hollow. P is the shuttle carrier.

The inventor says: I *claim*, 1st. The making of the needle-bar hollow, and providing it with a door or slide, for the purpose of holding incased therein such parts of the machine as may be desired; and this I claim, whether the needle-bar be ornamented as described, or otherwise.

I also claim the direct and positive connection of the needle-arm and shuttle-carrier, by which means they both move simultaneously and in perfect harmony with each other, so that whichever way the pulley is driven, the operations of the machine will be the same, substantially as described.

No. 13,201.—George W. Stedman.—*Improvement in Sewing-Machines.*—Patented July 3, 1855. (Plates, p. 89.)

The bobbin B consists of a circular case formed of a convex plate *f* on one side and a flat plate *g* on the other, the two plates being united by a rivet in the centre. The flat plate *g* is somewhat less in diameter than the plate *f*, so as to leave sufficient space inside of the edge of the latter for the thread *s* to be wound in or unwound; and its outer surface is sunk below or flush with the edge of plate *f*, which will consequently rest closely upon any flat surface, and completely hide the flat plate. Thus the loop will be allowed to pass under the bobbin without danger of its getting inside of it.

Claim.—Mounting a bobbin B, or its equivalent, upon and combining it with a reciprocating plate or looper A, which is provided with a pointed projection extending before said bobbin, and arranged so as to enter the loop of the needle-thread, then carry the bobbin over the outside of and finally back through said loop, substantially as described; whereby the liability to miss the stitch and break the needle, together with the noise and friction of a shuttle, is avoided, the use of oil for lubricating the shuttle-race dispensed with, and the consequent soiling of the thread prevented.

Also constructing the bobbin with one face sunk below or flush with the edge of the other face, its thread consequently unwinding from its face instead of its periphery, for the purpose of preventing the loop of the needle-thread getting inside of the bobbin, substantially as set forth.

No. 13,242.—Jerome B. Woodruff.—*Improvement in Sewing-Machines.*—Patented July 10, 1855. (Plates, p. 90.)

The wrist-pin *d*, on the revolving pulley I, communicates a reciprocating motion to the lower arm of the needle-carrier E, by means of a connecting-rod H, the wrist-pin *c* of which can be adjusted in the slot *b* of said arm, for the purpose of adjusting the amount of vibration of the needle D. The position of the parts referred to in the second part of the claim is represented in fig. 1; R representing the shuttle-box, and F the shuttle. The feeding-arm P is pivoted to bracket U, and is operated by the same wrist-pin *d*. The inclined plane *i*, at the upper end of the feeding-arm, in conjunction with pin *r*, on the under-side of the feeding-pawl V, serves to deflect the same a distance equal to the length of the stitch required. The upper end of the feeding-arm likewise carries the teeth *j* of the feeding-pawl alternately into, and permits it to be withdrawn from contact with, the cloth. The pawl is pivoted at its rear end. An adjustable eccentric-pin X, connected with a hand and dial, is arranged to act against the pawl, to move it laterally more or less, to set it in such position that the inclined-plane *i* will strike it, sooner or later, as it is required to feed more or less to produce a longer or shorter stitch.

Claim.—1st. The arrangement of the needle-shuttle and feeding-arms, the connecting-rod H and pulley I, with its wrist-pin *d*, substantially in the manner and for the purpose set forth.

2d. The giving to the needle and the shuttle such relative range of vibration, that at the time the shuttle is forward, the needle raised, and the tension upon the stitch the greatest, the distance between the eye of the needle and the eye of the shuttle, and the stitch, will be equal; thereby more effectually insuring an equal draught on both threads of the stitch, within the body of the cloth.

3d. The combination of the feeding-pawl with the feeding-lever to raise and lower the teeth of the pawl, and the inclined plane to vibrate them laterally, in the manner and for the purpose set forth.

4th. The combination with the feeding-pawl of the eccentric-pin X, a pointer Z, and an index or dial graduated and numbered, whereby the machine can be adjusted to vary the length of the stitches, at will, to any required number to the inch; and the number which the machine, as adjusted, will make, can at any time be observed without measurement or calculation, whether it be in operation or not.

No. 13,275.—Frederick R. Robinson.—*Improvement in Guides for Sewing-Machines.*—Patented July 17, 1855. (Plates, p. 90.)

Projecting downward from the under-side of a spring-presser D, (applied to press the cloth down upon the bed C,) and forward in front of the needle A, is the seam-gauge E, it being a thin metal plate, made wedge-shaped, so as to lie and fit into a seam, and rest upon the stitches by which the two pieces of cloth are united. While sewing a line of stitches, the needle operates at such a distance from the plane of the gauge as it may be desirable to have the line of stitches from the seam,

the gauge resting in the seam and serving to guide and maintain the cloth in such direction with respect to the needle, as to cause the line of sewing made by it to be parallel to the seam.

Claim.—The combination of the seam-gauge or guide with a sewing-machine.

No. 13,353.—James Harrison, Jr.—*Improvement in Sewing-Machines.*—Patented July 31, 1855. (Plates, p. 90.)

The nature of this improvement will be understood from the claims and engravings.

Fig. 2 represents the feed in two positions: one represented in full, the other in dotted lines.

Claim.—1st. Feeding the material to be sewed by means of a feed-plate B, which is guided substantially as herein described, in the direction of any curved, circuitous, or irregular line of sewing, by means of grooves *d d*^{1}, or their equivalent, on its back-side, of a form corresponding to the said line, receiving or working in contact with fixed pins *c c*^{1}, or their equivalent fixed guides, whereby motion is only allowed to the said feed-plate in such direction as to make the material describe, in passing the needle, the intended line, the said feed-plate receiving motion by any mechanical device suitable for the purpose.

2d. Combining the guide-pins *c c*^{1}, or their equivalents, with the shoe *c*, which confines the feed-plate and produces the necessary pressure of the plate on the material A, substantially as specified.

No. 13,362.—Isaac M. Singer.—*Improvement in Sewing-Machines.*—Patented July 31, 1855. (Plates, p. 90.)

The feed-plate *d* (roughened at its upper surface) has a vibratory motion. During its forward motion, the cloth between it and the pressure-pad *p* will be carried forward; but during its backward motion the lifter *r* rises and holds the cloth above the upper surface of the feed-plate, so that it (the cloth) will not be carried back with the backward motion of the feed-plate.

Claim.—The combination of the lifter, substantially as specified, with the vibrating feed-plate and pressure-pad, substantially as and for the purpose specified.

No. 13,499.—Francis A. Ross and Wm. H. Marshall.—*Improvement in Sewing-Machine Cases.*—Patented August 28, 1855. (Plates, p. 90.)

The nature of this invention will be understood from the claims and engravings.

We *claim* the making the case in the form of a cabinet, which when opened will afford space for operating the machine by the treadles, and will form a table for the work, by raising the leaves and supporting them by the doors of the cabinet when thrown open, in the manner described.

We also claim the construction of the folding top; which when open furnishes drawers and shelf for the convenience of the operator, as described.

No. 13,616.—Jas. Harrison, Jr.—*Improvement in Sewing-Machines.*—Patented October 2, 1855. (Plates, p. 91.)

F F^1 are the ends of two elbow-levers, which drive the two sliding needle-bars E E^1. The cam which operates the levers is so shaped that both needles will be withdrawn from the material during part of the revolution. Before the lower needle is withdrawn, the needle *b* enters its loop, to retain it and hold it in readiness for the upper needle *a*. Needle *b* is attached to bar *b*^{1}, which slides in a guide at the side of and nearly parallel with needle-bar E, said guides being in the same plate, G, as the guide of the said needle-bar; and needle *b* is connected by a hook at its upper end with elbow-lever *c*, which is pivoted to G. Bar *b*^{1} is fitted to its guide in plate G, so that it can move sideways a limited distance, which, in connexion with the spiral spring around *b*^{1}, imparts a tendency to throw the point of *b* always away from needle *a*. When needle *a* is in the cloth, *b* is kept lifted up by reason of the swelled part *f* of bar E having thrown aside the upper and raised the lower arm of lever *c*; but as *a* is withdrawn from the cloth, and the swelled part *f* leaves the lever *c*, the needle *b* is forced down by the spiral spring until it passes close behind *a*^{1}, and between said needle *a*^{1} and its thread, in the same manner as needle *a* would do if descending at the same time; and then it passes through the cloth and remains stationary until the lower needle has been withdrawn and left the loop around it.

The clamps I I^1, between which the cloth is sewed, are jointed by knuckle-joints *p p*^{1} to forked-rods *k k*, which are rigidly attached one to each of the guide-plates G G^1.

The swinging movement of the clamps allows the material to be liberated during the feed movement. The face of the plate I^1, which is the plane in which the interlacing of the loops is to be performed, so as to show only a single thread on the upper surface of the material, nearly bisects the angle formed by the lines of motion of the needles, and is kept in that position during the vibrations of the guide-plates, by connecting plate I^1 at one end, by rod *q*, to the fixed plate H^1. The lower point of attachment of rod *q* and the centre *l* being equi-distant with the upper point of attachment, and the centre *p*^{1} and rod *q* being of the same length as from *l*^{1} to *p*^{1}, the plate I^1 must have a parallel movement. The upper clamp I, being suspended in one transverse line, accommodates itself to any variation in the thickness of the cloth. Pressure is given to the clamps (in order to hold the cloth) by a spiral spring attached to arms on the rear ends of shafts N N^1, which latter carry arms P P^1, which are connected by links R R^1 to plates G G^1. The opening of the clamps to release the cloth during the feed movement is produced by a stud on shaft C.

The feed mechanism is not exhibited in the engravings, as it forms no part of the invention.

Claim.—1st. In connexion with the giving of the two needles *a* a^1 such a movement as will cause both at once, during any revolution or stroke of the machine, to be withdrawn from the cloth for a sufficient time to effect the feed movement, the employment of a supplementary needle *b*, arranged and operating substantially as described, to supply the place of the needle *a*, which operates first after the feed movement, and to retain the loop in the thread which has been put through the cloth by the needle which last leaves the cloth before the feed movement, until the first-named needle operates to pass through the said loop, substantially as described.

2d. The attachment of the clamps I I^1, which hold the material to be served to two swinging guide-plates G G^1, or their equivalents, which serve also as guide-plates for the needle-bars, and thereby cause the needles and the clamps to swing together, substantially as described; whereby the clamps are enabled to accommodate themselves to different or varying thicknesses of material, and to be opened to slacken their hold upon the material during the feed movement, and the needles are enabled to be kept in a proper or desirable relation to the clamp.

3d. The connexion of the two swinging guide-plates G G^1, or their equivalents, in any manner substantially as described, whereby one of them is caused to have a movement so much greater than the other, that the relative movements of the needles and clamps shall be such that the needles, in all positions of the clamps, will cross each other in the plane of, or as near as is desired to the plane of the face of one of the clamps, which is the plane of one surface of the material, as fully set forth.

No. 13,630.—C. J. COWPERTHWAITE.—*Improvement in Sewing-Machines.*—Patented October 9, 1855. (Plates, p. 91.)

The foot *j* of the bar J (which latter slides in the stand of the machine) is held down upon the cloth by means of a weighted lever K. When it is desired to insert a new piece of cloth, or to remedy any defect in the seam, the operator pushes the lever backwards, until the pin *m*, which projects from the stand, occupies the lower end of slot *k*, and the bottom of projection *o*, on the lever, arrives at the top of stop-piece *p*, (see dotted position in fig. 4,) by which movement the character of the lever is changed from a lever of the second to one of the first order, with *p* for a fulcrum, and instead of pressing on bar J, it holds it up. The pin *n*, projecting from the bar J, is held in the slot *l*. When lever K is in this position, with bar J raised, if the foot should be struck by the needle-bar and commence to be pushed down, the slot *k* would move down the pin *m*, and by moving a very little way, would throw the lever forward, and throw the bottom of the piece *o* off the top of *p*, allowing the inclined back of *o* to slide down, and the slot *k* to slide all the way down the pin *m*, bringing down the bar J.

By arranging the shuttle-race obliquely (as will be understood from fig. 3,) the dragging action of the shuttle on the outer side of the loop, or side farthest from the needle, will be counterbalanced, and the stitches on the upper side of the cloth will be in one line.

The sharper the shuttle, the less drag will it give the loop, and less obliquity of the shuttle-race will be required.

The inventor says: I do not claim the application of a weight simply to give pressure to the cloth-holder, either fixed or adjustable.

But I *claim*, 1st, the weight trip-lever K applied, substantially as described, to the bar J or its equivalent, which holds the cloth, so as to serve not only to apply pressure to the cloth, but to hold up the said bar, or equivalent, from the cloth, when desired; and also to allow the said bar or equivalent, when its foot is struck by the needle-bar, while it is held up, to descend, and to hold it down again until it is lifted by the operator, substantially as described.

2d. I claim arranging the shuttle-race obliquely to the direction in which the cloth is moved, to produce the seam or line of sewing, substantially as described, for the purpose of causing the visible parts of the stitches on the front or upper side of the cloth to be straight, or all in the same line.

No. 13,661.—ISAAC M. SINGER.—*Improvement in Sewing-Machines.*—Patented Oct. 9, 1855. (Plates, p. 91.)

When the shuttle-thread is loose between the cloth and the hole in the shuttle through which it passes, the thread is apt to get in the way, or sometimes on one and then on the other side of the needle, thereby producing unevenness in the stitches. To prevent this, a spring thread-guide *j* is attached to the upper surface of shuttle *d*, extending nearly the whole length thereof, and making pressure on the thread, the rear end being curved for a short distance, and then straight, so that when the shuttle advances, the thread shall be drawn back under the spring and back to the curve; and when the shuttle moves back, the thread shall be held by the curve of the said guide, by which it is held in a straight line until after the needle enters the cloth, and then it slips off from the curved part of the guide.

The needle-bar *m* is connected with the sliding-needle carrier *n* by a joint pin *o*, so that it can vibrate in the direction of the motion of the shuttle; and it is provided with a delicate spring *p*, the tension of which tends constantly to carry the needle *q* to the extent of its range of motion in the direction the reverse of the feed motion. As the feed motion is continuous, the moment the needle enters the cloth it begins to move with the feed motion, and continues to move along with it during the entire operation of forming the stitch and until it comes out again, the needle-bar admitting of this motion by reason of its connection with the carrier by the said joint pin, and the moment the needle is out of the cloth it is carried back to its original position by the spring *p*.

The object of this is to avoid the irregularity in the spacing of the

stitches, due to the necessity of overcoming friction and the inertia of all the moving parts, when operating with an intermittent feed motion.

Claim.—In combination with the shuttle, and attached thereto, the employment of a spring pressure guide, substantially as specified, to control the shuttle-thread as the needle enters the cloth, or other substance to be sewed, as set forth, and for the purpose specified; and the continuous feed motion for spacing the stitches, substantially as specified, in combination with the vibratory motion of the needle imparted in one direction by the feed motion, and in the opposite by a spring or any equivalent therefor, substantially as and for the purpose specified.

No. 13,662.—ISAAC M. SINGER.—*Improvement in Sewing-Machines.*—Patented October 9, 1855. (Plates, p. 92)

The feeding is effected by tongue *f* on the lower end of lever *g*, which turns on fulcrum-pin *h*, attached to pressure slide-bar *i*, which is forced down by spring *j*, thereby causing the tongue to make a pressure on the surface of the cloth. The lower end of lever *g* is fitted to work in a slot in the foot *k* of the pressure-bar *i* towards and from the needles *b b*. The lower end of the lever with the tongue is forced outwards from the needles to take the required position for the feed by the tension of spring *l* at the upper end; and it is moved towards the needles to give the feed by the U-formed lever *m*, one end of which acts on the lever, the other end being acted upon by cam *n* on the needle cam-shaft, so located as to give the feed-motion just before the needle enters the cloth. After the needles have entered the cloth, the pad is lifted to permit it to be drawn back by the tension of the spring *l* by a cam *o*, which acts on an arm *p* attached to the pressure sliding-bar *i* before named. There is a lever *q* which turns on a fulcrum-pin *r* attached to the standard of the frame. This lever is vibrated in one direction by a spring *s*, which keeps the rear end of the arm in contact with the surface of a cam *t* on the driving-wheel *u*, and so formed as to vibrate the said lever in one direction the moment the needles have risen, and keep it in a state of rest during the descent and rise of the needles, and then to permit it to be vibrated back in the opposite direction at the end of the up-motion of the needles, and then to hold until the needles have again risen. The lever carries a spool *v* at its rear end; the thread from which, whether single or compound, passes through a guide *w* also on the lever end, then around a tension wing *x*, to regulate the tension by the turning thereof; and from this the thread passes through an eye or guide *y* on the forward end of the lever end, thence through an eye in the extreme end of the thread-carrier *z*, attached to and projecting laterally and downward from the side of the lever at its forward end. The position of this carrier is such, as shown in the drawings, as to lay its thread on the surface of the cloth just in front of the needle-threads, before the feed-motion takes place, so that by the feed-motion the said thread shall be carried back of the line of motion of the needles; and, in consequence, when the needles descend they

pass over and bind this upper thread on to the cloth, so that the needle-threads pass over it, whilst it passes around first outside of one needle-thread, and then around outside of the other. In this way, it will be seen, that if considerable tension be given to this laying-thread, it will be drawn tight from one row of stitches to the other alternately in opposite directions, as at a^1 fig. 7, thus binding together the two rows of stitches on the upper surface of the cloth, as effectually as they are bound together below by the shuttle or its equivalent. But if a slight tension be given to the laying-thread, as the extent of motion of the carrier is greater than the distance between the two rows of stitches, the thread will be laid so as to occupy a much greater width than the distance between the two rows of stitches, thus leaving a series of loops, formed by this laying-thread, to project on each side of the two ranges of stitches, as represented by fig. 8. In this way, by varying the tension on this thread, embroidery can be laid and secured to the surface of the cloth, which, by turning the cloth, can be made to assume the lines of any desired design.

Claim.—1st. The employment of a supporting-tongue, substantially as described, placed between and in combination with the two needles, to support the cloth, or other substance, and prevent its being puckered during the operation of sewing and drawing the two rows of stitches tight, substantially as described.

2d. The employment of the guide-plates, substantially as described, to guide cloth that has been folded in making flat, lapped, or other analogous seams, as described, so that the row or rows of stitches shall be made at a regular and determined distance from the folded edge, as set forth.

3d. In combination with one or more eye-pointed needles and shuttles, or the equivalent therefor, for sewing one or more seams, the employment of a vibrating thread-carrier, for carrying a thread or threads alternately in opposite directions across the seam or seams, and laying it on the face of the cloth, substantially as described, so that it shall be secured to the face of the cloth by the needle-thread or threads, as described.

No. 13,687.—ISAAC M. SINGER.—*Improvement in Sewing-Machines.*—Patented October 16, 1855. (Plates, p. 92.)

m is the shuttle, *j* the shuttle-race. There is a hole in the table *f*, directly under and in a line with the needle, to which is fitted the shield-plate *o*, made hollow for the needle to play in freely as it moves up and down. The hole in which the shield is fitted is just in front of and close to the shuttle-race; there is a narrow vertical slit *t* in the face of the shuttle-race corresponding with the cut-out portion *q* of the shield-tube when in the position represented in figures 1 and 2, so that the needle-thread, when the parts are in that position, can spread out from the body of the needle, that the point of the shuttle may enter between the needle and its thread; but when the shield is turned in the position in figure 3, then the slit *t* is covered by the shield which is thus interposed between the needle and the shuttle during the de-

scending motion of the needle, so that its point cannot strike the shuttle; but so soon as the needle has descended, the shield is turned out of the way, as seen in figures 1 and 2. The tension of spring *v* keeps the shield over slit *t*, and the shield is properly actuated by means of arm *u* and a spring-catch attached to and moving back and forth with the shuttle-carrier, operated in the usual manner.

Claim.—The method, substantially as described, of protecting the needle from all injury by the interposition of a movable shield between the needle and shuttle, which is removed after the needle has descended, to permit the shuttle to pass between the needle and the thread, as set forth.

No. 13,727.—L. W. Langdon.—*Improvement in Sewing-Machines.*—Patented October 30, 1855. (Plates, p. 92.)

When the needle passes through the cloth as it begins to recede, the thread is taken by the looper and carried across the path of the shuttle to the left side of the needle, thus forming a loop, where it is held until the shuttle passes through the loop, when the looper recedes to its position. As it recedes the motion of the shuttle is accelerated by the looper pressing on the rear end of the shuttle, and quickly sliding it forward in its bed, thus giving to the shuttle a greater velocity in passing the eye of the needle than at any other portion of its orbit; and as the shuttle passes around, the thread is caught on the snail-worm *h*, where it is held until the knot is tied, and then cast off in time for the stitch to be drawn up, thus making a half-knot stitch at every revolution of the shuttle. By changing the lever *o* to the right, the needle-bar is made to vibrate twice in the same line before feeding; and as the needle enters twice in the same place, and the shuttle in its revolutions passes through two successive loops without feeding the material forward, a whole knot is thus formed similar to one made by hand. The change of feed for tying half or whole knots is effected by means of the adjustable lever *o* operating on the slide-bar P, which moves roller R and changes its bearing alternately on the cams T T, thus tying a half or whole knot as desired. By moving lever *o* to the left a half knot is made, and by moving it to the right a whole knot is made. The length of the stitch is effected by means of the adjustable set-screw R at the end of the connecting-rod *q*. The step Z, (on rock-shaft H,) working in the end of connecting-rod *q*, serves to give the latter a vibrating motion to cause the needle to feed. *w* represents the half-knot, *x* the whole-knot stitch.

The inventor says: 1st. I *claim* making a stitch by tying a half knot or a whole knot, at the will of the operator, in the manner set forth and described.

2d. I claim the snail-worm on the revolving vertical face-plate for the purpose of holding the thread until the knot is tied, and the casting it off in time for the stitch to be drawn up.

3d. I further claim the vertical face-plate into which the shuttle is set for the purpose of carrying it around, and the reaction of the looper K for quickening the motion of the shuttle as it passes the needle, for the purpose of letting the looper pass out freely.

4th. I do not claim, broadly, feeding the cloth by the motion of the needle; but I do claim feeding the material by the needle when combined and arranged with the lateral motion of the needle in the manner described—that is to say, in connection with the rock-shaft H, with the sliding-step in the end, the connecting-rod *q*, the spring S, the set-screw and rollers R R, the cams T T, the sliding-bar P, and the adjustable lever *o*, as set forth.

No. 13,768.—Isaac M. Singer.—*Improvement in Sewing-Machines.*—Patented November 6, 1855. (Plates, p. 92.)

b b are two needles placed side by side in the needle-carrier *a*, and each carrying its appropriate thread similar to single-thread machines. The shuttle *c* is operated in the usual way, so that when the two needles perforate the cloth and carry their appropriate threads below the cloth and there form two loops, the shuttle, instead of passing through the loop of only one needle-thread, passes in succession through the loops of both needle-threads; and therefore, when the two needles are withdrawn, two stitches are formed, each with a needle-thread and a shuttle-thread, whilst at the same time the two stitches are connected by the shuttle-thread, which extends from the one stitch to the other.

Claim.—The employment of two eye-pointed needles, carrying its appropriate thread, and the two working in unison, substantially as specified, in combination with a shuttle, or equivalent therefor, to effect the concatenation of the two sets of stitches, substantially as specified and for the purposes set forth.

No. 13,856.—George W. Stedman.—*Improvement in Sewing-Machines.*—Patented November 27, 1855. (Plates, p. 93.)

The lever is moved about its fulcrum by means of a vibrating rod D. One arm of said lever carries the sliding-plate G, which is beat so as to extend up through a slot *m* in the cloth-plate *t*, and is spread out upon the upper side of said cloth-plate, sufficiently to cause it to pass over the needle-slot *i* in the feeding-plate, when moved forward. This portion *h* of the feeding-plate is situated immediately under and in contact with the cloth. The motions of the parts are so proportioned as to cause plate *h* to push against the thread when the needle is out of the cloth, and thereby move the cloth along. Fig. 1 represents a bottom view of the machine, and fig. 2 a top view of parts of it.

Claim—Feeding the cloth or other material along by means of the thread, which is suitably acted upon for the purpose of tightening each stitch.

No. 13,966.—Isaac M. Singer.—*Improvement in Sewing-Machines.*—Patented December 18, 1855. (Plates, p. 93.)

The needle-carrier is pivoted at top, and is pressed towards one side by spring *e*; it is alternately moved to the other side against the spring by means of a lever *f*, which is pivoted at *i* and actuated from a cam.

The cloth to be sewed having been placed between the feed-wheel *m* and pressure-pad *n*, the needle punctures the cloth, and carries its thread to the under-side, where it forms a loop for the passage of the shuttle with its thread, and the needle then rises, forming the stitch. The feed-motion then takes place by which the cloth is advanced, and at the same time the cam acts upon lever *f*, and moves the needle-carrier and needle in the direction of the feed-motion, (until the carrier strikes stop-pin *k*,) but to a greater extent than the distance that the cloth has been moved by the feed-wheel, and then the needle descends for the next stitch, which will be a back-stitch. The stitch having been performed and the needle withdrawn, the cam liberates lever *f*, the carrier and needle vibrate back, the cloth is again fed forward, and the needle descends again to make the third stitch like the one first described, and so forth.

Claim.—The mode of operation, substantially as described, for forming seams, by alternately making a loop forward, and then a short back-stitch by means of an eye-pointed needle, which merely carries a part of its thread through the cloth or other substance, that it may be interlaced or concatenated, as set forth, whether the said mode of operation be applied by the means specified or any equivalent therefor, as set forth.

No. 12,532.—FREDERICK S. STODDARD.—*Improvement in Machinery for Spinning Wool.*—Patented March 13, 1855. (Plates, p. 93.)

The regulating of the counter-twist and the preventing of too great a degree of twist getting back to the large part of the roving near the back drawing-rollers, is attained by the fingers *h* giving an angular direction to the roving R (see fig. 1). The fingers can be more or less elevated by means of set-screws *j*.

The cam Q is so arranged relatively to cam K, (which operates the ring-plate I,) that as the ring-plate rises the brushes *q q* will fall back from them, and as the plate descends the brushes advance towards the rings. Thus, the travellers will (during the time the winding is performed on the lower and largest part of the cone) be in contact with, and receive a drag from, the ends of the brushes, gradually decreasing as the winding approaches the higher and smaller part of the cone.

Claim.—1st. Conducting the roving from the back D D to the front drawing-rollers E E, by employing a bridge H or rest, with fingers *h h* upon it, situated between the front and back pairs of drawing-rollers, for the purpose of governing the counter-twist so as to adapt a smaller portion of it to the part of the thread nearest the back rollers.

2d. Impeding the ring-travellers *o o* while winding upon the lower or largest parts of the cones, by means of a series of brushes *q q*, or their equivalents, operating substantially as set forth, so as to gradually set the travellers free as the winding approaches the smaller or upper ends of the cones, thereby producing a uniform tension on the thread while winding.

No. 12,582.—AUGUSTUS E. BIGELOW.—*Improvement in Spinning Wool.*—Patented March 27, 1855. (Plates, p. 93.)

a a are the ring-doffers; *b c* the rollers; the lower, *b* (a metallic one), mounted like the stripper-roller of woollen cards, but not to act as the stripper; and the upper, *c*, formed in the usual manner of a stripper, but placed above and resting on *b* with sufficient weight to hold the slivers as taken from the doffer. In front of the rollers are the flyers *d*, mounted in the usual manner of speeders. As the slivers are stripped from the rings of the doffers, they pass through the bight of the rollers, and thence through one wing of the flyers to the spool. The delivery motion of the rollers should correspond with the winding-on motion of the flyers and spools, plus the amount of shortening induced by the twist put in the roving. In this way the slivers stripped from the ring-doffers are delivered to the flyers, and by them regularly twisted, without drawing, and wound on to the spools; and the bight of the rollers will prevent the twist from extending to and around the doffer, and will also prevent the drag of the winding-on from drawing the sliver from the doffer.

The inventor says: I do not wish to limit myself to the use of flyers in the practical application of my said invention, as any of the known equivalents for the flyer, or any improvement thereof which might be hereafter made, may be substituted for this one element of the combination.

But I *claim*, in the preparation of woollen roving, the combination of flyers, or the equivalent thereof, and their appendages, with the ring-doffer or doffers of a carding machine, by the interposition of a pair or pairs of rollers, substantially as specified, to deliver the slivers from the doffer or doffers, that they may be regularly twisted and wound on without drawing, as specified.

No. 12,889.—ARAD WOODWORTH, 3d.—*Improvement in Machinery for Spinning.*—Patented May 15, 1855. (Plates, p. 94.)

By using two flyers, one within the other, and revolving them in the same direction, the inner one say with one-half the speed of the outer one, there will be produced a twist and a half in the yarns; and if the inner flyer be revolved at a higher speed than the outer one, a portion of the twist which has been given to the yarns between the drawing-rollers and the neck of the outer flyer will be taken out, so that, by changing the gearing of the flyers, any desired twist can be secured.

By running the two flyers in opposite directions and at equal speed, three times the amount of twist can be secured at the same rate of speeding the machinery as can be obtained by the ordinary spinning apparatus, as one twist is given by the revolution of the outer flyer between the first set of drawing-rollers and the neck of the said outer flyer, and two twists between the first extra set of drawing-rollers and the neck of the inner flyer. By increasing the proportional speed of the inner flyer, the twist will be increased in the same ratio.

The arrangement of the flyers is apparent from the figure.

Claim.—The use of one or more inner flyers arranged in a sequence, one within the other, to revolve in the same or different directions, or at the same or different speeds, with the outer flyer, all the flyers acting continuously upon the roving yarns or material first received by the outer flyer, until the spinning or twist is completed, and the yarn or yarns are wound upon the spool or bobbin, thereby twisting and spinning more rapidly, and attaining any desired degree of twist in yarns, as hereinbefore more fully described.

No. 13,024.—Wm. Darker, Jr., assignor to J. B. Thompson.—*Improvement in Ring Spinning-Frames.*—Patented June 5, 1855. (Plates, p. 94.)

The nature of this improvement will be understood from the claims and engravings.

I *claim*, 1st, the method, substantially as described, of applying the rings to enable them to receive rotary motion—that is to say, attaching them to the top of metal sockets E, which are large enough to receive the bobbins, and are secured to tubes F, which revolve easily upon the spindles.

2d. The described method of attaching the bobbin to the spindle by a ball *f*, which drops in a slot at the top of the spindle, whereby the bobbin is properly secured, and the tube is allowed to be of proper length to steady the ring without interfering with the bobbin.

No. 13,726.—Henry Luther.—*Improvement in Ring and Traveller Spinning-Frames.*—Patented October 30, 1855. (Plates, p. 94.)

D is the drum for driving the spindles, and is connected with the delivery rollers by proper gearing. Around a pulley fixed upon the shaft of one of the delivering rollers an endless belt extends, and also around pulley N upon a short shaft O. The screw P works the wheel Q, upon whose shaft there is a fixed cam S, which operates rod T and its arm *d*, and rod and lever *e* and V, which latter rests with one end on shaft W, and carries a pawl X, taking into ratchet Y. During each revolution of S, V will be depressed and raised so as to give motion to ratchet Y, and to operate the belt-forks, of which *f* is one, so as to move the driving-belts upon their cone-pulleys, and thus to increase the speed of the machine as may be required.

Claim.—Combining with the twisting mechanism and the delivering rollers or mechanism of a ring and traveller spring-frame mechanism, a mechanism substantially as described, which, while the cop or bobbin increases in size, shall so increase the rotary movements of the spindles and the delivering rollers as to maintain uniformity in the twist and strain of the y arm, as specified.

No. 12,467.—John Haslam & James Haslam.—*Improvement in Covering Thread with Wool or Silk.*—Patented February 27, 1855. (Plates, p. 94.)

The object of this invention is to produce a fabric of fine surface, the interior of it being composed of a less costly material.

A roving is passed through drawing-rollers on its way to a flyer, while a harder thread of less costly material is passed through the same rollers, or some of them, in such manner that the latter is guided so as to pass through in contact with the centre of the former, or nearly so, and is by the pressure of the rollers bedded into it. The combined threads then pass to a flyer, which twists the mass and completely covers the one material with the other.

Claim.—The method of bedding one thread into a roving or loosely twisted thread of another material, as also the covering of one thread by a roving or loosely twisted thread of a different material, substantially in the manner and for the purposes set forth.

No. 12,885.—John M. Heck, assignor to Henry Terry.—*Improvement in Dressing Sewing-Thread.*—Patented May 15, 1855. (Plates, p. 94.)

The inventor uses the following compositions for sizing:

For white thread: Saponaria or soap-root, 2 ounces; salep root, 2 ounces; soap of Marseilles, ¼ pound; loaf sugar, ½ pound; water, 10 pounds; gum arabic, 1½ ounces; white starch, 1½ ounces.

For black thread: Saponaria, ½ pound; salep root, ¼ pound; water, 10 pounds; flax-seed, ¼ pound; brown sugar, ½ pound; glue, 2 ounces; gum arabic, 2 ounces; brown soap, 2 ounces.

For fancy colors: Saponaria, ½ pound; salep root, ¼ pound; water, 10 pounds; flax-seed, ¼ pound; brown sugar, ½ pound; glue, 2 ounces; gum arabic, 2 ounces.

The inventor says: It is not the composition itself, used for the size, nor any particular arrangement of machinery for applying it, that constitutes the claim; but I do *claim* the using (or, in other words, subjecting the thread to the use, action, and friction) of a series of rapidly revolving brushes to polish, soften, and dry the thread after having been sufficiently saturated with a size or liquid, substantially such as described, whereby smoothness, lustre, pliability, and strength are imparted to the thread.

No. 13,267.—Harold Kelsea.—*Improvement in Trebling a Single-strand and Twisting Sewing-thread.*—Patented July 17, 1855. (Plates, p. 94.)

The strand S, on being applied to the mechanism, is first to be drawn in a direction towards the flyer G, and between the drum-rollers B and C. Next, it is to be doubled or carried backward between the drum-rollers and towards the rearmost of the hitching heads N O, and passed half way around the same, and carried again towards the flyer (see fig. 3). This trebles the thread. Next, the strand so trebled is

carried through the flyer, and attached to the bobbin. Next, the workman seizes that part of the strand which extends from the bobbin and spool R towards the flyer, and draws it in the form of a loop, and passes it underneath and between the portions of the strand that are held by the rearmost hitching-head of the endless band M. He next draws the loop against the said hitching-head, and backward towards the knob P, and hitches it over said knob (see fig. 4). Next, the flyer is put in motion, so as to cause it to be twisted and wound upon the bobbin; the draught on hitching-head O will move it along, together with the band M. In passing down the drum K, the knob O will slip out of the loopings of the strand. (leaving them enchained or connected together like two links of a chain,) and the other hitching-head N will come up around drum L. The workman seizes the loop upon P, removes it from P and loops it over N, and seizes that part of the strand coming directly from the bobbin, and loops it, as above described.

The inventor says: I do not claim the combination of doubling, twisting, and reeling mechanism, whereby a strand may be doubled, twisted, and reeled, so as to be made into a skein.

But I *claim* the combination of the endless band M, its hitching heads or knobs N O, and the stationary frame hitching-knob, as applied together to the drum-rollers and twisting mechanism, and made to operate so as to treble and enchain a strand, substantially as specified.

No. 13,562.—Anson A. Swift, assignor to Himself and Samuel L Hill.—*Improvement in Machinery for Trebling a Single Thread.*—Patented September 11, 1855. (Plates, p. 95.)

The thread S is drawn from bobbin A, and passed through the eye of guide D. Next, it is carried backward through such eye, and looped around the hitching-head C, and from thence is again carried forward through the eye, the front parts or ends of the trebled portions extending through the eye being attached to the periphery of the reel or winding-roller K. Next, the loop is removed from head C; and after again looping or doubling the strand near such loop, the second loop is passed through the first, so as to enchain the two. Next, the first loop is carried to and looped on the hitching-head B, and the new loop is carried back and hitched upon the head C, with the strand extending partially around the head B (see fig. 3). All this time the carriage C has been close or nearly up to frame E. The carriage is next moved away from frame E as far as required. This will draw the thread from the bobbin A, and treble it between G and E. Next, either the loops on hitching-head B should be removed from it, or such head should be moved downward, so as to discharge them from itself. Next, the carriage should be moved towards the frame, and during such movement the reel K rotated so as to take up the enchained and trebled portions of the thread.

I do not claim the principle of trebling a thread or strand of silk by enchaining loops formed therein; nor do I claim the combination of a stationary knob, an endless band, and two hitching-heads or knobs (the same being movable) fixed to said band at equal distances apart, such being the subject of the patent of Kelsea; but as I employ but two hitching-heads only, and apply one of them and the strand bobbin in a frame, to have a reciprocating motion, as described, while the other and the reeling mechanism I arrange in a stationary frame, I *claim* such an improved arrangement and combination of the hitching-heads, movable and stationary frames, whereby I am not only enabled to dispense with an endless band and one hitching-head, but employ a reciprocating frame, and thereby afford an attendant on the machine the advantage of being near the reeling mechanism, as explained.

No. 13,795.—Joseph Morse.—*Improvement in giving Tension to the Endless Band of Throstle-frames.*—Patented November 13, 1855. (Plates, p. 95.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim driving all the spindles or throstles of a spinning-frame by means of a single endless band, as I am aware that an endless band has been used for that purpose, but without success, owing to the want of proper means for compensating, for stretching, and shrinkage, which rendered it more objectionable than the employment of a separate band for each spindle; neither do I claim, of itself, the keeping of a band of a machine tight by a weight, as I am aware that a weight has been employed for that purpose in some machines. But I *claim* the arrangement of the endless band *b b' b*, to run to and fro between every one of the spindles and the drum D, and around a pulley *d* carried by a slide *e*, which is movable on suitable guides, and has a weight attached to it by a cord *h*, so arranged as to draw the said slide in the proper direction to produce tension on the band, substantially as described.

No. 13,350.—Jno. A. Elder and Ephraim Wood.—*Improvement in Machinery for Sizing and Dressing Warps.*—Patented July 31, 1855. (Plates, p. 95.)

When the yarn 14 to be dressed has the right strain on it, the hook E is kept out of the teeth of the ratchet-rod by the tension of the yarn; thus leaving weight 15 unmoved as the catch makes its movement with the rod R, which latter is confined to a horizontal sliding-motion within guides 28, fastened to the frame of the machine; rack P is also held in guides *s*, projecting from the frame of the machine. When the yarn is too taut, it will raise the roll *u* and its frame 7, and rod G and hook E; and when the yarn is too slack, the roll *u* will sink and lower the hook E. The hook E, taking into one of the racks on bar P, will move the said bar P in or out, and move weight 15 on lever-arm 16 (which latter is pivoted in 21 to the frame of the machine) in or out, and thereby press the friction-roller 10 (which turns loosely on the axis of size-roll 6) more or less against the end of the size-roll C. Lever 18 is pivoted in 30, to the frame of the machine.

The inventors say: We are aware that other modes of construction, and other forms and positions of the several parts, might be adopted to produce the same results from the same acting principles; for instance, springs may be used instead of weights, and screens may be used instead of ratchets and catches for increasing the power on friction-straps. We do not claim these devices as such, or any of them,

We *claim* the regulation of the speed of the yarn-beam and rollers of the dressing-frame by the tension of the warps, in the manner substantially as described, namely: by the combination of the vibrating-roller U with the rollers L and I, rod G, and the hook E, or the equivalents thereof; and these in combination with the ratchet P, levers 16 and 18, friction-pulley 10, and weight 15, or their equivalents, when arranged in the manner substantially as described.

No. 12,175.—Joseph S. Winsor.—*Improvement in Machines for making Weavers' Harness.*—Patented January 2, 1855.

A description of this machine, or a representation of it by engravings, would be too extensive to be given in this Report.

The inventor says: I do not limit myself to the special construction or arrangement of parts as described, but I claim all merely formal variations, performing the same mode of operation by equivalent means.

What I do *claim* is the mode of operation, substantially as specified, by means of which each twine is formed in a loop, and the spool, or its equivalent, carrying such twine, carried through such loop to form a knot, and then the spool, or its equivalent, which carries the other twine, passed through such loop that the twine thus carried through may be griped therein when the knot is drawn tight, thus forming the eye of two twines with a knot in each griping the other twine, as herein set forth.

Also, the mode of operation, substantially as herein described, for determining the size of the eyes by closing the knots on the two fingers, or their equivalents, whereby the knots are closed at the proper place on each twine, the two sides of each eye made of equal length, and any desired number of eyes of the same size, as set forth.

Also, in combination with the fingers, or their equivalents, on which the knots are closed, the discharger, or any equivalent therefor, by means of which the knots are discharged from the said fingers as they are drawn tight, as set forth.

Also, in combination with the mechanism for forming the knots, substantially as herein described, the employment of pincers, substantially as described, or any equivalent therefor, for holding the twines tight after the knots at each end of the eye have been closed, and during the operation of drawing the twines tight around the bands, as set forth.

Also, the mode of operation, substantially as described, by means of which the twines are wrapped around the bands in succession, and formed each into a loop, through which the spool, or its equivalent, for carrying the twine, is passed to effect the tie, substantially as described.

Also, the mode of operation, substantially as described, for forming

what is termed the leese of the harness, by reversing the motions of the spools, or their equivalents, for carrying the twines, thus carrying the twines alternately on opposite sides of one band, as set forth.

Also, the method, substantially as herein described, of mounting the heddles as they are formed on the slats or rods, by suspending the said slats or rods above the machine and attaching the bands, to which the heddles are tied in the process of formation, to a sliding-bar, or its equivalent, which is elevated as the heddles are formed, as set forth.

Finally, the method of marking every nineteenth (or any other number) of heddles, by means of the marker receiving motion in the manner substantially as specified, or by equivalent means.

No. 13,290.—Albert Reinhardt, assignor to Nas. Schlumberger & Co.—*Improvement in Machinery for preparing Wool for Combing.*—Patented July 17, 1855. (Plates, p. 95.)

The material is spread on the endless feeding-apron A, and passes through two guide-rollers B and two pairs of feed-rollers C C^1, on to the working-drum D, and is finally received between the drawing-off rollers F F. The feeding apparatus receives its motion from the drum-shaft by means of intermediate wheels, which, however, can be thrown out of gear by throwing the frame M, which supports the feeding apparatus, into the position represented in dotted lines in the engraving. This motion will throw the drawing-off rollers, which have their bearings in the same frame M, into operation with the surface of the drum-roller. The drawing-off rollers receive, at proper times, regular revolving motion by means of band G.

Claim.—The combination of the feeding, working, and drawing-off apparatus, constructed and arranged in the manner set forth—the feeding and drawing-off apparatus being so combined as to be alternately brought into action with the working-drum, and brought to a state of rest when not in working contact with the drum, as specified.

No. 13,870.—Peter Fairbairn and John Hargrave.—*Improvement in Wool-combing Machines.*—Patented December 4, 1855. Patented in England, November 6, 1852. (Plates, p. 95.)

The foremost of the gill-cylinders takes up the staple from a pair of feed-rollers *e e*, and presents it to the second gill-cylinder, which by rotating at an increased speed takes up the staple and delivers it to a pair of stripping-rollers *k*, from which the staple may be conducted through a trumpet mouth and delivered thence in the form of a sliver. The ends of the gill-bars *h* slide in an eccentric groove, which are cut in disks attached to the framing of the machine at both ends of the gill-cylinders. Thus the gill-bars will be driven out so as to take up the staple from the rollers *e e*.

The inventors say: We do not confine ourselves to the precise arrangement of machinery as described;

But we *claim*, in machinery for opening, combing, and drawing wool, flax, and other fibrous materials, combining in one and the same machine two or more rotary gill-cylinders, fitted with advancing and receding gills, and rotating at different speeds, for the purposes set forth.

IV.—CHEMICAL PROCESSES.

No. 12,988.—Leander R. Streeter, assignor to Himself and Ira Leonard.—*Improvement in Amalgamating the Precious Metals.*—Patented May 29, 1855. (Plates, p. 96.)

The cylinder A is to be filled with ore, and then the cap C to be secured; then the air is exhausted by means of pump D, leaving the stop-cocks H I open until the air is exhausted from the mercury-tube F, and the tube is filled with mercury; then I is closed, and, with H open, the air is exhausted from the cylinder. Then H is closed, and I opened; and with pump E the cylinder is filled with mercury to the required degree of pressure. This process, as the inventor states, amalgamates the mercury perfectly, leaving no particle of the metal unamalgamated.

Claim.—Forcing mercury at any required degree of pressure into ores to be amalgamated when the ores are enclosed in a mercury-tight cylinder or receiver, substantially as and for the purpose set forth.

No. 12,160.—Adolph Hammer.—*Improvement in Fermenting-Tuns for Beer.*—Patented January 2, 1855. (Plates, p. 96.)

The wort and yeast (with the proper degree of temperature) are run into the tun, until the liquor reaches the upper side of the cover, which rests upon cleats *a*, thus closing up the continuous space between its edge and the inner side of the tun. The upper end of the conduit-pipe C being now flush with the upper side of the cover, and having been previously stopped with a plug, the fermentation of the wort in due time proceeds. During the process the yeasty froth works up, and with the generated carbonic acid gas fills the space above the surface of the cover—thus expelling all the atmospheric air and the carbonic acid gas and yeast constantly, by forcing their way between the edge of the cover and the sides of the tun, and accumulating over the cover and within the space above the same, which space being amply sufficient to contain all the yeast and a large portion of the carbonic acid gas, there is thus necessarily formed a perfect medium of protection to the wort from the chemical action of the atmosphere: the carbonic acid gas, being of greater specific weight, necessarily has a tendency to fall rather than to rise, and hence the space above the cover will be entirely filled before any of the gas can leave the tun. After the fermentation has ceased, the plug in the upper end of the conduit-pipe C is withdrawn; and the yeast and remaining carbonic acid gas above the cover pass down through the pipe into a waste-trough, and the liquor being now fined, is conveniently run into the vat or barrels.

The cover B being somewhat smaller than the interior of the tun, when it rests upon the cleats *a*, there is left a continuous circular open space. The conduit-pipe C is fixed water-tight into the bottom of the tun, and its upper end fits accurately into the centre of the cover B.

The inventor says: I do not claim simply a large vessel or tun for fermenting malt liquors, as vessels of various forms and sizes have been used heretofore for other purposes;

But what I *claim* as my invention, and desire to secure by letters patent, is the application and use of the adjustable cover B and the conduit-pipe C, constructed and arranged substantially as described and illustrated, in combination with the tun A, or any other suitable vessel, substantially and for the purpose as described.

No. 12,535.—Chas. Cunningham, assignor to Jno. C. Pedrick.—*Improvement in Benzole Vapor Apparatus.*—Patented March 13, 1855. (Plates, p. 96.)

The disseminator consists of perforated disks *o*, arranged on revolving shaft *n*. Sponges *p* are attached to the peripheries of the disks, to take up and hold in suspension a portion of the contents of the reservoir *k* through which they revolve, so that the current of air driven into the reservoir, and coming in contact with the innumerable fluid surfaces thus exposed, shall generate to the best advantage the illuminating gas which passes out to the burner through pipe *t*. *a* is a common meter, the wheel of which is propelled by a cord *g*, a weight, and proper gearing. The air enters through an opening A on one side of the meter, and passes out at the other through pipe *i* into reservoir *k*. Reservoir *k* is surrounded by a case *u* containing water for the purpose of sustaining the temperature of the contents of the reservoir. When the apparatus is exposed to unusual cold, this water may be warmed, either by using the swinging-burner *v* or a piece of heated freestone, to be secured to the under-side of the heater or projection *w*.

Claim.—1st. The combination of the heater *w* and the swinging gas-burner *v*, or of the induction air-pipe A and any one of the burners of the apparatus, with the water-vessel *u*, the reservoir *k*, or the meter *a*, substantially as herein described, for the purpose of keeping the contents of the vessel containing the benzole or light-producing liquid at a given temperature.

2d. The combination of the reservoir *k*, and the rotary disseminator *n o*, with an ordinary rotary meter-wheel, substantially as described, for forcing air through the hollow shaft, or its equivalent, into the reservoir *k*, for the purpose of vaporizing the benzole of the latter vessel.

3d. The particular mode of making the rotary disseminator *n o*, substantially as described, and for the purposes specified, not meaning to claim the use of the hollow shaft for evaporating saccharine fluids.

4th. The application and use of the meter wheel with its case and contents as an air-blast apparatus, operated by weights or otherwise, not meaning to claim the method of using the meter for measuring gas.

No. 12,709.—CHARLES T. APPLETON.—*Improvement in Bleaching Apparatus.*—Patented April 17, 1855. Patented in England, August 30, 1853. (Plates, p. 96.)

The goods being placed in vat B, cold water is admitted sufficient to cover the goods; then, the air having been exhausted from vessel F, cock *n* is opened and the air is exhausted from vat B, which causes the globules of air within the pores of the goods to expand and escape The air is then admitted, and the liquid is forced by the atmospheric pressure into the pores. The water is then heated, and the goods are allowed to steep. Then the air is exhausted from F and B, and cock *m* being closed to prevent admission of liquid to the air-pump, cock *e* is opened, and the water permitted to flow through the goods in F and B; and then, by opening cocks *a* and *e*, the water is permitted to flow off. This is repeated till the goods are thoroughly washed. Alkali is then introduced, and the receiver again exhausted to bring the liquid in immediate contact with the fibres. The goods are then boiled, the alkali run off, and water introduced to wash the goods again. Chlorine solution is then admitted, and the air again exhausted. Then the chlorine is drawn off, and the sour run in. The goods are lastly washed as before, all being done without removing the goods from the vat.

Claim.—The combination of an air-tight vat, for receiving and containing the goods, an apparatus for exhausting the air therefrom, and the necessary vessels containing the liquids used in the process of bleaching; whereby the various steps may be performed in a much shorter space of time than has heretofore been required, and without removing the goods from the vat, substantially as herein set forth.

No. 13,008.—HARRISON LORING.—*Improvement in the Apparatus for Bleaching Rags.*—Patented June 5, 1855. (Plates, p. 96.)

By admitting steam to all parts of the bleach the rags are prevented from being forced into one end of the bleach, and thus the bleaching-liquor is allowed to perform its functions more thoroughly.

The inventor says: I *claim* the manner of introducing steam to all parts of the revolving bleach at the same moment, by means of a perforated pipe attached to the interior of the bleach, the adjacent ends of which are connected by a socket-joint to a stationary induction pipe, arranged as set forth, so as to allow of the expansion, contraction, and movement of the bleach without derangement, for the purpose and in the manner substantially as described.

I do not claim the revolving bleach, or bleaching by steam at a high temperature, as I am aware that it has been known and patented before.

No. 13,928.—WILLIAM M. WELLING.—*Improvement in Devices for Bleaching Ivory.*—Patented December 11, 1855. (Plates, p. 96.)

The ivory plates *c* are inserted edgewise between the pins 2 2 and the pyramidal glass case *o* shut over them; the glass case is then exposed to the action of the sun's rays, and is to be placed in nearly the north and south line, so that in the morning the sun will shine on one side of the ivory plates, while the other receives the reflected light and heat from the pyramidal glass case and the next plate of ivory; and in the afternoon the opposite action takes place.

Claim.—The method described and shown of bleaching ivory plates by so placing and sustaining them on their edges, in a suitable case, that the sun's rays shall act with uniform power, and bleach said plates equally on both sides, in the manner and as specified, thereby dispensing with the usual method of turning the plate over to expose alternately the flat side to the action of the light, and preventing warping or damage to the ivory, and accomplishing said bleaching operation in far less time and more perfectly.

No. 13,633.—THOMAS BELL and HENRY SCHOLEFIELD.—*Improvement in the Manufacture of Borax from native Borate of Lime.*—Patented October 9, 1855. Patented in England, July 5, 1854.

The nature of this improvement is clearly set forth in the claim.

The inventors say: We do not claim making borax by combining the boracic acid of commerce with a solution of carbonate of soda, and boiling and evaporating the same; but we *claim* our mode of manufacturing borate of soda from borate of lime, the same consisting in boiling the borate of lime in water and an acid, separating the lime and other foreign matters, adding a saturated solution of soda to the liquid, boiling the compound, separating the impurities or foreign matters therefrom, and subsequently evaporating the clear liquor and crystallizing out the borax therefrom, as specified.

No. 12,193.—LEWIS C. ASHLEY.—*Improvement in Candle-mould Machines.*—Patented January 9, 1855. (Plates, p. 96.)

The apparatus for centring, cutting, and holding the ends of the wicks, so as to draw the candles from the moulds B B, consists of a plate H, which, by means of a thumb-screw I, can be made to slide between the plates F, which are held in place by a recess in the frame A, into which recess they fit. Both the plates F and H have notches *c c*, and *c*; the notches being the same distance apart that the centres of the candle-moulds are apart from each other. One of the edges of

each of the upper grooves *c* is finished as a knife-edge to cut the wick; the wick being passed through the notches, and the thumb-screw being properly turned, the wicks will be centred, cut, and held by means of the notched plates. The wick passes underneath the moulds through holes in a similar pair of stationary plates *g g* and a sliding-plate *f*. By means of slightly drawing back the plate *f*, and confining it by a pin *k*, the wick will be tightened.

Claim.—1st. The apparatus F for centring, cutting, and holding the ends of the candle-wick; said apparatus being constructed of stationary and adjustable plates G and H, with centring and cutting notches on the stationary plate, and holding or tightening notches on the adjustable plate, constructed and operating substantially in the manner and for the purpose as herein specified and shown.

2d. The wick tightener J, for tightening the wicks, being constructed and arranged substantially in the manner as herein shown and described.

No. 12,492.—Jno. Stainthorp.—*Improvement in Machines for making Candles.*—Patented March 6, 1855. (Plates, p. 97.)

The pistons D are secured to the slide B; C are the moulds, which are fitted at their tips for the pistons or centre moulds, and secured firmly in stand A. The pistons are provided with tip-moulds E, and are hollow for the wick to pass through.

Treadle and cord J serve to raise the slide B, and with it the pistons, thereby elevating the candles into the holes Q in the racks M. When the candles are ready for elevating, the tip-bars P are thrown out (see dotted lines Y); when the candles S are elevated, and before the pistons are lowered, the racks are inclined to the right and left sufficient to allow the tip-bars to swing under, (see fig. 1,) when the racks are raised perpendicular, the candles falling into the cavities R in the tip-bars when the pistons are dropped, thereby straining the wicks. The position of slide and pistons when elevated is represented in fig. 2 in dotted lines. Fig. 3 represents the wick-clasps, which are secured to the under-side of the tip-bar for the purpose of securing the upper ends of the wicks, in case the candles are to be taken out of the racks before filling the moulds. The clasping is performed by passing the clasp-bar *c* in the direction of the arrow.

The inventor says: I *claim*, first, the employment of the pistons D D, formed at their upper ends into moulds for the tips of candles, in combination with stationary candle-moulds, to throw out the candles in a vertical direction, substantially as set forth.

I do not claim the use of clasps, separately considered; but I claim, secondly, the combination of the rack, tip-bar, and clasps, constructed and arranged substantially as described, and for the purposes specified.

No. 13,334.—Willis Humiston.—*Improvement in Candle-Mould Apparatus.*—Patented July 24, 1855. (Plates, p. 97.)

B are the candle-moulds, D a series of hollow pistons arranged in sliding frame E, the pistons being provided with loose tops *a* sliding within the hollow pistons a short distance. When the candles are moulded, their tips rest in these loose tops *a;* and when the candles are to be forced out, the pistons are let down whilst the tops *a* remain in contact with the candle—the lugs *c* and slots *e* admitting of this movement; this allows the pistons play enough to be brought up suddenly, which starts out the candles. When the candles are raised up above the moulds, they pass between clamps F, which (instead of catching the wicks as usual, which brings them so near the moulds as to obstruct the next pouring) seize the candles themselves, and hold them until the wicks are cut and the clamp and candles removed and replaced by another.

The inventor says: I am fully aware that pistons have been used in connection with candle-moulds, for the purpose of forcing out the moulded candles; this I do not claim.

But I *claim*, making the top of the piston, in which the tip of the candle rests, movable on the piston, so that it may remain in contact with the candle, whilst the piston is slightly depressed or lowered, to bring it up with a sudden blow to start the candles from the moulds, substantially as set forth.

I also claim, in contradistinction from clamping the wicks, or from the tip-bar or supporter, the clamping of the candles themselves in the position in which they are forced from the moulds, and thus holding them until ready to be removed; by which means I retain greater facilities for pouring into or filling the moulds, and avoid the danger of breaking the candles or their tips, substantially as described.

No. 13,973.—Lewis C. Ashley.—*Improvement in Candle-Mould Apparatus.*—Patented December 25, 1855. (Plates, p. 97.)

The wicks *x* are led through the moulds B, a little beyond the plates *b* and *c;* which latter, when in contact at their edges, leave small openings through them corresponding to the centre lines of the moulds. The stoppers *a*, which are attached to a frame K, are then simultaneously raised out of the ingate openings by means of a hand-lever attached to said frame. The melted tallow is then poured into the troughs F, wherefrom it flows through the ingate openings into the moulds. While it is yet in a fluid state, the stoppers *a* are moved back into their seats by means of said hand-lever, so as to leave the candle smooth at the place of the ingate opening; the lever L is operated, which will draw the plates *b* and *c* apart, and leave the rear end of the candles free, for the purpose of drawing them out of the moulds.

The inventor says:

I *claim* the combination of candle-moulds which have an opening in the side or tip end of each mould to admit the melted tallow, with a device for temporarily closing the large open ends of said moulds

and simultaneously centring the wicks thereat, substantially as described, to make the butt ends of the candles with a smooth finish; and this I claim, irrespective of the mode in which the parts of the candles at said side openings are completed.

And I claim the combination of said combined mould and device for closing the large ends thereof, with the stoppers or slides for temporarily closing the side or tip ingate openings in said moulds, substantially as described, to complete the formation of the parts of the candles at said ingate openings, by which the operation of scraping, to complete the finish of the candles at these places, is avoided.

No. 12,153.—ROBERT ARTHUR.—*Improvement in Self-Sealing Preserve Cans.*—Patented January 2, 1855. (Plates, p. 97.)

This improvement consists in matting the cans with an annular groove at or near the outer edge of the top, furnished with a cover, the rim of which passes loosely into the groove. The groove is to be filled with some composition which melts only at a higher temperature than that at which it is necessary to seal the vessel.

This can offers the advantage of being perfectly accessible; and as there is no obstruction from the bottom to the opening, its contents can readily be removed, and it can be thoroughly cleansed after the cover is removed.

Claim.—A new manufacture: a vessel made with a groove to surround its mouth, prepared with cement, and ready for hermetical sealing; but to hermetical sealing itself I make no claim, neither do I claim a ground-stopper or cover and seal for hermetical sealing, whether the ground surfaces of such stopper or cover, and its seal, be prepared with cement or not.

No. 12,151.—ANDREW H. WARD, assignor to WARD & BOOTT.—*Improvement in Compositions for Unhairing Hides.*—Patented January 2, 1855.

After steeping hides (with the hair on) for about two days in a solution of carbonate and sulphate of soda. the inventor asserts, the hair may be removed from it by the usual process of beaming, the skin being left in a much better state for being tanned than when it is sweated or prepared with lime, in the usual way.

(No illustration.)

Claim.—The application of a compound solution of carbonate and sulphate of soda to hides and skins, for the purpose of loosening their hair, and preparing them for the reception of tannin.

No. 12,212.—CHARLES MOREY.—*Improvement in Re-working Hard Rubber Compounds*—Patented January 9, 1855.

The material is placed in an iron mould, closed and subjected to a powerful pressure. It is then placed between two red-hot iron plates,

and thus again introduced into the press. When the mould is sufficiently hot, it is put into cold water until it has become cool. Then the article is taken from the mould. The soldering is performed in the following manner: The broken parts are scraped off; dust of hard vulcanized India-rubber is introduced between the scraped parts; the whole is submitted to a high degree of heat and pressure, whereby the broken parts are united in a perfect manner.

Claim.—1st. Forming or moulding scrapings, filings, dust, powder, or sheets of hard vulcanized India-rubber, into a compact solid mass, by means of a high degree of heat and pressure, as above described.

2d. The application of dust, powder, filings of hard vulcanized India-rubber, for soldering or uniting hard vulcanized India-rubber.

No. 12,368.—L. WOODBURY FISKE.—*Improvement in Compositions for Bleaching and Stuffing Leather.* Patented February 6, 1855.

The *set* is composed of four gallons of clear water, at from 130° to 140° Fahrenheit, to every four pounds of sulphuric acid, of about the specific gravity from 1.823 to 1.847, or 65° to 66° Reamur; one half-pound of dissolved alum; one half-pound of dissolved borax; and from three to five pounds of common salt. The *bleach* is composed of four gallons of water of 140° Fahrenheit for every six pounds of sugar-of-lead, and one fourth-pound of common chalk, dissolved in dilute muriatic acid. For *stuffing*, the inventor uses for every three gallons of common stuffing one-fourth of a pound of finely powdered alum, one-fourth of a pound of finely powdered borax, one-fourth of a pound of finely powdered sugar-of-lead, dissolved in a quart of hot water. This solution is then mixed with one pound of superfine flour, and to it added a half tea-cup-full of gum-tragacanth, dissolved in hot water to the consistency of thick mucilage (a table-spoonful of alcohol being added to each half-pound of gum).

The inventor says: I do not intend to claim the use of the ingredients herein named separately, or in other combinations employed for the same or analogous purposes; but I *claim* the improved mode of bleaching and stuffing leather, before described, by using the bleaching and stuffing compounds made of the ingredients, or their equivalents, in the proportions and in the mode specified, substantially in the manner and for the purposes set forth.

No. 12,519.—EDWARD F. OVERDEER.—*Improvement in Fire-extinguishing Compositions.*—Patented March 14, 1855.

The inventor says: I am aware that pearl-ash and other salts, either alone or mixed with other substances, have been used to saturate or cover combustible articles to render them fire-proof. Therefore, I do not claim the use of pearl-ash or saleratus for the purpose of preventing ignition or rendering combustible articles fire-proof; but I *claim* the employment of a solution of pearl-ash in water in the proportion of sixteen pounds of pearl-ash, or thereabout, to one hundred gallons of water, as a substitute for water in extinguishing fires.

No. 13,420.—FRANCIS BASCHNAGEL.—*Improvement in Compositions for Treating Rubber and Gutta Percha.*—Patented August 14, 1855.

One hundred pounds of vulcanized rubber or gutta percha (in pieces) are mixed with one-fourth of one pound of alcohol absolutus and ten pounds of carbon bisulphuratum, and the vessel containing the same is then hermetically closed and so kept for two hours. Those proportions, however, may be changed.

The inventor says: What I *claim* is not an improvement in the restoration of caoutchouc, gutta percha, and other similar gums, "by first treating the vulcanized gum with alkalies," &c., "for extracting the sulphur," &c., "and then submitting the mass to the action of heat and turpentine, or any other liquor known to be a solvent of the gum in its natural condition"—all of which quotations are in the patent granted to Feuchtwanger & Beers, assignees of Beers, May 29, 1855, being "an improvement in de-vulcanizing India-rubber."

But I *claim* the conversion or restoration of caoutchouc or gutta percha, whether they have been vulcanized or not, into a soft, plastic, and workable state, (by a new combination of chemical agents,) so that they may be re-manufactured in a state already vulcanized or not, according as the substance converted or restored had or had not been vulcanized; the substances which I use for this purpose being bisulphurate of carbon in conjunction with alcohol absolute, and not common alcohol, without the addition of any other chemical agent, and without the application of heat, as substantially set forth.

No. 13,733.—JAMES WEST.—*Improvement in Roofing Compositions.*—Patented October 30, 1855.

India-rubber dissolved in spirits of turpentine, gum-shellac dissolved in alcohol, gutta percha dissolved in linseed oil, "puzzolan" (composed of pulverized glass, quick-lime pulverized and sifted, and any kind of clay well vitrified and pulverized) and "smalt" (composed of vitrified glass, sand, flint, or any equivalent pulverized substances which will withstand the action of the atmosphere), and naphtha, or coal-tar. The proportions are: Sixteen ounces naphtha, half an ounce of India-rubber, half an ounce of shellac, and half an ounce of gutta percha, dissolved in the above-mentioned solvents, two ounces of puzzolan and two ounces of smalt.

The solutions of India-rubber, gum-shellac, gutta percha, and the naphtha, are to be warmed to blood-heat; then the puzzolan to be mixed therewith, and immediately to be applied to the roof and rubbed smooth; then the smalt is to be sifted on.

Claim.—The use of lime in combination with the rubber, gutta percha, and shellac solutions in the composition, as set forth, for the purpose specified.

No. 12,812.—ALEXANDER C. BLOUNT.—*Improvement in preparing Turpentine for Distillation.*—Patented May 8, 1855. (Plates, p. 97.)

The crude turpentine is placed and melted in the innermost, *a*, of the sieves. The impurities which are not arrested in the sieves will subside in the concave bottom of the cylinder A, from whence they can be drawn off by pipe L. The turpentine passes from A through pipe E into receiver F, and therefrom into still H.

Claim.—Freeing the crude turpentine of chips, bark, straw, and other impurities and coloring matters, before introducing it to the still, by melting it in a cylinder or vessel A, which contains one or more sieves *a*, a^1, a^2, and is arranged in such manner that the melted turpentine may run from it to the still by gravitation, substantially as herein described.

No. 13,358.—STEPHEN MEREDITH.—*Improvement in Distilling Coal with Hydrogen Gas.*—Patented July 31, 1855. (Plates, p. 97.

The pipe E passes through the oven F in a serpentine form, and connects outside with pipe G, which runs over the whole of the retorts, and is furnished with a branch *a* to lead to every retort. This pipe conveys the hydrogen gas to the retorts A, and heats it in its passage through the oven. The hydrogen, after condensation has been effected, is to be conveyed by suitable means to burn it under the retorts A, or under the stills to be employed in the further purification of the liquids, which are to be re-distilled with about one-tenth part of their bulk, or with ten gallons of the milk of lime to every hundred gallons of the liquids, when they will be sufficiently pure for common use.

Claim.—The production of naphtha, benzole, and other hydro-carbon liquids, by the distillation of cannel or other bituminos coal, in an atmosphere of heated hydrogen gas, or in a retort to which a stream of heated hydrogen gas is admitted during the distilling process, substantially as and for the purposes set forth.

No. 12,516.—JAMES MCCRACKEN.—*Improved Evaporating Apparatus.*—Patented March 13, 1855. (Plates, p. 97.)

The steam which is to heat the liquor passes through pipes i^1, thereby filling the heating-cylinders *e*. These cylinders have vertical tubes inserted which are open at top and bottom, so as to allow the liquor (which is placed in pan C, and surrounds the cylinders *e*) also to fill said tubes. Steam-pipe i^2 leads from the upper head of the first pan (connecting with the second pan by means of an intermediate vertical pipe i^3) to the condenser or third pan, which is open at the top and contains a metallic cylinder, similar to those in the other pans, only of much greater length and diameter, sufficient to condense the amount of steam conveyed from the two pans to the condenser.

Claim.—The arrangement and use of a set of metallic cylinders, containing vertical tubes, as described, in connection with the mode of

conveying the escape steam from the pans to the condenser, in the manner and for the purpose set forth.

No. 12,329.—THADDEUS SELLECK.—*Improvement in Methods of Working Franklinite Ore.*—Patented January 30, 1855. (Plates, p. 98.)

a are the walls of the furnace; *c* the crucible. The charge should never be carried above the line *e*. Just above *e* is a contraction *f f*; and above this the walls spread out, that the gases may have room to expand and mingle with atmospheric air, which is forced in through tuyeres *h h*. Pipes *m* communicate with any suitable apparatus for collecting the white oxyd of zinc, and for separating it from the gaseous products of the furnace. Draught is admitted at *j* to start the furnace; *k* is a damper, which is kept closed when the furnace is working. The charge is introduced through apertures *l*, which are then closed.

The tangential direction of pipes *h* serves to create a whirling motion just above the charge, so as to insure a proper mixing up of air and vapors.

Claim.—The process of reducing Franklinite ore to obtain iron and the white oxyd of zinc therefrom, by working it under a lighter heat, in a vertical-walled, low cupola furnace, substantially as described.

No. 12,498.—DEXTER H. CHAMBERLAIN, assignor to HENRY WOODWARD.—*Improvement in Apparatus for Purifying Illuminating Gas.*—Patented March 6, 1855. (Plates, p. 98.)

The float E forms a part of the agitator, and serves to give to it a sufficient buoyant power to enable it to rotate in a liquid that may be placed in vessel A.

The inventor says: I do not claim a gas-purifying apparatus composed of a closed cistern, provided with ingress and egress pipes, and an annular float having an inverted concentric groove or chamber, and numerous passages leading therefrom, whereby the gas is suffered to flow into said chamber while the float is resting on a purifying fluid, and is caused to raise the float so as to escape from its chamber and pass over the surface of the liquid in numerous streams, the float having no rotary movement whereby it is caused to stir and agitate the cleansing liquid;

But I *claim* an improved gas-purifying apparatus, arranged within the closed cistern and made to distribute gas in contact with the liquid therein, and to be put in rotation by the gas so as to stir up and agitate the said liquid, as specified; the said apparatus consisting of a wooden or other proper float E, and a separate gas receiving and discharging apparatus, composed of the disk F, the tube L, and its receiving and discharging scroll G, or the equivalent therefor, such a mode of constructing the agitator having important advantages over a simple float, having an annular chamber formed within it, and made, while resting on a purifying liquid, to receive gas and to be raised by it, and so as to permit it to

escape in numerous thin streams and over and in contact with the liquid.

No. 12,711.—HENRY P. M. BIRKINBINE.—*Improvement in the Construction of Gas Retorts.*—Patented April 17, 1855. (Plates, p. 98.)

The material from which gas is to be made is put into the lower compartment B, from which the gas is passed into the annular space A, where it is further subjected to the action of heat, and escapes at *c*. By these means portions of the material from which the gas is made, which passes off in the shape of tar, etc., are further acted upon by the heat and converted into gas.

The inventor says: I do not claim the D gas retort, nor the passing of gas through a second retort or heater, nor a retort with a cellular shell or exterior wall; but what I do *claim* is the D gas retort with the annular space above, as above described, cast with and making a part of it, as illustrated by the accompanying drawing.

No. 13,754.—STEPHEN HILL and WILLIAM J. WOOD.—*Improvement in Gas-Holders.*—Patented November 6, 1855. (Plates, p. 98.)

Claim.—The combination of the pipes T T' with the diaphragm *d* within the gas-holder, for the purpose of applying an equable pressure to fill the gas-holder with gas, and to expel the gas therefrom.

No. 12,304.—WILLIAM ADAMSON.—*Improvement in Clarifying Glue.*—Patented January 30, 1855.

Powdered sulphate of lime or terra alba is mixed with water, so as to make a thick solution, which is to be poured into the vat containing the liquid glue, and stirred from three to five minutes. The whole is then suffered to stand for fifteen minutes, during which time (as the inventor states) all the impurities are precipitated to the bottom of the vat, and the clear liquid is drawn off above.

Claim.—The employment of the material specified, for the purpose of clarifying glue, gelatin, size, &c.

No. 12,204.—ADOLPH HAMMER.—*Improvement in Hop-Extracting Apparatus.*—Patented January 9, 1855. (Plates, p. 98.)

The nature of this improvement consists in providing a suitable metallic vessel (constructed as shown in the engraving) adapted for holding the quantity of hops required for a brewing of malt liquor, and retaining therein, whilst partially immersed in the boiling fluid used for the purpose during the process of extraction, the essential oil or volatile principle of the hops, without the possibility of any considerable loss thereof from evaporation or waste.

The retaining vessel A being filled with the proper quantity of hops, and being placed within the boiling vessel (as shown in the engraving,)

and the hole *i* being closed, the extracting fluid is run into it until it reaches within about four inches of diaphragm *d* of the upper part or cover of the retaining vessel, there being a small vent-cock previously fixed in said part of the vessel to let the atmospheric air escape as the fluid rises above the lower end of tube *e*. The cock is closed when the fluid reaches the designated height in vessel A, thus leaving therein an empty space, of about four inches height, between the surface of the fluid and the diaphragm *d*; and the surface of this fluid being considerably above the lower edge of the upper part or cover of vessel A, and consequently also above the lower end of tube *e*, this space is sealed from the open air outside.

Claim.—The retaining vessel A, constructed and arranged substantially as described, for the purpose of producing the extract from hops required in brewing malt liquors, using the boiling vessel B, or any equivalent device, for the purpose of boiling the hops within the said retaining vessel, substantially as described.

No. 12,144.—H. G. Tyer and John Helm.—*Improvement in Processes for making India-rubber Cloth.*—Patented January 2, 1855.

This improvement consists in subjecting the cloth, which has been previously coated with a layer of India-rubber cement, suddenly to a degree of heat from 140° to 180° Fahrenheit. By this sudden application of heat while the goods are still in a green, undried state, the camphene used in the cement evaporates very rapidly, and leaves the gum punctured with minute orifices, which are too small to allow the passage of globules of water through them, but are large enough for the passage of air through them.

(No illustration.)

Claim.—The peculiar mode, so described, of preparing the uppers of boots and shoes.

No. 12,334.—Henry G. Tyer and John Helm.—*Improvement in Processes for making India-rubber Cloth.*—Patented January 30, 1855. (Plates, p. 98.)

The India-rubber compound (in a plastic state) is introduced at C, between cylinders 1 and 2; it passes between the said cylinders, and, adhering to cylinder 2, is carried round and down until it comes nearly in contact with cylinder 3, when the end of the roll of cloth A is inserted between cylinders 2 and 3, and the compound is pressed upon and into the cloth by the action of the cylinders. When the cloth and compound thus united on one side have passed round cylinder 3 until they have come nearly in contact with cylinder 4, the end of the cloth from roller B is inserted between cylinders 3 and 4, so as to come in contact with the compound on cloth A. The two pieces of cloth, with the compound between them, then pass between cylinders 3 and 4, when the two pieces of cloth become firmly united with the compound.

Claim.—The process described of making elastic fabrics without a previous preparation of threads, strips, or sheets, or the coating of the cloth by cement.

No. 12,738.—William F. Converse.—*Improvement in India-rubber Springs.*—Patented April 17, 1855. (Plates, p. 98.)

The block of India-rubber *a* is prevented from yielding sideways by plates *d*, bolts *c*, and nuts *p*. A yielding strap, formed of hooked and properly bent plates *f* and links *g*, is tightened or loosened by compressing or opening the outer ends of levers *i* i^1, as apparent from the figure. Thereby more or less of the resilient force of the block will be brought into operation. The resilient force the block is able to exert can be adjusted by setting the laterally confining plates *d* and nuts *p* nearer together or wider apart. When once adjusted, they are to remain stationary, and prevent all longitudinal expansion of the block. The compressing forces, when acting upon the outer ends of the levers *i* i^1, press all parts of the block towards its central line; and the nearer the levers approach each other, the more the resistance of the block will be augmented in every direction, the block at the same time always preserving the cylindrical form. In order to enable the initiatory action to be made as prompt as may be desired, the concave inner surfaces of the plates *f* are grooved (see *n*, fig. 3), so that the opposing resilience of the block does not re-act against the entire surface of the strap until all the grooves are filled in.

For carriages, for instance, one lever *i* would be attached to the holster, the other lever resting upon the axle-bed.

The inventor says: I am aware that springs of India-rubber, and other similar materials, have been completely confined in cylindrical and other unyielding cases; such an arrangement, therefore, I do not claim. But I do *claim* the method of confining a cylindrical or prismatic block of India-rubber at all points of its surface, by means of a jointed or otherwise flexible cylindrical strap, connected to double levers or their equivalents, for applying the compressing strain convergently or radially upon the enclosed rubber. I likewise claim, in this connection, adjustable end-plates for securing the rubber from lateral expansion, and for graduating the elastic force of the spring, if desired, by means of screw-nuts or equivalent devices, substantially as herein described.

No. 12,983.—Sigismund Beer, assignor to Lewis Feuchtwanger and Sigismund Beer.—*Improvement in De-vulcanizing India-rubber.*—Patented May 29, 1855.

The claim sufficiently indicates the nature of this improvement.

The inventor says: I do not limit myself precisely to the ingredients or process named, as the same is undoubtedly susceptible of considerable variation, without in the least changing the character of the invention, or the results produced thereby.

I *claim*, therefore, the restoration of caoutchouc, gutta-percha, or other similar gums, which have undergone the process of being cured

or vulcanized, so that those gums may be capable of being used again as a substitute for native gums of like character, or in combination with such gums, by first treating the vulcanized gum with alkalies, or compounds of alkalies and oils, as potash with any common grease or oil, for extracting the sulphur, &c., and then submitting the mass to the action of heat and turpentine, or any other liquid known to be a solvent of the gum in its natural condition, as described.

No. 12,616.—Richard Baker.—*Improvement in the Manufacture of White Lead by Precipitation.*—Patented April 3, 1855. (Plates, p. 98.)

The inventor says: I *claim* an improvement in the combination of apparatus, so arranged and constructed as to produce carbonate of lead by precipitation more expeditiously and economically than by any other arrangement heretofore, and for the same purpose.

I do not claim each and every part of the apparatus described as new.

I *claim*, connecting with an air-pump a series of vertical distribution pipes *o o o*, as described, consisting of a great many in number, descending vertically from the main horizontal pipe O, and passing down through the head of the precipitating vessel D into the solution of subacetate of lead pipe *i*, at least through each square foot of surface of the top of the precipitating vessel, thereby traversing the solution with a great number of small jets or blasts of carbonic acid gas, causing a very rapid decomposition of the solution; as the vertical pipes cannot choke up with the ponderous precipitate, a constant blast from each pipe is thereby insured.

No. 13,632.—Philippe L. Bernard and Joseph Albrecht.—*Improvement in the Manufacture of Acid Sulphate of Lime.*—Patented October 9, 1855. (Plates, p. 98.)

The oven for generating sulphurous acid consists of the generator *g*, which is a cast-iron tray for receiving and evaporating the sulphur; it is heated from the fire-hearth *r* below. The apertures *x x* underneath the projecting cornices *u* are provided with doors to regulate the admission of atmospheric air to the vapors of the sulphur. Pipe Z at the top of the oven leads to the lead chamber, which contains sheet-lead and receives the sulphurous acid gas from the oven and deposits the sulphur, if some should have escaped unburnt. The absorbing apparatus consists of cylinders 1, 2, and 3, coated inside with lead. The cylinders are surrounded with troughs *k* containing cold water, and are connected by large pipes *f, a, c, e*, through which, and through the cylinders, the gases are carried up to the ventilator V; and by smaller pipes *s, n, m*, which lead the liquid part downwards from cylinder 3 to 2, and to 1, and from the latter to any convenient vessel wherein it can settle. By means of this arrangement of the cylinders, one above the other, the dissolved alkalies are made to take the opposite course of the sulphurous acid gas, tending to effect a perfect saturation of the alkalies with the acid.

Claim.—The apparatus for the manufacture of sulphate and bisulphate (or acid) of lime, consisting of the oven *g, r, u, x*, the three superposed cylinders Nos. 1, 2, and 3, and the ventilator V, each of said parts constructed, furnished, and arranged substantially as described, and for the purposes specified.

No. 12,259.—John Sutton.—*Lubricator for Steam-Engines.*—Patented January 16, 1855. (Plates, p. 99.)

The inventor says: I do not claim the employment of a cylinder and a solid piston, combined with a grease reservoir, to force grease into steam cylinders and other parts of engines and other apparatus while in operation, as I am aware that such a combination has been before made use of, but with cocks or valves not only in the discharge passage, but in the passage communicating between the reservoir and cylinder.

But I *claim* arranging the passage or passages between the grease reservoir and forcing cylinder, substantially as described, so as to be opened and closed by the movement of a solid piston; thereby dispensing with a valve or equivalent, either in the piston or in the said passages, and only requiring one valve or cock in the discharge passage. (See engraving.)

No. 12,716.—Nathan Dresser.—*Improvement in Lubricating Compounds.*—Patented April 17, 1855.

This compound is intended to produce a great saving of oil, grease, &c., in lubricating journals, &c. The compound is made by melting say one pound of tallow, and, while hot, adding half a pound of sperm or other oil, then adding two pounds of pure pulverized lead, with which there is used in warm weather more tallow, and in cold weather more oil, to give sufficient consistence for holding the lead in suspension when applied to the journal.

Claim.—The lubricating compound, and its application to journals, cranks, axles, and other machinery subject to friction, using for that purpose the aforesaid compound, or any other substantially the same and which will produce the intended effect.

No. 12,918.—Jacob Marshall.—*Improvement in Lubricating Compounds.*—Patented May 22, 1855.

The claim sufficiently explains the nature of this improvement.

The inventor says: I do not claim the use of soap, nor the mixture of soap and oils, for lubrication;

But I do *claim* the combination of whale or other oils mixed with the oleate of zinc, prepared by mixing a solution of soap in water with a solution of acetate of zinc in water, in which the oleate of zinc is separated in a saponaceous mass, while the acetate of soda dissolves in the liquid, in the manner herein set forth.

No. 12,964.—E. Freeman Prentiss.—*Improvement in Lubricating Compounds.*—Patented May 29, 1855.

Oil-soap is dissolved in hot water, and then olive, lard, rape-seed, or any other kind of oil which can be used on wool in the process of its manufacture, is mixed with the solution, taking equal quantities of both. This mixture can then be used just like pure oil.

The inventor says: The said wool-oil will not decompose, because the oil of soap neutralizes the stearine matter in the oil; hence there is nothing to decompose, and spontaneous combustion cannot be produced for the same reason.

Claim.—The manufacture or preparation of a compound, which I denominate wool-oil, of the ingredients, in the manner, and for the purposes set forth.

No. 13,211.—Eleazur Brown, Jr.—*Improvement in Lubricating Compounds.*—Patented July 10, 1855.

The nature of this improvement is set forth in the claim.

Claim.—The use and application of saltpetre combined with common hard soap and fat salt pork, or any similar oleaginous animal substance, thereby forming an anti-frictional, refrigerating, lubricating compound, adapted to the purpose of lubricating the journals of railroad cars, locomotive-engines, and also the journals of all kinds of machinery, as described.

No. 12,205.—Adolph Hammer.—*Improvement in Mash-Machines.*—Patented January 9, 1855. (Plates, p. 99.)

The hollow shaft G, which supports the upper rake H, is supported by a ring *g* on shaft B, and turns around the latter shaft, which carries the lower rake C, both the rakes turning in opposite directions. Thus the inventor proposes to effect a more rapid and perfect mixture of the ground malt and water.

The inventor says: I do not claim the lower rake, nor the central shaft and gearing, nor the diaphragm, either singly or in combination with a mash-tun; as these, or their equivalent devices, have been used before for distilling purposes;

But I do *claim* the application and use of the upper rake, constructed substantially as described, when combined with a mash-tun, so as to be rotated in an opposite direction to that of the usual rake thereof, and with a more rapid speed, substantially and for the purpose as described.

No. 12,614.—Henry W. Adams.—*Improvement in Factitious Oils.*—Patented April 3, 1855.

The nature of this process consists in mixing crude turpentine with the fixed oils, and filtering the said mixtures, after neutralizing any acid which may be in the turpentine, by an alkali.

Thus, the inventor states, a cheap, clear, and transparent oil is produced, either for lubricating or burning.

The inventor says: I am aware that animal and vegetable oils have been mixed together and used for lubricating, painting, tanning, and burning purposes; I therefore claim no such mixtures. But crude turpentine is not an oil, and therefore its mixture with fixed oils is a new composition of matter.

But I *claim* the use of crude turpentine in a mixture made with it and the fixed oils, in the manner and for the purposes substantially set forth.

No. 13,486.—Thos. Barrows.—*Improvement in Preparations of Wood Oil.*—Patented August 28, 1855.

The inventor says: In basing my claim of invention or improvement on the use of mucilaginous matter, I do not include aluminous or gelatinous matter of animal origin, nor ammoniacal or other alkaline emulsions, which have been before used; but restrict myself to the use of those watery solutions of mucilage from plants and seeds, whose muculent character is distinguished from the gum or glue-like character of those substances heretofore used, by not drying out from the mixture with the oil, when on the fibres of the wool I use any of the oils adapted to oiling wool, in mixture with mucilage, although such mixture, by rest for a longer or shorter time, will become separated into oil which floats, and mucilage which subsides; but prefer the prepared oleic acid or olein mixture, as it often remains uniform several days. I, however, lay no claim to the application of oleic acid, as described.

But I *claim* for the treatment and imbuing of wool, during or previous to its manufacture into yarn or cloth, the application thereto of mucilage possessing an attraction for water, such being found in sea-mosses and allied vegetable productions, or in various seeds, such as flaxseed, it being used either alone or in mixture with an oil, or some other material.

No. 13,557.—William Wilber.—*Improvement in Steam Apparatus for Extracting Vegetable Oils*—Patented September 11, 1855. (Plates, p. 99.)

The kettle K is surrounded with a steam-jacket C, into which steam can be admitted through pipe D. The steam can be admitted from the jacket into the kettle containing the seed by cock F.

I *claim* a kettle for steaming or boiling and moistening crushed oleaginous seeds, into which steam is admitted whilst it is surrounded by steam, so that the cooking and moistening be done by the direct and indirect action of steam, substantially as described.

No. 13,708.—Oscar Reichenbach.—*Improvement in Preparing Cotton Seed for Extracting Oil.*—Patented October 23, 1855.

The cotton-seed is poured into a vessel containing sulphuric acid. The acid soon destroys the cotton fibres. When sufficient seed has been thrown in to absorb all the acid, and before the acid begins to destroy the peel, water is to be poured over the mixture, and (by opening a cock at the bottom of the vessel) the water allowed to run off.

Claim.—The application of sulphuric acid, or acids in general, to free cotton-seed, as it comes from the cotton-gin, from all surrounding cotton-fibre, previous to the extraction of oil from the seed.

No. 12,361.—Henry Glynn.—*Improvement in the Manufacture of Paper Pulp.*—Patented February 6, 1855.

The inventor introduces into two hundred and fifty pounds of pulp nine pounds of hydrated soap, either potash or soda, previously dissolved in boiling water; and when the soap is thoroughly incorporated with the pulp, he adds a mineral or metallic salt in such quantities as to render the introduced soap insoluble.

Claim.—Introducing into the pulpy mass soluble soaps of wax or fats, made as set forth, and converting the same into insoluble soaps within the pulp by means of soluble salts, substantially as described, for the purpose of preventing forgery, mildew, and the action of insects, rats, and vermin.

No. 12,414.—Charles C. Hall.—*Improvement in the Preparation of Paper from Resinous Barks.*—Patented February 20, 1855.

The bark is placed in a boiler, and, being covered with water, is digested at a slow heat for the purpose of softening the scales. A moderate heat having been applied for two or three hours, the quantity of water is doubled, and a steam-heat is raised, in which the bark is digested for four or five hours, until its fibres are so far detached from each other, that, by the usual machinery, it is easily reduced to a pulpy condition The bulk thus brought to a pulpy condition is then taken to the pulp-engine, and there operated upon for two hours, when the hard stock having previously been partially pulped, the two are mixed in the proportion of three parts of bark to one part of hard stock, and the whole is then pulped four additional hours.

Claim.—The process of preparing paper pulp, as described, using the entire substance of the bark of resinous wood, in which I retain the resinous and gummy matter within the substance of the barks, to act as a size or stiffening for the paper.

No. 13,325.—George Thompson.—*Improvement in Preparing Potash and Soda.*—Patented July 24, 1855. (Plates, p. 99.)

Fig. 1 represents the tray in which the melted soda or potash is cast. Fig. 2 represents the sector, which is to be placed inside said tray (see

fig. 3), for the purpose of dividing the melted soda into cakes of equal size and weight.

Claim.—The use of a tray and sector, constructed as described, for the purpose of dividing caustic soda or potash into parcels of convenient size and shape, and of uniform weight.

No. 12,139.—Obadiah Rich.—*Improvement in Processes for Extracting Tannin from Leather.*—Patented January 2, 1855.

The leather, having been chopped into small pieces, is washed, to remove the dirt and part of the coloring matters; then digested in a caustic alkali of ammonia, potash, or soda, until the whole of the tannin has been extracted; it is then pressed or placed in the centrifugal machine, in order to expel as much of the liquor as possible. This liquor is now acidulated with sulphuric, muriatic, or acetic acid, in order to set free the tannic acid, and more readily combine it with gelatine. This liquor, now charged with the tannic acid, is to be used for tanning skins, &c. Before proceeding to the manufacture of glue, the skin is again subjected to the action of a new solution of caustic soda, to remove the tannin entirely. Now the scraps of skin are washed in pure water, to remove all traces of the soda; then they are digested in very dilute acid, to remove the coloring and earthy matters; then they are immersed in a weak solution of carbonate of soda, in order to neutralize any trace of acid that may remain, and when well washed, are ready to be converted into glue, in the usual manner, by boiling.

The residue, after the gelatine is extracted, may be used as a manure. (No illustration.)

Claim.—The process herein described for the removal of tannic acid from leather, and the subsequent preparation of the skin for making glue, or for use as a manure, substantially as herein set forth.

No. 12,142.—Richard A. Tilghman.—*Improvement in Processes for making Soap.*—Patented January 2, 1855. (Plates, p. 99.)

The invention consists in making soap from neutral fatty bodies and carbonated alkalies, by subjecting a mixture of the fat and solution of carbonated alkali to a high temperature and pressure, whereby the glycerine of the fat and the carbonic acid of the alkali are set free, and the fat, acid, and alkali combine into soap.

The figure shows an apparatus which may be used for the above process. The fat or oil is placed in vessel *a*, with from one-third to one-half of its bulk of warm water, in which is dissolved the proper quantity of carbonated alkali; the perforated piston *b* being kept in motion causes the fat and solution to form an intimate mixture. Pump *c* drives the mixture through coil of tubes *d*, which are heated from furnace *f*. From the end *g* of said coil the mixture, which has then become converted into soap, solution of glycerine, and free carbonic acid, passes through coil *h*, immersed in water to be cooled down,

after which it escapes through the properly loaded exit valve i into the receiving vessel.

Claim.—The manufacturing of soap by subjecting a mixture of fatty matters and solution of carbonated alkalies to a high temperature and pressure, as described.

No. 12,585.—LEVI B. DARLING—*Improvement in Processes for Refining Jewellers' Scraps.*—Patented March 27, 1855.

This process consists in converting the impure or base metals which are combined with the precious metals—gold and silver—in the scraps, etc., into oxyds by the use of an oxidizing salt, in contact with the scraps at a comparatively low heat, then separating the oxyds of the base metals by sulphuric acid; after which they, the spongy noble metals, are washed and reduced to a metallic state by a proper flux and heat in any of the known ways.

Claim.—The processes described of separating and recovering the gold and silver from goldsmiths' and jewellers' scraps, such as turnings, sweepings, cuttings, and filings, which contain both noble and base metals; that is, by melting down the metallic compounds, then stirring in gradually the nitre, and working the mass without fluxing; then washing with water, and treating with sulphuric acid to convert the oxydized products into the sulphates, in the manner described.

No. 12,612.—ABRAHAM GESNER, assignor to the "NORTH AMERICAN KEROSENE GAS-LIGHT COMPANY."—*Improvement in Processes for making Kerosene.*—Patented March 27, 1855.

The raw material is submitted to dry distillation at the lowest temperature at which the kerosene will volatilize. The liquid products of this distillation are heavy tar and water, or ammoniacal liquor, which lie at the bottom of the receiver, and a lighter liquid which floats above them. The light liquid is then drawn off and re-distilled at the lowest possible heat, whereby again a heavy and a light volatile liquid are produced. This light liquid is removed and mixed with from five to ten per cent. of strong sulphuric, nitric, or muriatic acid; also, with from one to three per cent. of peroxyd of manganese. Then the mixture stands from twelve to twenty-four hours, to let the impurities subside. The light liquid is then taken off and mixed with about two per cent. (by weight) of powdered and freshly calcined lime, which will absorb the water. The mixture is now again distilled, raising the heat gradually to 160° Fahrenheit, until all the vapor has passed into the receiver that the liquid will yield at this temperature. This distillate is the "A Kerosene." By raising the heat now to 260°, "B Kerosene" is produced; and by finally raising the heat to 360°, "C Kerosene" will be produced, thereby completing the process.

Claim.—The process described for extracting the liquid by hydrocarbons which I have denominated kerosene, from asphaltum, bitumen, asphaltic and bituminous rocks and shales, petroleum and maltha, by

subjecting any of these substances to dry distillation, rectifying the distillate by treating it with acid and freshly calcined lime, and then submitting it to re-distillation, as set forth.

No. 12,777.—CHARLES CAMPBELL.—*Improvement in Processes for Purifying and Cleansing Wheat.*—Patented May 1, 1855.

The inventor says, in his specification: Take of lime newly slaked, and while yet warm. one and a half pounds to each one hundred pounds of wheat; mix the lime well with the wheat, let it stand one hour, then pass it through a smut-mill in the usual way, and all the lime, smut, and impurities of every kind attached to the wheat, will be entirely removed, and the flour be perfectly white and sweet. (No illustration.)

The inventor says: What I *claim* is not the smut-mill or improvement thereon, or any new chemical quality of lime; but it consists in the preparation of lime for this particular purpose, and the application of it to wheat when newly slaked and warm, so as to much more effectually cleanse the wheat from all impurities than by any other process.

No. 12,834.—JOSIAH J. SHERMAN.—*Improvement in Processes for Preparing Liquids for Aiding Digestion.*—Patented May 8, 1855.

The inventor mixes common malt-liquor beverages with a solution which is obtained in the following manner: Emptying the fourth stomach of a recently-slaughtered ox of its contents, and sponging away (without disturbing the gastric juice in it) the mucus from its lining membrane. This membrane is separated from the stomach and placed in one gallon of warm water, acidulated by hydrochloric or muriatic acid to a degree rendering it only just perceptibly acid to the taste. The water is allowed to steep about six hours, being kept at at about 90° Fahr. The solution is then strained through a fine sieve and filtered.

This solution, though very inactive as a digestive at low temperatures, has, at the temperature of the human stomach, a similar digestive power over alimentary matter with that possessed by the living stomach. (No illustration.)

The inventor says: I do not claim as my invention or discovery the solution used, that being substantially described by Liebig, nor any part of the manufacture of malt liquors;

But I do *claim* the new composition produced substantially as set forth in the foregoing specification.

No. 12,948.—HOMER HOLLAND.—*Improvement in Processes for Treating Auriferous and Argentiferous Sulphurets.*—Patented May 29, 1855.

The nitrate of soda when ignited burns slowly and mildly, and more especially so with the metalliferous sulphurets, while there is also neither violent action to explode and scatter the mixture nor heat gen-

erated sufficiently intense to volatilize the metal. For these reasons the inventor employs the said material in his process.

The inventor says: I do not confine myself to the precise details or arrangements which I have had occasion to describe or refer to: as many variations may be made therefrom, without deviating from the principles or main features of my invention.

But I *claim* the substitution of nitrate of soda as an improved agent over common nitre for oxydizing the sulphur of ores, for reasons given in the specification setting forth the difference.

No. 13,206.—Thos. Barrows.—*Improvement in Processes for Treating Wool.*—Patented July 10, 1855.

Claim.—The application of nitre or any of its equivalent salts, as set forth, to wool in a warm bath, for the purpose of restoring the wool when it has become changed, as well as for cleansing, softening, and preparing it so as to better adapt it to receive dyes, and be finished in fabrics.

No. 13,316.—Samuel Macperran.—*Improvement in Processes for Smelting Iron.*—Patented July 24, 1855.

The fuel employed is crystallized carbon, which is the scale adhering to the inside of the retorts of gas-works. The inventor states that if used together with the iron in the cupola, (without coal or any other fuel,) it melts the iron rapidly, and furnishes a pure and hard iron. The fire is started with a bed of coal as usual, and then charged with the carbon and iron, without using coal.

Claim.—The use of gas-carbon as a fuel in the process of smelting iron, as set forth.

No. 13,317.—Daniel W. Messer.—*Improvement in Processes for Hulling Cotton-Seed.*—Patented July 24, 1855.

The shell of the cotton-seed is first softened by soaking it in boiling water, or in cold water and subjecting it to the action of steam. The seed is then passed through rollers, or otherwise subjected to pressure in small quantities at a time; by which means the shell is broken, and the kernel is forced out.

The inventor says: I do not claim submitting cotton-seed to pressure by passing it between rollers or otherwise, for the purpose of extracting the oil therefrom, neither do I claim subjecting the seed to the action of steam to facilitate the expression of the oil; nor do I claim any method of extracting or expressing oil from cotton or other seeds;

But I *claim* separating the kernel from its shell and fibre, previous to expressing the oil, by the method described, or by any other method substantially equivalent, the seed being macerated to soften the shell, and then submitted to pressure for the purpose of pressing out the kernel, in the manner and for the purpose substantially as set forth.

No. 13,987.—John P. Hale.—*Improvement in Apparatus for making Salt.*—Patented December 25, 1855. (Plates, p. 99.)

The brine from the wells is poured into kettle A, and, by means of the fire in furnace B, is reduced to nearly the point of saturation. The brine is then drawn off by means of tube *b* into vat F until the impurities have settled. The pure brine is then pumped out into kettle C, which is heated by the steam from the lower kettle. As the water evaporates, the salt granulates in the kettle C.

By this arrangement, the kettles are prevented from being cracked, as the lower kettle is always supplied with brine, and the brine in the upper kettle cannot be heated higher than 212°; consesequently, the salt will not be burned, colored, or injured.

The inventor says: I do not claim the process of manufacture described, irrespective of the means employed for carrying out the process. I claim the two pans or kettles A C, placed one over the other, or a furnace B, in combination with the vat F, the parts being arranged as shown, for the purpose specified.

No. 12,819.—Benjamin Hardinge.—*Improvement in Apparatus for Dissolving Silica.*—Patented May 8, 1855. (Plates, p. 99.)

The heated steam is applied to the under-strata of the silicates in boiler A, while the upper stratum is continually being relieved of steam by pipe 17 passing from the upper part of the boiler through a cold-water tank (fig. 2), thus relieving the upper strata of steam and hydrated silicious globules as soon as solution begins to take place, easing the pressure from the safety-valve, saving the waste hydrous silicates which pass through said pipe in the form of minute capsules, and applying the same to use in making plastic masses of coarser kinds. The horn-pipe E (secured to the rotary shaft-pipe 4) jets out the heated steam in a circuitous direction (among the lower heavy strata), thus disseminating the steam away from a particular point in the bottom of the boiler, and thereby preventing the destruction of the latter.

The inventor says: I do not claim, in the present application, to have discovered any new solvent principle for silex, either by the above named alkaline salts or steam under high pressure, as these facts have long since been known to chemists.

I do not claim the heating the steam in coiled pipe, and thereby forcing it to the bottom of the boiler A.

I do not claim any originality of structure of the furnace, or the manner of setting the boiler with its man-hole or gauge-cocks.

I do not claim, as original with myself, the structure of the cold-water tank itself;

But I do *claim* filling the pipe C with the water from the upper stratum in boiler A, so constructed as to find its common level in pipe C, in furnace D, from whence the heated steam is forced over and down into the under stratum of the heavy silicates by the horn-pipe E, while the steam-pressure is relieved from the surface by my relief-pipe 17, which coils through the tank (fig. 2) of cold water, for the purposes described and set forth.

No. 12,840.—Joel Webster.—*Improvement in Silvering Looking-glasses.*—Patented May 8, 1855. (Plates, p. 99.)

The air-tight spaces *a a*, in the tables A A, communicating by means of an elastic tube *d*, are properly filled with air through a nozzle in one of the tables. The tables being open (fig. 2), one of them is covered with the silvering preparation; the sheet of glass *f* is then laid upon it, and the other table thrown over upon the glass (fig. 3). The necessary pressure is then given by weights placed upon the back of the upper table.

The elasticity of the tables will prevent the breaking of the plates, however great the pressure.

Claim.—1st. The two tables A A, having elastic faces, and being employed in combination with each other, substantially as and for the purpose described.

2d. When the requisite elasticity is given to the faces of the tables A A, by the employment of an air-packing, I claim connecting the air-cavities *a a*, by means of a flexible tube *d*, as described, by which means both cavities are caused to be filled with air at once, and to contain a uniform pressure.

No. 13,367.—Anton Van Haagen.—*Improvement in Soap-Cutting Machines.*—Patented July 31, 1855. (Plates, p. 99.)

A slab of soap being laid on the rollers *j*, in front of the driver *b c*, and with one edge bearing close against rollers *l*, the slabs are advanced by the driver and are run between the wires *f*, and thence on to the rollers *k*, immediately in front of the driver *b c*, which driver, being in its turn advanced, pushes the bars through the wires, whence they emerge in the form of cakes.

Claim.—The ranges *f f* of vertical wires, at right-angles to each other, in combination with the drivers *b b*, moving at right-angles to each other, and the ranges of rollers *k l* and *j*, for the purpose of cutting blocks of soap directly into slabs and bars at one operation, and without handling thereof when once on the machine.

No. 13,368.—Anton Van Haagen.—*Improvement in Soap-Cutting Machines.*—Patented July 31, 1855. (Plates, p. 100.)

The block of soap is placed on carriage or table *c*, which slides on ways *b*. The carriage is scored at top by grooves 1 in a transverse direction, the bottoms of the grooves following a cylindrical form that is sinking lower towards the side edges of the table, to allow the looped wire to pass entirely through the block of soap, and sink a short distance below the top surface of the table. The driver *d* forces the soap through the wires, and is scored across its face, similar to the carriage, and with the same object. The vertical range of horizontal wires *k* is arranged between post *l* and l^1, and the wires are held to a slight degree of tension by elliptical spring *n*. The horizontal wires k^1 are arranged between a horizontal frame m^1, which, by means of a gate *p*, receives a vertical motion up and down. The wires k^1 are also stretched by a spring n^1. The soap, being driven forward, is divided into slabs by the wires *k*, and then, without being shifted, the entire tier of slabs is cut up into bars by the descent of the gate and wires k^1.

Claim.—1st. The arrangement and combination, substantially as described, of a series of wires for cutting soap, said wires being stretched by means of springs for the easy formation of a loop at the commencement of cutting, and gradual increase of tension until the wire has entered the block.

2d. The combination, substantially as described, of grooved carriage, grooved driver, stationary and vertical range of horizontal wires, and descending horizontal range of horizontal wires, for the purpose of slabbing and barring a block of soap, without handling the latter after it is once placed upon the machine.

3d. The bed or carriage, and driver, scored transversely by grooves adapted to the loop of the wires, for the purposes explained.

No. 12,485.—Marcus F. Hyde.—*Improvement in Soda-Water Apparatus.*—Patented March 6, 1855. (Plates, p. 100.)

The gas passing down through pipe E to the bottom of the condenser C, and coming in contact with the finely perforated disk F (made of wire gauze or other porous substance), is minutely subdivided, and in that condition passes up the water, until it is thoroughly carbonated.

Claim.—The porous distribution, or its equivalent, arranged and operating as described.

No. 12,489.—Newton D. Robins.—*Improvement in the Combination of an Air-Chamber, Water-Cooler, and Force-Pump, in Soda Fountains.*—Patented March 6, 1855.—(Plates, p. 100.)

A^1 A^1 is filled with ice-water and carbonate of soda, and the desired quantity of it is forced in the air-chamber, from which it may be served by faucet *k* into tumblers.

The inventor says: I do not claim the water-cooler, the air-chamber, the force-pump, the connecting-pipes, nor the making of soda-water with chemicals under atmospheric pressure;

But I *claim* the apparatus, as constructed, of a combination of a water-cooler A A, an air-chamber C C placed within A^1 A^1, and force-pump B B, and made to operate substantially as specified.

No. 13,057.—William Gee.—*Improvement in Soda-Water Generators.*—Patented June 12, 1855. (Plates, p. 100.)

The object of connecting the heads *b c* by a single bolt *d*, which at the same time serves as a shaft for the agitator, is to enable a person

to take the apparatus apart, clean it, and set it to work again in a few minutes.

Claim.—The described construction of a soda-water generator—that is to say, having the heads connected to the cylinder by a single bolt, which shall also serve as a shaft for the agitator to revolve upon, in the manner and for the purposes as set forth.

No. 12,846.—Hendrick V. Duryea, assignor to the "Oswego River Starch Company."—*Improvement in Apparatus for Manufacturing Starch.*—Patented May 8, 1855. (Plates, p. 100.)

The starch-rake 2 is placed within a circular tube 1, which receives the starch in solution. The rake is movable up and down on the upright shaft, and when in motion revolves, cutting or digging the starch to fragments, causing it readily in this state, by application of water, to be redissolved, so that, by a pump or otherwise, it can be transferred to other depositories.

Claim.—The construction and adaptation of the rake 2, furnished with teeth 7, and hung on chains 6, for digging, cutting up, and loosening starch deposites.

No. 13,340.—Henry Colgate.—*Improvement in Starch-making.*—Patented July 24, 1855.

One hundred pounds of refined sugar are to be dissolved in sixty gallons of clear cold water, and to be mixed with the starch, just after the starch is separated from the gluten in the cisterns; stirring the solution well together preparatory to boxing, putting the compound into boxes, and the boxes into the stoves, and drying, as in the usual manner. This starch, the inventor states, imparts to the linen a superior strength and appearance, and answers better for culinary purposes than common starch.

Claim.—The process of manufacturing starch, by adding to it, in the process of making, a certain amount of sugar, in the manner and for the purpose set forth.

No. 12,852.—Francis Bowman.—*Improvement in Rosin Stills.*—Patented May 15, 1855. (Plates, p. 100.)

The arrangement of tube B at a proper distance from the inside of section G, is to insure the arrest of the vapor in its suspended state. F in connexion with B both being covered with glass, prevents the pitch, which crawls up on the sides of the still by the action of heat, from being carried over and mixing with the vapor in the condenser. The bowl C prevents the pitch which is forced up from falling from the top and mixing with the vapor as it passes over into tube F, thereby rendering it impure.

Claim.—1st. The arrangement of section G of the still A, by inserting the metallic tube B, and section of a tube F covered with glass inside and outside, or a similar tube not covered with glass, projecting at any distance from the inside towards the centre of section G.

2d. The suspension of the inverted bowl C, covered with glass inside and outside.

3d. The formation of an arch under the still A, designated in the drawing by letter J, constructed of fire-brick, soapstone, or any other substance, to prevent the fire from touching the bottom of the still.

No. 12,719.—Conrad William Finzel.—*Improvement in Processes for Melting Sugar.*—Patented April 17, 1855. Patented in England May 7, 1853. (Plates, p. 100.)

By melting sugars *in vacuo*, the inventor states, the melting takes place at a much lower temperature than by any of the processes now followed; the sugar is not liable to damage from heat, as it is not long in contact therewith; and a great saving of fuel and time is effected.

The figure represents an apparatus adapted to the purposes of this invention, which, however, may be modified in various ways. A is the vacuum pan, B the coil for heating the pan, C the test apparatus, D the man-hole.

Claim.—The herein-described improvement in refining sugars; that is to say, melting the raw sugar in a vacuum preparatory to the further refining thereof, in the manner and for the purposes as set forth.

No. 13,203.—John Aspinall.—*Improvement in Apparatus for Draining Sugar.*—Patented July 10, 1855. (Plates, p. 100.)

The sugar is deposited from hopper E on to the endless band C. As the band with its supply of sugar passes over the grating covering the chamber A, (from which the air is exhausted,) the fluids will be separated from the solid parts by the pressure of the atmosphere, and will be driven into the chamber, while the solid parts will be carried onwards by the band.

Claim.—The combination of the porous carrier, conveying a thin layer of the sugar to be drained, with the exhausted chamber, having apertures covered by the carrier, whereby the said sugar is exposed to atmospheric pressure while passing said apertures, in the manner and for the purposes set forth.

No. 13,740.—Charles E. Bertrand.—*Improvement in Sugar Filters.*—Patented October 30, 1855. (Plates, p. 100.)

Pipe C serves for the introduction of the solution of sugar into the filters A A^1 A^2, pipe F F^2 serves for the admission of steam, and L L^2 is the water-pipe. The filter A, being charged with charcoal, is then heated by opening steam-cock F. By opening the supply-cocks D and I of the pipe B, and the air-cock U, the boiling solution of sugar is introduced through pipe C into filter A. The connection of filter A with filter A^1 is now established by the connecting-pipe and stop-cock E and glass tube T; consequently, by opening cocks K, I^1, and U^1 upon filter A^1, the liquid from A will assume its level in A^1, after having

passed through the filter A. When sufficiently filled, the cock E^1 in the vertical connecting-pipe of filter A^1 is opened; and the filtration, after having passed the second filter and the sponge-filter S, will find an outlet at G^1 into channel H^1 and reservoirs of vacuum apparatus.

The two filters A and A^1, thus started, usually work but a certain length of time without interruption, as the sediments and fibrous matters contained in the solution of the raw sugar will soon accumulate and firmly settle upon the upper strainer in filter A. It then becomes necessary to remove such impediments, and this is effected simply by shutting off the supply at D, and by admitting steam through the cock F upon the surface of the solution in filter A, sufficiently long to force it about twelve inches below the strainer R, when the condensed water will free itself and float a few inches above the liquid. This being done, a reaction from filter A^1 is produced upon filter A—that is to say, from the bottom to its top—by opening the steam-cock F^1 and the cock K upon filter A^1; also the connecting-cock E, with the air-cock V, upon filter A, the supply-cocks D^1, L^1, I^1, and G G^1, having been shut again. The pressure of steam through pipe E will now force the solution upwards in A, and all the sediments floating on its upper surface are removed by flowing off freely through the open cock U. Upon the reappearance of a clear and bright color of the solution, the backward action of the filter A^1 is discontinued by the closing of F^1 and V, and the forward and direct acting filtration again takes place by the reopening of the cock I^1. If the power and the properties of the charcoal are completely exhausted, and the color of the liquid in the glass tubes T and T^1, etc., indicates its perfect saturation, the supply-cock D is again closed, the cock L from the water-pipe opened, and the residue of the solution, by the aid of water and steam from the cock F, is fully unsweetened and washed out; finally it is carried off through M and pipe N for further preparations. Filter A is then emptied at Q, and recharged with a fresh supply of charcoal through the man-hole P, whilst, by bringing the filter A^2 in a similar relation to A^1, the same communications as already described are now established between A^1 and A^2, and the process of filtration is thus carried on without interruption. Again, when A^1 is to be renewed, the cock K^2 upon A, and the connecting-pipes E^2, combine the filter A^2 with A; and the work is performed between the first and the third filter in a forward or backward direction, with an upward and downward pressure, and in precisely the same manner as already described and set forth.

Claim.—The combination of a series or system of three or more filters with the described and specified arrangement of steam, water, and saccharine juice pipes and their appurtenances, admitting of a continuous circulating motion of the liquid to be filtered from one filter into any of the others, until a clear and fair filtration is obtained; and also admitting of the working of the filters backward and forward at pleasure, either from the top to the bottom, or in the opposite direction, for the purpose of partially reviving the purifying properties of the charcoal until fully exhausted, as set forth.

No. 12,369.—L. Woodbury Fiske.—*Improvement in Working Liming Vats in Tanneries.*—Patented February 6, 1855. (Plates, p. 101.)

The object of this improvement is to render the process of tanning more rapid, to cause the hides to come from the vats more free from lime in the pores than hitherto, at the same time, by preventing the forming of the pellicle on the surface of the liquid in the vats, the deposit of carbonate of lime, and consequent loss of strength.

Four staples F are fastened on the tops of the vats; and bars D and wedges E, which are passed under and through said staples, and over the vat-cover B, serve to press the cover tightly down on the top of the vat.

I claim using a close covering for liming and unhairing-vats, in the manner and for the purposes set forth.

No. 13,010.—Samuel T. McDougall.—*Improvement in Hydro-Carbon Vapor Apparatus.*—Patented June 5, 1855. (Plates, p, 101.)

The nature of this improvement consists in constructing the gas-generator A with an air-chamber around it, said chamber connecting at the top with a pipe surrounding the gas-pipes, and extending as far as the gas-pipes are exposed to the action of cold, so as to convey a current of hot air around the gas-pipes to prevent condensing.

Claim.—The double gas-pipe C for conveying hot air or steam around the pipes to prevent condensing, or any other substantially the same, and which will produce the intended effect.

No. 13,657.—Robert Rowland.—*Improvement in the Mutual Arrangement of Vinegar Rooms and White-Lead Corroding Chambers.*—Patented October 9, 1855.

Claim.—Arranging the room wherein the metallic lead is placed immediately above the room wherein the manufacturing of vinegar is going on, and perforating the floor between the two rooms, so that the acetic acid, which is generated in the manufacturing of vinegar, may pass from the lower room through said perforations into the upper rooms, and there, in combination with carbonic acid produced in the upper room by the fermentation of wort or other similar substances, (or introduced into the upper room by pipes,) act upon the metallic lead for the purpose of converting the metallic lead into the carbonate of lead.

No. 12,333.—Jonathan G. Trotter.—*Improvement in the Construction of Furnaces for Zinc-White.*—Patented January 30, 1855. (Plates, p. 101.)

Claim.—The manufacture of white oxide of zinc, whether from native ores or metals, the use of the atmospheric air supply-pipe L, flues M M, heating chambers H H and J, and series of apertures *h h* in the sides thereof, or substantially like parts, for the purpose of conveying into the

oven a great number of infinitely small jets or blasts of heated atmospheric air, (independent of the blast of atmospheric air supplied through the ash-pit of the furnace to support combustion,) for the purpose of more thoroughly consuming the gases from the ore and carbon.

No. 12,418.—SAMUEL WETHERILL.—*Improvement in Apparatus for Separating Zinc-White.*—Patented February 20, 1855. (Plates, p. 191.)

The gases, as they escape with solid impurities from the furnace, are carried by a blowing or exhausting-apparatus *p* upwards, through a high chamber or series of high chambers *b c g*, the height of which is such, relatively to the force of the current, that the oxyd of zinc will be carried to the escape at the top, whilst the solid impurities, by reason of their greater specific gravity, will be left behind, and finally subside. The improvement also consists in partially cooling the white oxyd and gases during the process of separation, by causing currents of air to pass through hollow spaces *h l* in the surrounding walls. The white oxyd and gases are finally cooled by currents of air induced to enter through apertures *u* in the lower part of the cooling-chamber *s*, by forcing the gases into the said chamber obliquely upwards towards the roof *t* of the cooling-chamber, which induces a partial vacuum in the lower portion of the chamber, that atmospheric air may enter by atmospheric pressure.

Claim.—The combination of the chambers *e g* and *s*, or their equivalents, arranged and operating as set forth; also, the method of effecting the partial cooling of the white oxyd of zinc and gases, before they reach the final cooling-chamber, by currents of air passing through the hollow spaces in the surrounding walls, substantially as and for the purpose set forth.

No. 12,613.—SMITH GARDNER, assignor to EDWARD KELLOGG.—*Improvement in the Manufacture of Zinc-White.*—Patented March 27, 1855. (Plates, p. 101.)

This operation is as follows: A coal-fire is made in the fire-chamber *f*, valve *v* in pipe *p* being closed, and the damper on top of the chimney *z* open; thus, the sulphurous and other impure gases evolved in the combustion of coal are driven off. When all these gases are expelled the said damper is closed, and valve *v* opened; the oven is charged with spelter, which is there vaporized without being oxydized, as the atmosphere is excluded therefrom; the vapor thus formed passes off through openings *e* into the oxydizing-chamber *x*, where it meets a current of heated atmospheric air, which, by means of a fan-blower, is driven in through pipe *h* and holes *i*, with which it intermingles, and at which point the vaporized zinc receives its proper charge of oxygen, and the oxyd thus formed passes through pipe *p*, and is drawn into the fan-blower and into a receiving-chamber of the usual construction.

Claim.—The construction of the fire-chamber, the vaporizing chamber or oven, and the oxydizing chamber, substantially as described.

No. 13,416.—JOHN E. BURROWS.—*Improvement in Making Zinc-White.* Patented August 14, 1855. (Plates, p. 101.)

The air is forced by means of a bellows into the air-chamber underneath the grate F, and hence passes up through the perforations of the grate. The perforated grate-bars serve to diffuse the air more evenly than could be done with solid grate bars. Thus the combustion of the fuel is more perfectly promoted, and the zinc liberated in the form of vapor, which, by contact with the atmospheric air, is condensed into white oxyd of zinc, and drawn off from the top of the furnace by an exhausting apparatus.

Claim.—The manufacture of white oxyd of zinc from ores of zinc or franklinite, prepared, substantially as set forth, by means of a furnace having perforated grate-bars, and an air-chamber underneath them, in which hot or cold blasts of air are forced to unite with the ignited mass of fuel in a diffused state, by passing through the perforations of the grate-bars to liberate the zinc in the form of vapor, in manner of construction and mode of operation substantially as set forth.

No. 13,431.—SAMUEL T. JONES.—*Improvement in Making Zinc-White.* Patented August 14, 1855. (Plates, p. 107.)

The nature of this invention will be understood from the claim and engraving, where *g g g* represent three of the grate-bars.

Claim.—The manufacture of white oxyd of zinc from ores of zinc or franklinite by means of a furnace having perforated grate-bars, and an air-chamber underneath them, in which hot or cold blasts of air are forced to unite with the ignited mass of fuel in a diffused state by passing through the perforations of the grate-bars, to liberate the zinc in the form of vapor, in manner of construction and mode of operation substantially as set forth.

No. 13,806.—SAMUEL WETHERILL.—*Improvement in Processes for Making Zinc-White.*—Patented November 13, 1855. (Plates, p. 101.)

The bars of the grate *b* are perforated with holes sufficiently small to prevent the crushed ore and coal from falling through, and still allow the air which comes from the blast-pipe *f* to pass through said holes and into furnace *a*.

A fire is first made in a thin layer well spread over the entire bed, and, when kindled, the charge of mixed ore and coal (two thousand pounds of pulverized ore, such as red oxyd of zinc, and about five hundred pounds of fine anthracite coal, known as pea-coal) is put on and spread evenly over the fire to the depth of about three inches. The passages *s*, through which the ore has been fed in, are then closed, and the chimney-hole *k* is opened. As soon as the gases appear of a pale-green color, which indicates that the charge is giving off vapors of zinc, the aperture *h* is closed, and the one leading to the collecting apparatus opened.

The inventor says: I do not claim the construction, or application of

the furnace so constructed to the working of the ores of zinc, for the production of the white oxyd of zinc, as it is my intention to make such claim in another application for letters patent. Nor do I limit my claim to the working of my improved process in a furnace of the special construction specified, having simply described the construction of the furnace as the one in which I have successfully worked my said process.

I *claim* the process of producing the white oxyd of zinc from the ore of that metal by the direct application of the fuel to the ore, in the crushed state and in admixture therewith, in combination with a blast of atmospheric air, introduced in numerous small jets to the charge of mixed ore and coal in a thin layer, substantially as specified.

V.—CALORIFICS.

No. 12,409.—Yarnall Bailey.—*Improvement in Fluid Burners.*—Patented February 20, 1855. (Plates, p. 102.)

The inventor says: I am aware that heaters have been applied to lamps, in contact with the flame, for similar purposes, heretofore; therefore, I do not claim the idea or invention of generating the vapor by use of heaters arranged in contact with the flame of lamps or gas-burners.

But I *claim* the construction and arrangement of the heaters D D, in combination with the generator B, for the purpose set forth substanstially as described. (See engraving.)

No. 12,936.—Abraham Gesner, assignor to "The Asphalte Mining and Kerosene Gas Company," assignors to said Gesner, and by said Gesner to the "North American Kerosene Gas-Light Company."—*Improvement in Burning Fluids.*—Patented May 22, 1855.

The inventor says, in his specification: I take what (in a contemporaneous application for letters patent) I denominate the A Kerosene and B Kerosene, and mix as much of either with the alcohol as the latter will dissolve. This mixture will burn in a proper lamp without smoke.

Claim.—As a new manufacture or composition of matter, the burning fluid, composed of alcohol and A Kerosene, as herein specified.

No. 12,987.—Abraham Gesner, assignor to the "North American Kerosene Gas Light Co."—*Improvement in Burning-Fluid Compounds.*—Patented May 29, 1855.

The inventor mixes what (in letters patent previously granted) he denominates B Kerosene with as much alcohol as will suffice to dissolve the B Kerosene. Twenty-five parts of the B Kerosene requires seventy-five parts of alcohol (of specific gravity 844, at a temperature of 60° Fahrenheit) to dissolve it.

Claim.—As a new manufacture or composition of matter, the burning fluid composed of alcohol and B Kerosene, as specified.

No. 13,450.—C. W. Blakeslee.—*Improvement in Candlesticks.*—Patented August 21, 1855. (Plates, p. 102.)

The inventor says: I do not claim forming the body and base of the candlestick of wire, neither do I claim a spring lamp or socket in itself considered, or independently of the mode of constructing or forming the same as shown; for they have been previously used.

I *claim* extending the wires of the body of the candlestick through a disk-shaped plate B, substantially as shown, for the purpose of forming a spring socket for the reception of the candle, as described.

No. 13,452.—Wm. Burnet.—*Improvement in Sealing Cans.*—Patented August 21, 1855. (Plates, p. 102.)

b is a wire inserted transversely through and soldered to the cap, with its end protruding at b^1 to form lugs to catch under the flange *c* of the head, in which are made notches *d d* for the said lugs to pass through. When the cap is applied to the can A, there is left a channel *a*, which is then filled up with the sealing composition.

Claim.—The use of a clamp-cap B, constructed substantially as described, for the purpose of closing the opening in the can, between the filling and the final sealing thereof.

No. 13,660.—Wm. Mt. Storm.—*Improvement in Applying Fire-Extinguishing Cartridges.*—Patented October 9, 1855. (Plates, p. 102.)

x are the cartridges in the revolving-chamber E; K is the fire-slug in the bore C^1 of the gun; the base of the slug is protected by a thick pasteboard sole L^1. The slug is composed of nitrate of soda three parts, sulphur two parts, charcoal one part. In the centre of the slug is left a tubular opening, into which is inserted a quick-fuse M, which will be ignited by the fire, and will in turn ignite the slug. These slugs can be thrown from the gun into or over the highest building.

The inventor says: I claim simply the plan of projecting into the flames, with precision and penetrating force, by means of an apparatus or gun purposely adapted, and by means of a projectile power, independently and separately generated the fire-extinguishing gas-generating solid itself, in the concentrated and properly-adapted form, substantially as described; and in moderate, distinct, and rapidly-intermittent masses, as explained: whereby the gas is generated apart from the machine and within the source of the fire. By all of which I attain the many points of increased efficiency and convenience of operation set forth.

No. 12.404.—Geo. B. Clarke.—*Improvement in Chimney-Safes.*—Patented February 20, 1855. (Plates, p. 102.)

The receiver C serves to hold water which, from rain or condensed smoke, may run down inside the smoke-box B. The water may be drawn off at the faucet *c*. The box is set in the chimney so that its flanges *b* reach a little outside the brick, and little holes *a* are made through the mortar close to said flanges. Thus the water which runs down outside will also run into the receiver C. If, in case of fire, it is necessary to stop the draught of the chimney, the dampers E¹ are closed down, there being a door in the front part of the box B, which can be opened and shut. D are the stove-pipes.

The inventor says: I am aware that a narrow frame-piece, having a damper or valve, has before been fitted in the chimney above the point of entry of the smoke, to regulate the draught and aid in extinguishing fire in the chimney; such, therefore, I do not claim.

I am also aware that locomotive-engine chimneys have been provided with water-vessels or tanks to extinguish sparks carried up by the draught; this, therefore, also separately considered, I do not claim.

But I *claim* the smoke-box or chamber arranged in the chimney, as described, and having dampers E¹ above, and a conical or other equivalently-shaped receiver C below the point or points of entry of the smoke, as and for the purpose set forth.

No. 13,520.—Mortimer M. Camp.—*Improved Chimney Stack or Cap.*—Patented September 4, 1855. (Plates, p. 102.)

An enclosed space is formed between A and B, so that the cold air on the outside will not condense the smoke before it arrives at the orifice *a*. The inventor says in his specification: The interposition of the disc D will cause the wind, when deflected by the curved surfaces, to carry the smoke with it, upward or downward, causing a partial vacuum at the orifice *a*, and thereby increasing the draught of the chimney.

The inventor says: I do not claim either of the parts as such, nor any two of them combined; but I *claim* the combination of the three parts A C D, when constructed, arranged, and combined as described.

No. 13,620.—Benjamin Franklin Miller.—*Improved Chimney Stack.*—Patented October 2, 1855. (Plates, page 102.)

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I *claim* constructing and placing a solid or hollow cone, or a pyramid, in the mouth of a funnel or smoke-stack, with its apex upwards, or pointing outwards from the mouth of said chimney or pipe, in combination with the surrounding shield, furnished with flanches, as described, constructed and located substantially as set forth.

I do not claim as new, or as my invention, the conical shield, or the conical band and circular flanch described, they having been already applied or placed at the top of smoke-pipes, for the purpose of ventilation. I do not claim placing a single cone, with its apex pointing inwards, in the smoke-pipe or chimney, as new and first invented by me.

No. 13,772.—John W. Davies.—*Chimney Cap.*—Patented November 6, 1855. (Plates, page 102.)

The object of this construction is to prevent the smoke from being forced down the chimney by high winds.

The inventor says: I do not claim the cone, or the other parts, separately considered; but I *claim* the combination of the cap E and the cone D with the tube A, arranged substantially as described, and for the purposes specified.

No. 12,486.—George Martz.—*Improved Coal-Screen.*—Patented March 6, 1855. (Plates, page 102.)

The conical screen *b* receives the coal to be screened at its rear end, and allows all but the coarsest portion thereof to pass through its meshes into the rearward discharging screen, while it conducts the said coarsest portion of the coal forwards, and discharges the same at its mouth.

Claim.—The improvement in coal screens by which the coarsest coal is separated from the finer sorts, and discharged at the mouth of the screen, whilst the finer sorts of coal are carried forwards, and separated the one from the other, in the usual manner.

No. 13,083.—James P. Fennell.—*Improved Coal-Screen.*—Patented June 19, 1855. (Plates, p. 102.)

The nature of this improvement will be understood from the claim and engravings. G and H are the doors referred to in the claim. B is the revolving cylindrical coal-screen.

The inventor says: I am aware that a rotating screen in a tight box with a single drawer, which was used in common for the ashes and coal both, has been used. This I do not claim.

But I *claim* a portable coal-screen, composed of a tight box, within which are arranged a rotating screen and two drawers, the openings into which box are provided with doors, so that the box shall remain tight when either or both the drawers are taken out, as described.

No. 13,699.—John B. Creemer.—*Improvement in Coal-Sifters.*—Patented October 23, 1855. (Plates, p. 102.)

The wire-cloth in a prismatic form is fastened between two plates K and H, through which an axle A passes, provided with a crank.

The feet I serve the apparatus to stand upon when being filled with coal, for which purpose the plate K is provided with a lid, so that the apparatus can be opened when placed upright ready for filling. When filled, the lid is closed, and the apparatus placed within box S, the ends of the axle resting on bearings B B. It can then be revolved by means of the handle, so as to sift the ashes through.

Claim.—The dish H and feet I, in combination with the screen, operating as described, and for the purposes set forth.

No. 13,831.—Gerard Sickels.—*Improvement in Coal-Sifters.*—Patented Nov. 20, 1855. (Plates, p. 102.)

The dust passes through grate B into space A^1, whereas the sifted coals pass down into space A^2.

Claim.—The peculiar manner of dividing the cylinder at A^1 A^2, for the purpose of furnishing a receptacle for the separated coal, substantially as described.

No. 12,167.—Russell S. Morse.—*Improvement in Fruit-Dryers.*—Patented January 2, 1855. (Plates, p. 102.)

When the dryer is spread out (see fig. 1) in the open air for use, the fruit is placed upon the trays A; and in the evening, or previous to a shower, the dryer is folded up and protected by its roof B. (See figs. 2 and 3.)

Claim.—Constructing a portable fruit-dryer of a series of trays and a protecting roof, united to each other by hinging-bars, substantially as herein set forth.

No. 12,922.—Thomas F. Rowland, James Stephens, and William H. Mason.—*Improved Apparatus for Drying Grain.*—Patented May 22, 1855. (Plates, p. 103.)

The nature of this improvement will be understood from the claims and engravings.

The inventors say: We do not confine ourselves to the use of steam for heating, as hot water may be made to circulate through the apparatus, instead of steam. Nor do we wish to be understood as confining ourselves to the special form or construction herein specified, so long as the same results are attained by equivalent means.

But we do *claim:* 1st. The heating-tubes, substantially as herein specified, in combination with the hopper, as specified, for partially heating the grain or other substance as it passes to the kiln. Also, in combination with the series of perforated or wire-gauze shaking-pans, the surrounding double metallic casing, the opposite sides of which are connected by horizontal tubes passing under the pans, and connected with a steam-boiler, for the circulation of hot water or steam through the whole casing and connecting-tubes, substantially as specified, the said double casing being surrounded by masonry as specified; the said combination being for the purpose of more effectually and

economically drying grain or other substances, without the danger of scorching or overheating it, and to avoid the condensation of the vapors evolved from the grain or other substance, which, if permitted to take place within the kiln, not only remoistens the grain, but is otherwise injurious. And also in combination with a kiln, consisting of the double casing connected with a steam-boiler, and surrounding the perforated or wire-gauze shaking-pans, substantially as specified, the employment of a blast of heated air introduced at the bottom, and forced to pass upwards through the kiln and through the perforations in the pans, and to escape at top, substantially as specified, for the purpose of driving off the moisture and vapors evolved from the grain or other substance, as specified.

No. 13,832.—Geo. H. Thomas.—*Improved Method of Inserting Tubes in Evaporating-Pans, &c.*—Patented November 20, 1855. (Plates, p. 103.)

The clamps *d* can be drawn together by means of the screw-rods *f* passing through the hubs of said clamps, so as to compress the elastic packing rings *e* against the outer surface of the tube-sheets and the ends of the tubes. The clamps are perforated at *i i*, so as to afford space for the passage of gases or liquids.

These tubes can be readily taken out and re-inserted for cleaning or repairing, and firmly secured with tight joints.

Claim.—The method of securing tubes *a* to tube-sheets *b*, by making the tubes without projections on the surface, that they may be inserted directly through holes in the tube-sheets, substantially as described, in combination with clamps at the ends with interposed elastic packing, bearing against the ends of the tubes, and overlapping the joints, substantially as and for the purpose specified.

No. 13,100.—David Pollock and James R. Pollock.—*Fan-Blower.*—Patented June 19, 1855. (Plates, p. 103.)

D are the wings of the fan, and B its perforated shaft.

The inventor says: Though we do not of itself claim the employment of a hollow shaft, we *claim* making the shaft hollow with open ends, and with apertures *g g* in the sides within the blower-casing, as set forth, for the purpose of inducing a current of air through the shaft to keep it cool, and, at the same time, to increase the supply to the fan.

2d. We claim making the pulley F, which receives the driving-belt, hollow, with closed ends and a perforated face, and providing openings from its interior into the shaft, as set forth, for the purpose of causing the displacement of the air between the belt and the face of the pulley, and, at the same time, increasing the supply to the fan.

No. 13,260.—Jos. C. Gartley and Jacob Fox.—*Fan-Blower.*—Patented July 17, 1855. (Plates, p. 103.)

D is the hub of the blowing-wheel, shaped like the frustrum of a cone, which is fastened on the shaft G; on the hub are fastened the screw-strapped blades E, the outsides of which blades are secured to an enclosing circular casing C.

The inventors say: We *claim*, where an ordinary parallel hub is used, a circular plate, or pieces of plate, fastened to the hub and blades E of blowing-wheel, enclosing the greater portion of the side of blowing-wheel towards the side K, to answer the same purpose for which the larger portion of the conical hub is intended, which is to prevent a central reacting current after it has passed through the blowing-wheel.

2d. The combination and arrangement of fan-blower, as described. We do not claim the parts described separately, but we claim the combination, in the manner set forth or shown, for the purposes named.

No. 13,346.—Simon Barnhart.—*Fan-Blower.*—Patented July 31, 1855. (Plates, p. 103.)

Each of the blades F is made with a flange *b* on one of its sides, said flange being at right-angles with the blade from the tip to about the centre of the same, and therefrom is bent down and made to extend obliquely outward, in such a manner that a small spiral wing *c* is formed on each blade, which extends outside the case through the inlet air-passage B of the same, and, as the fan revolves, collects and forces an additional quantity of air into the case.

Claim.—Providing each of the blades of the fan with a lip or flange *b c*, substantially as and for the purposes set forth.

No. 13,859.—Nathaniel Waterman.—*Improvement in Feet-Warmers.*—Patented November 27, 1855. (Plates, p. 103.)

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I am aware hot water has been used for heating a foot-warmer, and that foot-warmers have been cushioned or covered with carpet, &c.; this I do not claim.

But I *claim*, placing the hot-water vessel A within a case D made of wood, except on that side on which the feet are to rest, which side is made of thin sheet-metal *a*, and cushioned and covered (see F) as set forth, the whole being for the purpose of retaining the heat longer and giving it out more regularly to the feet, as described.

No. 13,871.—Henry Forncrook.—*Improvement in Feet-Warmers.*—Patented December 4, 1855. (Plates, p. 103)

Fig. 1 represents the inner box A inserted into the outer box D. This apparatus is strong on account of the corrugated surface of the inner box; and the space between the corrugations will serve as a hot-air chamber, the interior of the inner box being filled with hot water.

Claim.—The arrangement of the angular supports C upon the inner box, thereby providing the foot-warmer with a hot-air chamber; also, with substantial supports for the outer box, in the manner described, for the purposes specified.

No. 12,773.—John R. Adams.—*Fire-Engine.*—Patented May 1, 1855. (Plates, p. 103.)

A number of cylinders B are placed radially in a circular band A, said band being encompassed by a ring I and cam J, which ring and cam are allowed to work loosely around band A. The cylinders are provided with the usual pistons and valves, and the pistons G are operated by rotating the cam, the piston-rods having rollers *e* attached to their outer ends, fitting in the groove *d* of the cam. By turning the cam continually in one direction, the power (either men or horse-power) applied at arms K acts continually upon the pistons.

Claim.—Having the cylinder B placed radially in a band or ring A, and encompassing said band or ring A with a band or ring I and cam J, the band or ring I and cam J being allowed to rotate around the band or ring A and cylinders B, and operating the pistons of the cylinders in consequence of their connexion with the cam, as herein shown and described.

No. 12,491.—John W. Smith and John S. Gallaher.—*Improved Fire-Place.*—Patented March 6, 1855. (Plates, p. 104.)

This fire-place consists of a casing which is fitted within a recess formed in the chimney-stack. It has a throat *m*, provided with a draught-wheel (fig. 4) to induce a strong current of air from air-tube C. The air enters through the perforated blower-pipe *f* in numerous small jets. This pipe has in its centre a hole H^1, which communicates with the hole in collar *g*, leading to the pipe C. Pipe *f* can be turned around its axis so as to admit more or less air from pipe C, and through hole H^1. The draught through C is also regulated by means of a valve and valve-rod *c*. Attached to the outside of the fire-place are diaphragms dividing the spaces *y*, *z*, *y*, thus forming hot-air chambers and reservoirs or gas-receivers. Through these diaphragms pass the smoke-pipes L L, the lower (horizontal) ends of which communicate with the open ends of the blower-pipe. These ends have elbows *r*, which dip into water-chests *s*, which are arranged for the deposition of carbonaceous matter. The valves *h h*, together with valves J J, may be opened so as to afford a passage for the excess of matter immediately through the perforated blower-pipe out into the fire, to be consumed.

Claim.—The adjustable perforated blower-pipe with perforated collar, as described, arranged with the detachable fire-place, the latter having a perforated throat and double funnel ventilation, together with the valves, diaphragms, partitions, smoke conduit pipes, as constructed

and arranged with the recess casings, forming air-chambers and gas-receiving apartments, substantially as described and for the purpose set forth.

No. 13,758.—Bernard O'Reilly.—*Improved Composition for Kindling Fires.*—Patented November, 6, 1855.

This composition consists of white turpentine, 16 parts; gum olibanum, 1 part; gum camphor, 1 part; powdered charcoal, 8 parts. The white turpentine is to be melted, and then the other ingredients to be added.

Claim.—The fire-lighting compound formed by the admixture of the several ingredients specified, in the manner and in about the proportions set forth.

No. 12,159.—St. John O. Doris.—*Composition for Fuel.*—Patented January 2, 1855.

The composition consists of 75 parts coal-dust; 10 parts coal-ashes, or alumina; 5 parts coal-tar; 5 parts saw-dust; 5 parts street-garbage. The above to be mixed cold, and pressed into form.

(No illustration.)

Claim.—The formation of an artificial fuel by the combination of street-garbage with coal-dust, saw-dust, and coal-tar, or other bituminous substance, substantially as hereinbefore set forth.

No. 12,847.—Thomas Hooker and William D. Beaumont, assignors to A. A. Pray, N. M. Harris, E. C. Lemoyne, J. R. Jennings, G. G. Kirk, and L. A. Kirk—*Improvement in Artificial Fuel*—Patented May 8, 1855.

The proportions of this composition are: One hundred parts of any of the known formations of earth; thirty parts of common lime; twenty parts of the dust or refuse of coal; two parts of clinkers or iron-dust; three parts of common rosin or pitch; two parts of carbonate of ammonia; eight parts of saw-dust or chips. The aforesaid are to be thoroughly mixed, and, by adding water, the material is to be softened to about the consistency of clay-mortar from which bricks are manufactured.

(No illustration.)

Claim.—The manufacture of a new article of fuel composed of lime, fine coal, clinkers, rosin, carbonate of ammonia, and bagasse, or their equivalents, mixed in the proportions substantially as herein set forth.

No. 13,056.—William D. Beaumont.—*Improvement in Artificial Fuel.*—Patented June 12, 1855.

150 pounds of turpentine (dry and brittle, and reduced to powder); 150 pounds of gypsum (also ground); one ton of clay (ground); 400 pounds of cut pine-straw; coal-screenings, about equal in weight to the clay: the whole to be well worked together with water, formed into cakes, and dried in the sun.

Claim.—The manufacture of a new article of fuel composed of coal-screenings, clay or marl, pine-straw or litter, crude turpentine, and gypsum, or their equivalents, mixed in the proportions substantially as set forth.

No. 12,277.—Michael Greenebaum.—*Improvement in Hot-air Furnace.*—Patented January 23, 1855. (Plates, p. 104.)

The valve S being closed in funnel *p*, the heat from furnace *a* descends through the branch-pipe *q* into the inner cylinder *l*, and is discharged into the drum *k*, and, passing through the openings *o o*, &c., in partition *n*, the residue passes off through pipe *r* to the chimney. By opening the valve S the heat passes directly into pipe *r*, thereby allowing the drum *k* to be cooled to any required degree.

Claim.—The arrangement of the cylinder *l* in the drum *k*, in combination with the perforated partition *n*, and the pipes *p q r*, and valve *s*, for the purpose of regulating and equalizing the radiation of heat of hot-air furnaces, substantially as set forth.

No. 12,286.—Eloy Schmitz.—*Improved Apparatus for Supplying Furnaces with Pulverized Metal.*—Patented January 29, 1855. (Plates, p. 104.)

The pulverized substance is placed in hopper A^1 B^1, from which it falls into the threads of the horizontal screw-conductor Q, which conducts it to the vertical charging-tube N, which is provided with valve J, which is alternately opened by means of cam H and connecting-rod *t*, to discharge into the horizontal tube P^1, which is placed within the blast-pipe Z leading to the furnace, so that the blast shall carry the pulverized substance to the furnace, the tube P^1 being provided with valves M L at the ends, which are closed whilst the valve J is open to permit the descent of the charge, and which, so soon as the valve J is closed, are opened that the blast may carry the substance to the furnace, the valve J preventing the blast from entering the charging part of the apparatus. The valve I, at the end of tube T (opening into the atmosphere) opens and closes simultaneously with valve J, so that any pressure of air in the apparatus due to the blast before it is shut off may be prevented from impeding the descent of the pulverized substance. The free discharge of the substance is aided by the action of a punch-rod S, which is worked by a crank R at the end of conductor-shaft D.

Claim.—Arranging within the blast-pipe of a furnace or other fire-place another and smaller pipe or tube, governed by valves to admit and cut off the blast, substantially as described, when this is combined with the charging-tube, also governed by a valve, substantially as specified, so that when the blast is forcing the pulverized substance from the tube within the blast-pipe, the blast shall be cut off from the

charging-tube; and when the charging-tube is open for the liberation of the charge, the blast shall be cut off by the valves below, as set forth.

Also, in combination with the above charging and discharging-tubes governed by valves, the employment of a branch-tube governed by a valve opening to the atmosphere to prevent the pulverized substances from being held in the charging-tube, by any excess or pressure which may be due to the entrance of the blast during the time the valves of the discharging-tube are opened, as set forth.

Also, in combination with the discharging and charging-tubes, the employment of the conductor and the punch-rod, substantially as described and for the purpose set forth.

No. 12,305.—Abel H. Bartlett.—*Hot-air Furnace.*—Patented January 30, 1855. (Plates, p. 104.)

The horizontal flat chambers D are formed of two thicknesses of metal. The air in passing through the chambers D is prevented from being impregnated with the gases escaping through the pores of the iron of flue C; for when it has passed through the inner thickness of metal of chambers D into the spaces *b*, (between the two thicknesses of metal surrounding chambers D,) it will, instead of passing through the outer thickness, naturally pass through the small pipes *c* into the vertical pipe *d*, and thence into the smoke-pipe I. The heated air therefore passes into pipe L, and into the apartment to be warmed in a pure state.

The cold air and the heat from the fire-chamber pass upward simultaneously in their respective passages C and D, and cross each other at right-angles, the air in D being exposed to two heated surfaces of flue C, viz: above and below; and the horizontal portions of flue C communicating heat to two surfaces of the chambers D, also above and below. The cold air, therefore, that enters the opening K passes over a great area of heating surface in passing upward to pipe L.

The inventor says: I do not claim, of itself, in a hot-air furnace, preventing the admixture of deleterious gases, generated on hot metallic surfaces, with the warm fresh air, by means of jacketed air-spaces interposed between the surfaces exposed to the action of the fire and the air to be heated, nor yet providing an escape-pipe or passage to carry off the deleterious gases;

But I *claim*, 1st, in combination with the arrangement specified of the serpentine fire and air-flues or courses C and D, providing each horizontal flue with an escape-casing or jacket, connected by branch or otherwise (each horizontal casing) with a gas-pipe or pipes, uniting them with the chimney, as shown and described, whereby a sure and quick escape is established for the deleterious gases at each horizontal flue, to travel where the fire and air are retarded in taking their upward course; and the air being heated, consequently more exposed to absorption of deleterious gas, and whereby the stratum of air being heated, and travelling in succession the several horizontal flues D, is protected from admixture with it of the deleterious gases throughout its entire exposure to heat in the furnace, as described.

2d. I claim the arrangement of the fire-flues C, and air-heating passages D, specified, and traversing at right-angles to each other, when combined with division-plates G, or their equivalents, so arranged that the one stratum or current of air to be heated passes upward throughout the several hot-air passages or channels in a serpentine course given, the flame simultaneously passing upwards in the fire-flues C, over, under, and between the hot-air passages or flues D, as shown and described.

No. 12,448.—Geo. S. G. Spence.—*Improvement in Hot-air Furnaces.*—Patented February 27, 1855. (Plates, p. 104.)

Claim.—Carrying the smoke-discharge flue of the fire-chamber back through the fire-chamber, substantially as specified, whereby the draught of a long flue is promoted.

Also, carrying the smoke discharge flue of the fire-chamber or radiator back through the fire-chamber, in combination with not only providing it with one or more orifices for the discharge of the combustible properties or gases of the smoke into the fire-place, but with diminished opening or passage sufficient only to carry off the non-combustible volatile portions of the smoke.

Also, combining with the discharge-pipe O and the orifice R the pipe to extend back into the discharge-pipe O, and with respect to the openings T T, as specified; the same being to facilitate the passage of the combustible gases into the fire-place.

No. 12,425.—William Sage.—*Improved Air-Heater.*—Patented February 20, 1855. (Plates, p. 104.)

The object of this improvement is to insure the direct contact of the air with the heating surface as it enters the apparatus, and then to pass immediately from said surface into the hot-air reservoir; thereby causing the air to be equally and uniformly heated, and preventing it from remaining in contact with the heating surface long enough to be decomposed.

Claim.—Surrounding the chamber of combustion with series of short annular or segmental air-heating compartments *a a*, which are combined with series of inclined air induction-pipes *b b*, and communicate with the hot-air reservoir *e* which surrounds said compartments by means of the eduction apertures *i i*, substantially in the manner and for the purpose set forth.

No. 12,533.—James H. Sutton.—*Improvement in Air-Heating Furnace.*—Patented March 13, 1855. (Plates, p. 105.)

This furnace has two separate and distinct fire-chambers, A B. The air in the hot-air chamber D has free access to all sides of both furnaces, and likewise to all sides of the ascending smoke-pipe C and the descending smoke-pipes *g g*, thereby forming a great amount of heating surface. Either of the furnaces can be used without the other,

and a single furnace will heat the air sufficiently in the air-chamber, while the other furnace may be cleaned out and replenished with fresh coal.

Claim.—The arrangement of the furnaces A B, the descending smoke-pipes *g g*, and the central smoke-pipe C, with each other and with the single air-heating chamber D, substantially in the manner and for the purpose set forth.

No. 12,546.—Howard Delano.—*Improvement in Feeding Fuel to Furnaces.*—Patented March 21, 1855. (Plates, p. 105.)

The operation of feeding in the coal is as follows: The feed-box D (sliding in ways C) is run out to the opening A^1 in the top plate A, and the coal thrown into said box, the bottom *b i* being down, and resting on *e*. The handle K is now turned, which moves the crank I around its fulcrum J. Crank I, which passes through slot L in piece G, (projecting from the feed-box D,) acts on arm M, and raises arm F, which has its fulcrum in the pin *d*, projecting from piece G, thereby raising the bottom *b i* of the feed-box, and forcing the coal up and into the fire-box B. At the same time the action of crank I on slot L has drawn back the feed-box D, underneath the fire-box B. (See fig. 1.) Just before crank I slips past M, the pin *h* (on arm F) has entered slot *g*, in trigger H, which is pivoted in *f* to piece G. Thus lever F, and with it feed-box bottom *b i*, are continued to be held up, after I has passed M. By continuing to turn the handle K, the crank I enters the upper portion of slot L, and runs the feed-box out in its ways C, as above mentioned. In its descent it forces H away from *b*, thereby dropping the bottom *b i*.

Fig. 2 exhibits only one-half of a bottom view of the furnace, the other half being exactly alike.

Claim.—The combined use of the feed-box and grate-bars, or cut-off, for feeding fuel into the under part of the burning mass in the fire-box, or their mechanical equivalents, as described.

Also, the combination of the crank-shaft I, slotted piece G, lever F, and trigger H, or their mechanical equivalents, for sliding the feed-box and grate or cut-off, and for raising and lowering the bottom of the feed-box, substantially as described.

No. 12,602.—John McNeil.—*Improvement in Charcoal Furnaces.*—Patented March 27, 1855. (Plates, page 105.)

The inventor says: I do not claim a hollow or tubular iron beam, merely as such, as I am aware that hollow beams have been and are commonly used in various structures;

But I *claim* supporting the retort tubes B B by a hollow or tubular beam or beams, with open ends, applied substantially as described, so that one end of each is in communication with the cold or atmospheric air outside the furnace, and the other with the chimney or escape-flue, whereby a current of cold air is caused to be induced through the beam by the draught of the chimney or flue, for the purpose of keeping it

comparatively cool, preventing its burning, and rendering it a firm and durable support to the retort tubes.

And I also claim constructing the furnace with one or more arched walls H, extending across it, substantially as described, to support the joints in the beams G G, when the said beams are made in two or more lengths, and also to support the side-walls and roof.

No. 12,678.—Moses Thompson.—*Improvement in Furnaces for Burning Wet Fuel.*—Patented April 10, 1855. (Plates, p. 105.)

This improvement is for the process of heating the fuel to an intense degree in a nearly air-tight chamber, and then admitting a free supply of air to promote its rapid combustion, to be conducted without interruption to the operations which the heat generated is to effect.

Fires being lighted in all the fire-chambers A A^1 A^2, two of the three have the doors H of their ash-pits closed and the dampers K nearly closed, so as to allow a sufficient escape of the combustion gases to prevent explosion. The other fire-chamber, in the mean time, has the damper K open and the door C sufficiently open to admit a quantity of air corresponding to the degree of heat required. When the fuel in the open chamber is sufficiently reduced, that chamber is closed and another opened until the fuel within is reduced, when it is closed, re-charged, and another opened, and so on.

The inventor says: I do not claim the within described arrangement of a series of fire-chambers to communicate with one common fire, irrespective of the purpose for which, and the manner in which, I employ the said arrangement; but what I do *claim* is the combustion, for the purposes of a high degree of heat, of bagasse, refuse tan, saw-dust, and other refuse substances, or very wet and green wood, by the employment of a series of fire-chambers, arranged in any manner, substantially as described, to communicate with one flue, when any number of the said chambers are nearly closed to the flue and to the admission of air when first charged, as described, while the remaining chamber or chambers is in free communication with the flue and has a free supply of air admitted, and each chamber in its turn is nearly closed and then opened, and has air admitted, whereby the heat required is furnished by the combustion of the fuel in one or more chambers, while the fuel in the other chamber or chambers is being heated and decomposed to a desirable degree, as herein set forth, no artificial blast being used.

No. 12,749.—O. W. Bailey, assignor to Manchester Locomotive Works.—*Improved Furnace for Locomotives.*—Patented April 17, 1855. (Plates, p. 105.)

The whole furnace is surrounded by water-space E. The fires being started, the fuel in one of the compartments F is allowed to become incandescent; the damper M is then opened and M^1 is closed (by means of rods *b*); fresh fuel is then thrown upon the fire in compartment F^1,

the unconsumed gases and smoke from which pass through opening H over the whole length of the incandescent fire in compartment F, through the opening L into the combustion chamber K; these gases thus become highly heated, and immediately mixed with those rising from the incandescent fire, and on reaching the combustion chamber they are supplied with air through opening N to thoroughly consume them. This takes place immediately in front of tube-plate P. When compartment F¹ has ceased to throw off smoke, damper M¹ is opened and M closed, and fresh fuel thrown into F, the smoke from which passes through opening H over the fire in F¹, and through the opening L¹ into the combustion chamber, as before; and so the operation is repeated alternately in one of the two compartments.

Claim.—The within described arrangement of the compartments F F¹, communicating with each other by the opening H, and with the combustion chamber K by the openings L L, whereby the unconsumed gases from the freshly-fed fire are heated by passing over the whole length of the incandescent fire, and consumed in the chamber K, in the manner substantially as herein set forth.

No. 12,800.—WILLIAM R. THOMSON.—*Improvement in Furnaces for Heating Wrought-Iron Wheels for Forging.*—Patented May 1, 1855. (Plates, p. 105.)

The valves J J¹ are for the purpose of cutting off the blast, and blowing either of the furnaces separately. The degree of heat or draught to the furnaces may be controlled by dampers F F¹, in combination with said valves; and at the same time the fire from either of the furnaces D or D¹ may be alternately directed to the upper and lower sides of the hub, until it has acquired the necessary degree of heat. For instance, closing damper F¹ and opening F, and shutting off the blast from D and opening J¹, the fire from furnace D is stopped, and the fire from furnace D¹ passes to the top of the hub, and surrounds it on all sides as it descends to furnace D, and passes out through flue G to the chimney.

This arrangement obviates the difficulties attending the heating and hammering together one side of the hub at a time, as in this furnace both sides of the hub are heated entirely through before it is swedged together.

Claim.—The arrangement of the furnace A, with double fire-places or chambers D D¹ furnished with flues G G¹ and dampers F F¹, in combination with the wind-pipe I and valves J J¹, for the purpose of alternately heating both sides of the hubs of wrought-iron wheels, or other articles, between the nozzles R R, in the manner herein specified.

No. 12,807.—ELIZABETH A. STILLMAN, administratrix of ALFRED STILLMAN, deceased.—*Improved Furnace for Burning Bagasse.*—Patented May 1, 1855. (Plates, p. 106.)

A proper fire having been built upon the hearth *b*, the cane mill A is set in motion, and the cane fed to it as usual. According to the construction of the mill A, the cane receives impressions from a second pair of rollers, in order to express all the juice possible. From these last the bagasse is delivered upon the endless carrier *a*, and conveyed along to the top of the furnace B, where it is received by the feed apparatus and discharged into the furnace. The blast is so regulated as to maintain such intensity of combustion as will effect the consumption of the bagasse as fast as delivered from the mill. The flame and hot gases are discharged by the aperture *f*, and pass along the flue under the boilers C.

Claim.—The herein-described furnace for employing bagasse, without previous drying, as fuel for generating steam.

No. 12,875.—S. J. RUSSELL.—*Hot-air Furnace.*—Patented May 15, 1855. (Plates, p. 106.)

This improvement aims at obtaining a large heating surface by causing the smoke and heat from the fire-chamber B to pass up through trunks E, horizontal pipes I, and trunks F, into the smoke-pipe H. The plates K give a circuitous direction to the cold air around and between the pipes I, thereby subjecting it to a great area of heated surface.

Claim.—The employment of the vertical trunks E F, horizontal pipes I, and horizontal plates K K, connected with the fire-chamber B, and enclosed by a casing A, when arranged substantially as herein shown, and for the purpose as set forth.

No. 12,883.—ROBERT WICKS.—*Improved Furnace Grate-Bar.*—Patented May 15, 1855. (Plates, p. 106.)

No description required.

Claim.—The construction of the grate-bars of furnaces with dovetails or other analogous interlockments, so as to connect the bars together, and keep them from twisting out of place, or sliding from the bearing bars, while affording the greatest facility in removing defective and inserting new bars. (See figure.)

No. 12,901.—MICHAEL B. DYOTT.—*Improved Warm-air Furnace.*—Patented May 22, 1855. (Plates, p. 106.)

The fuel-chamber E consists of a series of rings E¹ with radial arms E² cast on their outer periphery, in such a manner as to enable the heat of the rings to be drawn off by said arms, and the rings to be removed and replaced if required. A space is formed between and entirely around the fire-chambers, to admit a sufficient draught of air to intermingle with the inflammable particles of the gases in the space L above the fire, and enable them to be precipated and consumed. Thus the said upper space L is to be prevented from being obstructed with fuel or ashes.

Claim.—The arrangement of devices herein described, to wit: The movable fire-pot E, the air-flue J¹, and chamber or fire-space L, constructed and operating in the manner and for the purpose substantially as above set forth.

No. 12,967.—Jacob C. Schlough.—*Improvement in Grate-Bars for Furnaces.*—Patented May 29, 1855. (Plates, p. 106.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim any particular number of mortises and tenons on each bar, as such must be decided by the length of said bars; but I *claim* the mode of constructing grate-bars for furnaces, with any convenient number of square or oblong tenons on one side, and a corresponding number of similarly shaped mortises on the opposite side, substantially in the manner described, and for the purpose specified.

No. 13,015.—Geo. S. G. Spence.—*Improved Furnace for Warming Buildings.*—Patented June 5, 1855. (Plates, p. 106.)

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I do not claim combining the dome of the smoke-chamber of an air-heating furnace with one or more pipes so leading from the said dome, or from the said smoke-chamber, that the smoke and gases in passing against such dome shall be deflected in streams divergent from, or with respect to, the fireplace.

Nor do I claim arranging an exit-tube within the middle of a reverberatory chamber, and surrounding such tube by another tube or chamber, which will prevent the volatile products of combustion, when descending towards the fuel, from coming into contact with the flame thereof before they pass into the receiving end of the tube.

But I *claim* so arranging and combining the exit-tube G, within the reverberating dome and smoke-chamber, and with respect to the fireplace thereof, as specified, that the smoke and gas reverberated from the dome may not only pass towards the exit-tube in convergent streams, but be deflected towards and against the fuel or flame thereof before they may escape into the lower end or mouth of the tube; my improvement being productive of a more perfect combustion of the said volatile products than takes place when the exit tube is surrounded by another tube or case, which separates the descending gaseous currents from the fire before they escape into such tube.

And I claim so combining the valve H and the discharge-tube G, that the tube may be movable with the valve, and pass through the valve-opening as described; the valve thus serving to support the tube, and rendering unnecessary any arms or such like devices, which would tend to collect soot and otherwise obstruct the draught through the valve-opening.

No. 13,031.—Calvin Fletcher.—*Improvement in Supplying Furnaces with Hot Air.*—Patented June 12, 1855. (Plates, p. 106.)

The object of this apparatus is to heat the air preparatory to supplying it to furnaces, &c. The escape-steam from the engine enters at the top of this apparatus through pipes *f*, fills the upper annular chamber *d*, and descends into the several tubes *e*, connecting with the lower annular chamber d^1, and thence whatever steam remains passes through pipe *g*, which latter also carries off the water of condensation. The rotary fan *a* draws in the external air through the openings around the axis of the fan at top and bottom, and drives the air through the spaces between the tubes, whereby the air is heated. The heated air passes through pipes *i i o* to the furnace.

The inventor says: I am aware that the heating of air by contact with steam-tubes has been done before.

But I *claim* the arrangement described of the fan *a*, steam-tubes *e e*, together with the inlet passages for steam and cold air, and the discharge of hot air and water of condensation, in the manner, or its equivalent, and for the purposes set forth.

No. 13,092.—Jno. L. Kite.—*Improvement in Hot-air Furnace.*—Patented June 19, 1855. (Plates, p. 106.)

The products of combustion rising from the fire impinge against the inside of the casting D, and, being thence reverberated, pass through the grated passages *e* in the flange *f* into the spiral passages formed by the vanes *d* on casting D; from whence they issue to meet with a second and similar casting, and so on, (if there are more than two,) and are finally discharged into the chimney through pipe G. The cold air passing through opening L into the spiral passages formed by the vanes of castings B and the exterior casing A, and ascending in a zigzag direction, has a corresponding amount of heat imparted to it.

The inventor says: I am well aware that spiral flues and air passages have been commonly used in connexion with hot-air furnaces, which, however, have generally been made hitherto in the shape of pipes, or by means of loose scraps introduced into the flues and passages. Therefore, I do not claim exclusively the use of spiral passages for hot-air furnaces.

But I *claim* the combination of castings B and D with their vanes and with the outside casing A, constructed and operating in the manner shown, for obtaining a great amount of heating surface at the expense of a small quantity of fuel.

No. 13,332.—Samuel T. Jones.—*Improvement in Furnaces for Treating Zinc-Ores.*—Patented July 24, 1855.

The ore properly mixed with carbonaceous matter is placed on the hearths *d d* in furnace *a*. When the furnace is started, the aperture *e* is to be opened and damper *g* closed, so that the products of combustion shall escape into the chimney. So soon as the ore begins to give out the vapors of zinc, the aperture *e* is to be closed and *g* opened, when the vapors will pass into and through the series of separating chambers, (from whence the solid impurities can be drawn out through holes *o*,) through the exhausting fan *p* and into the collecting-chamber *q*.

Claim.—The double use of the chimney, substantially as specified, by combining the said chimney, governed by a damper or register, with the furnace and collecting-apparatus, and interposed between the two, substantially as specified, whereby the iron contained in the ore can be worked after the zinc has been worked and collected, as set forth.

No. 13,374.—Samuel N. Briggs.—*Improvement in Hot-air Furnaces.*—Patented July 31, 1855. (Plates, p. 107.)

Passage R is provided with a hinged damper S, from which a crank T projects downwards, and is jointed to a sliding-rod U, which extends horizontally through the door-frame V, and so as to rest against door N when it is closed; the damper, under such circumstances, being elevated, as represented in the figure. When the door is opened, the damper, by its own weight, will fall down and close the passage R. The act of closing the door will press U inward, and elevate the damper. A is the fire-place, and H the grate.

Claim —The passage R, leading from the chamber M to the hot-air chamber E, in combination with the damper S, crank T, and rod U, operated in manner as described, and for the purpose as specified.

No. 13,432.—Joseph Leeds.—*Furnaces for Heating Buildings.*—Patented August 14, 1855. (Plates, p. 107.)

The nature of this invention will be understood from the claim and engravings. Fig. 1 is a vertical section of the furnace, the upper part of it being left away, as it has no reference to the claim. Fig. 2 is part of a cross section.

Claim.—Combining with the cylinder or fire-pot of an air-heating furnace a reservoir or fountain of water M, which furnishes a wet surface, against which the incoming air strikes for moistening it and depositing its dust, and a series of curved, zig-zag, fluted, or corrugated plates L, in the manner described, for enlarging the heating surface of the furnace, and forming air-ducts for the heated air to pass through, substantially as described.

No. 13,439.—Samuel B. Sexton.—*Improvement in Furnaces for Heating Buildings.*—Patented August 14, 1855. (Plates, p. 107.)

The fire-chamber is covered with a pair of concavo-convex plates D D¹, with their convex surfaces outward, and slightly separated along their edges, the space between the plates communicating by pipe H with the external air, so that the current will pass through this space, and issue from the opening between the edges of the plates. The object of this is to utilize the heat of the upper portion of the fire-chamber, and at the same time admit of the furnace being constructed with a diminished height, by the cooling of the covering of the fire-chamber, produced by the current of air through the covering-plates, thus adapting the furnace to low cellars. &c.

Claim.—The convertible covers D D¹ of the fire-chamber, in combination with the pipe H, constructed, arranged, and operating substantially as and for the purposes specified.

No. 13,526.—Thomas Maskell.—*Improvement in Consuming Escape Steam, as an adjunct in Heating Furnaces.*—Patented Septemb r 4, 1855. (Plates, p. 107.)

To the usual escape-valve A of an engine is attached an iron pipe B of sufficient capacity to allow of the expansion of the escape-steam

at least twenty times its volume, to prevent explosion. The pipe extends through the furnace, and terminates in perforated bulb C. The pipe becoming red-hot, a vacuum is formed therein; steam being permitted to pass into the pipe, the high heat and affinity for iron arrests the oxygen of the steam, while the hydrogen passes through the bulb, and adds to the intensity of the fire in the furnace.

Claim.—The use of escape-steam decomposed at a high heat by means of a pipe B and bulb C, or their equivalents, so placed above the bed of coal as to admit of its combining readily with the gases eliminated t'erefrom, as an economical adjunct in heating boilers, as set forth.

No. 13,525.—Lewis M. Leeds.—*Improved Apparatus to prevent an Over-supply of Coal to the Fire-Box of Hot-air Furnaces.*—Patented September 4, 1855. (Plates, p. 107.)

When an undue quantity of coal is thrown on the fire F, the excess of coal will fall over the side-walls G and through space S, on to valves H, which latter will be opened by the weight of the fuel until it has dropped on to the lower grating S¹. When the excess of fuel has thus passed through, the valves (being properly balanced) will close again, so as to prevent an undue draught.

Claim.—The arrangement in the fire-chamber of the balance-valves H H, for the purpose of preventing an undue quantity of coal from remaining in the fire-box.

No. 13,873.—Samuel H. Gilman.—*Improvement in Bagasse Furnaces.*—Patented December 4, 1855. (Plates, p. 107.)

The object of this improvement is, first, to prevent fire and smoke issuing from the furnace (under the force of the blast at the lower part of the furnace) where the bagasse is fed in, and where the fuel is put in at the ordinary furnace door; and, secondly, to place the ash-pit so that the contents of the furnace can readily be tumbled and thrust into it without loss of time or heat. This thrusting process is effected through the doors E. The pit D, thus arranged as a secondary furnace between furnace A and boilers C, performs the function of receiving and retaining, in a combustible condition, the unconsumed bagasse, which, when consumed, can be withdrawn through the doors of pit D. The blast enters from blast-pipe G, through pipes y, J J, and perforations P¹, so that an inward blast can be at all times kept up. Another inward blast is created through blast-pipe L and perforations *p*. These inward blasts force the smoke, fire, and sparks towards the passage-way B, and materially aid operations.

Claim.—The pit D, located between the furnace and the boilers, in a passage-way B, as described, and for the purpose specified.

Also the perforated blast-pipes G and L of the feed, opening as arranged and described, and for the purpose specified.

No. 13,887.—Charles Schinz.—*Self-regulating Hot-blasts for Furnaces.*—Patented December 4, 1855. (Plates, p. 108.)

The metal bar *i i* is placed in the pipe *h*, conducting the hot air, so that this bar will be contracted and expanded according to the variations in the temperature of the hot air, and thereby will be caused to move the sector *t* about its fulcrum, to which sector it is connected. The cogs upon the sector will actuate the gear-wheel *u* and the eccentrics *v* upon the axis of said gear-wheel, so as to elevate or depress the valve-rods *x*, and thereby actuate the valves *z z* in pipe *d*, which introduces the cold air.

Claim.—The use of the pipe *h h* and the bar *i i*, when arranged as set forth, and operating conjointly, by means of suitable gearing, upon the eccentrics *v v*, for opening and closing the valves *z z*, substantially as described, so as to divide a given volume of air of varying temperature and pressure into proportionate parts, and for the purpose set forth.

No. 12,267.—William F. Shaw.—*Improved Gas-Heater.*—Patented January 23, 1855. (Plates, page 108.)

The inventor says: I am aware that argand burners and some fire places have their flame or fuel chambers supplied with an internal and external current of air.

I therefore do not claim the mere application of a means of applying air externally to a flame or mass of fuel in a chamber, although in my apparatus I accomplish this; but, while I obtain such an advantage from an external current of air, when let into the chamber C, I secure a further effect, viz: that of supplying air to the surplus chamber or reverberatory dome F. It will be seen that the chamber C has an important relation to the surplus chamber in the gas-burning apparatus.

I therefore *claim* the arrangement and combination of the air-pipe A the perforated distributor B, the air-chamber C, the flue-pipe E, and its surrounding chamber of combustion or reverberatory dome F, provided with an outlet-pipe at or near its lower end, the said reverberatory dome or chamber being made to operate in connexion with both the internal and external air-ducts, and for burning the surplus or volatile products, as specified. (See engraving.)

No. 12,515.—Andrew Mayer.—*Improved Valves for Gas-Burners.*—Patented March 13, 1855. (Plates, p. 108.)

Instead of inserting the cups and valves in the burner itself, in the usual way, and which is attended with various difficulties, the inventor places them in a short tube *c*. Owing to the facility of inserting them in a *short* tube, only a very small quantity of white lead is necessary to make the joint around them. The tube *c* is not placed in the burner itself, but in a small chamber A, which is placed below the burner B.

Claim.—Fitting the valve-cups *b b* to a tube C, which forms a valve-box, in which all the cups and valves can be properly fitted without difficulty, and inserted conveniently in their place in the burner, or into any chamber prepared to receive them, as fully described.

No. 12,717.—Solomon B. Ellithorp.—*Improvement in Putting a Gas-Generator in a Parlor Stove.*—Patented April 17, 1855. (Plates, p. 108.)

The space *b* of the stove, surrounding the retort A, is filled with coal, and also the retort. The coals in space *b* having been kindled, the stove is heated and the room warmed. At the same time the retort, and the coal within the same, is heated, and the gas passes through pipe *a* to the condenser, and from it, by means of flexible pipes, to the clarifier, and therefrom to the gasometer, and can be used to illuminate the room. The gas having been extracted from the coal in the retort, the bottom of the retort is opened and the coke taken out, which then can be put into the stove and burned for the purpose of producing heat.

The inventor says: I do not claim the stove, condenser, clarifier, or gasometer, these being all well-known old devices; but I do *claim* the combination of the coal-stove and retort, as already fully described, thus combined, making a portable coal-gas generator, for the purposes set forth in this specification.

No. 13,130.—Charles H. Johnson.—*Improvement in Gas-Burners.*—Patented June 26, 1855. (Plates, p. 108.)

This gas-burner is constructed with a cylindrical chamber A, into which the gas is received through a small gauge-hole or orifice *a*, formed through the bottom, *b*, of said chamber. Within this chamber there is arranged a hollow cone distributor B, which is open at its lower end, and contains a series of wires, as seen at C, they being arranged somewhat like the bristles of a brush, and made to extend downwards from the vertex of the cone and to constitute a purifier or a means of dividing or purifying the gas, or separating from it much foreign matter, which, if consumed with the gas, would be detrimental to its light-giving property. The upper part of the distributor B is fastened to a diaphragm or plate D, which is perforated so as to permit gas to freely pass through it, and into a tapering or bell-mouth chamber E, arranged over the chamber and between it and the discharging mouth or mouths *c c* of the burner. This diaphragm is forced up against the top of the chamber A by means of a spring F, which is arranged within the distributor and presses against the bottom of the chamber A. The base of the distributor T is provided with a flanch, as seen at *d d*, whose external edge is serrated or notched, as seen at *e e*; the object of the flanch being to centralize the distributor within the chamber, such distributor, when in use, being somewhat elevated above the bottom of said chamber. In the operation of a burner so constructed, the gas on entering it passes and flows among the wires of the purifier, and by means of the distributing cone is reverberated

and drawn outward, and made to pass underneath the flanch *d* and upward into the chamber A, from whence it flows through the plates or diaphragm D, and into the tapering or gathering chamber E, placed over the same. By means of this last-named chamber, the streams of gas are caused to gradually approach one another and flow freely towards the discharging orifices, without such injurious impingement against one another as will produce a flickering of the flame; by means of the tapering chamber, great steadiness of the flame is obtained.

Claim.—Combining the gas distributor and purifier B, as described, with the burner, so as to operate therewith, substantially as set forth.

No. 13,134.—Wm. Wiler and Lucien Moss.—*Improved Gas-Lighter.*—Patented June 26, 1855. (Plates, p. 108.)

This instrument serves for turning on gas, lighting gas, and carrying matches.

A catch B, which runs in a slot in rod E, carries (inside of said slot) a taper *t* for lighting. F is the turner or wrench, and the handle or holder G encloses the matches.

The inventors say: We are aware that the taper, tube, and turner have heretofore been separately used, and therefore we do not claim them.

We *claim* the arrangement, as described, of sliding-spring, catch, taper, and wrench, with the holder, for the purpose set forth.

No. 13,283.—Edwin D. Willard.—*Improvement in Gas-Burning Gridirons.*—Patented July 17, 1855. (Plates, p. 108.)

The nature of this improvement consists in having two lines of escape-holes for the gas, at a distance from the centre upper-line of each bar *d* of one-eighth the circumference of the bar, instead of one row of holes on the centre upper-line; this covered with a corrugated plate moving upon ways, and operated by rack and pinion so as to make the flame act upon each part of the corrugated plate.

The inventor says: I do not claim the perforated tubes nor the corrugated plate.

But I *claim* the gas-burning tubes in combination with a corrugated plate, acted upon by rack and pinion, and moving upon slides, the whole being combined substantially as set forth.

No. 13,739.—John R. Hunter, assignor to Samuel R. Blair.—*Improvement in Gas-Brackets.*—Patented October 30, 1855. (Plates, p. 109.)

The two positions of this bracket, as represented in the engravings, will sufficiently explain the nature of this improvement.

Claim.—The use of the parallel arms or tubes in combination with the revolving joints, in the manner substantially above described, so as to make the bracket or fixture self-sustaining, in any position or elevation, and at the same time maintain the burner in its level position, so as not to disturb a glass or shade.

No. 13,789.—Charles H. Johnson.—*Improvement in Argand Gas-Burners.*—Patented November 13, 1855. (Plates, p. 109.)

The lip or flange *b* forms a spout *c* extending around between it and the inner surface of the distributor H, for the purpose of catching and retaining the coal tar or liquid deposit which, when the distributor is in use, collects on the inner surface.

In a common argand gas-burner, the impingement against one another of the currents of air which flow into its inner chamber produces an unsteadiness of the flame. In this gas-burner, however, the currents of air entering at D, when the burner is inflamed, are directed upward by impinging against the surface of the cone B, so as to prevent, in a great measure, the disturbance of the flame arising from the reason stated above. By means of the bulb-shaped rod E the current is prevented from attaining a whirling motion, and the flame is spread a little so as to increase its light-giving surface.

Claim.—Making the distributor with a catch lip, flanch, or spout extending around its bottom, in the manner and for the purpose described.

Also, combining with the argand burner a conical deflector, or the cone and its exterior rod and bulb, the same being arranged in the middle of the air-chamber of the burner, and for the purpose as set forth.

No. 13,904.—John S. Gallaher, Jr. and John W. Smith.—*Improvement in Gas-Apparatus.*—Patented December 11, 1855. (Plates, p. 109.)

The tank *b* is to be filled with the proper quantity of water, and the perforated strainer K to be arranged in place, and the receiver *m* to be adjusted within the tank; in order to cause the receiver to sink within the tank, the air is exhausted through escape-pipe *n*, the stop-cock *o* being open. When the receiver is sufficiently depressed, the stop-cock is to be closed, in order to prevent the escape of gas. The branch retort X being entirely empty, and being arranged within a common furnace or fire-place, is to be highly heated, and then the oily or fatty matter is to be fed into the mouth *z* of the feed-pipe. The pipe being provided with a cock z^* and coil *z x*, enables the liquid matter to flow slowly and to drip in small drops into retort X, where gas is instantly evolved, and passes through the conduit-pipe into main retort C, containing quick-lime in a small quantity, which is also subjected to heat in order to diffuse it, so that the gaseous matter may mingle with the diffuse fumes of lime, and thus in part be divested of the fatty impurities, which are absorbed by the diffuse lime, and, ascending upwards through vertical pipe I, issue out of goose-neck J, the end of which passes

downward through the floating strainer, which, being above the surface of the water, affords a space between the water and its surface wherein the gas accumulates in volume, and thence presses upward through the the lime and fuller's earth mixture, (sprinkled upon the surface of the strainer,) and thus the gas is effectually purified.

The inventor says: Disclaiming all and every part of our apparatus, taken individually, we *claim*, solely, the arrangement of the said parts, and specifically of the retort X with Hooke's blow-pipe C, combined with the furnace *a a a a*, the water reservoir *b b b*, the strainer K K, and the receiver *m m*, in the manner as specified, and for the purpose of constituting a compact and portable gas generating and purifying apparatus.

No. 12,509.—J. W. Hoard.—*Improvement in Gas-Regulators.*—Patented March 14, 1855. (Plates, p 109.)

A, regulating-chamber placed between the inlet *a* and the outlet *b* of the supply-pipe; B, induction or regulating valve; C, inverted cup floating in a fluid D, and connected directly to the valve by a stem *d*, which latter is weighted to graduate the pressure in the pipe. The interior of C is exposed to the atmosphere, which has free access at *e*. A quantity of air confined in *f* acts as a spring, counterbalancing the pressure of the gas, and gives the requisite buoyancy to the cup.

The inventor says: I am aware that the inverted cup has been and is employed by Kidder and others; and therefore I disclaim it, irrespective of the peculiar arrangement and combination described.

I *claim* the arrangement of the inverted cup, so that only the upper side or exterior is exposed to the pressure of the gas, and the under side or interior is exposed to the atmosphere, when this is combined with the application to the said cup of the air-spring *f*, or its equivalent, substantially as and for the purpose set forth.

No. 12,692.—Saml. P. Parham.—*Improved Gas-Regulator.*—Patented April 1, 1855. (Plates, p. 109.)

The fluid is admitted through tube D into cistern A, wherefrom it enters discharge pipe C. Tube D is beveled on top so as to fit to the inside of the conical-valve E, and is provided with scores *a* to allow a sufficient supply of fluid to escape, when the pressure is so low as to let the valve settle on tube D. When the pressure becomes higher the valve is lifted up and finally pressed into the opening of the discharge-pipe, which is a little eliptical so as still to allow the necessary supply to escape when the valve is forced into said opening.

Claim.—The conical valve or its equivalent, operated by a jet of air, gas, or water, applied immediately under it, or against a cap or valve connected to it, in combination with an elliptical seat or its equivalent, so constructed as to let the requisite supply of air, gas, or water, escape when the valve is forced into the seat. The whole being so constructed and arranged as to regulate and equalize the flow of air, gas,

or water, and furnish a uniform or nearly uniform supply under different degrees of pressure, substantially as described.

No. 12,844.—G. B. Woodruff and J. N. Palmer.—*Improvement in Gas-Regulators.*—Patented May 8, 1855. (Plates, p. 109.)

The operation of this apparatus is apparent from the figure.

Claim.—1st. The employment of adjustable escape-tubes or passages *b b* at the upper part of the air-chamber C, in connexion with valves *d d*^{1} attached to a float I, which rises and falls with the water in the air-chamber, the said valves acting substantially as herein described to close the said tubes or passages to confine the air in the air-chamber when the water or other liquid reaches a certain level therein, and thus prevent the water being in the gas chamber B pressed down below the regulation float H.

2d. The employment of two induction-valves F G, arranged and connected by a spring *h*, in such a manner that, when the pressure of gas in the gas-chamber increases to such a degree that the action of the float would close both of the said valves, and entirely shut off the gas, the said spring will yield to the pressure of the gas upon the under-side or front of one of the valves, and allow that valve to remain open until the pressure in the gas-chamber is reduced, and the level of the liquid therein is restored sufficiently to open the other valve, substantially as herein set forth.

No. 12,943.—Samuel W. Brown.—*Improvement in Gas-Regulators.*—Patented May 29, 1855. (Plates, p. 109.)

The inventor says, in his specification: This gas-regulator is so constructed that the top will rise or swing upwards when the tip-valve is opened, by operating or moving the top of the regulator, and a quantity of gas is introduced through the induction-pipe E into the regulator, which raises this movable top, as well as supplies the burners which are attached to the eduction-pipe or tube, until the tip-valve is closed by the projections on the inside of the top part of the regulator; as the yielding-top descends by exhausting the gas by the burners, it again opens the tip valve and allows another quantity of gas to be introduced, and so on.

Claim.—The tip-valve K, in combination with the movable top or float F of the regulator, for operating the tip valve by means of the projections M M, or otherwise, essentially in the manner and for the purposes set forth.

Also, the use and application of oil and water, or other liquid on which oil will float, for the packing required in the gas-regulator, essentially in the manner and for the purposes fully set forth in the specification.

No. 13,020.—Hiram Wheelock.—*Improvement in Gas-Regulators.*—Patented June 5, 1855. (Plates, p. 109.)

The filter-regulator B is formed by two flat circular perforated heads 3, connected by a small rod 3 through their centres, adjustable by a thumb-screw *d*. The packing *p* consists of any elastic fibrous material.

Claim.—The use of textile or fibrous substances, for packing the chamber of a gas-regulator, constructed and arranged as set forth.

No. 13,210.—Samuel W. Brown.—*Improvement in Gas-Regulators.*—Patented July 10, 1855. (Plates, p. 109.)

The nature of this improvement will be understood from the claim and engraving.

I *claim* the described lever F and valve E, and the knife-edged guides or points of support P O and L L, for sustaining and guiding the lever F and valve E, and the floats H, which are so arranged and operating by the pressure of gas within the float H as to apply great force to open the regulating-valve, to overcome the sticking or adhesion of this valve to the top of the induction tube B, by the gas-tar, and then to continue to open or close it in proportion to the number of lights which are being regulated, and the pressure of the gas through the induction tube B, so as to regulate the burners nicely and evenly, essentially in the manner and for the purposes set forth.

No. 13,377.—Samuel W. Brown.—*Improvement in Gas-Regulators.*—Patented August 7, 1855. (Plates, p. 110.)

The pressure of the gas into the regulator, and the exhausting of the gas by the burners, cause the valve-seat of quicksilver to rise so as to bring it in contact with the end of the induction tube D, and close it; and so it remains in until the top C is depressed far enough to separate the quicksilver from the end of the tube D, thereby opening it, and allowing a fresh supply of gas to enter, and so on during its operation.

Claim.—Constructing and attaching a quicksilver cup F, or its mechanical equivalent, within the inside of the float, through which the gas passes on its way to the burners, in combination with the induction tube D, or its mechanical equivalent, for the purpose of constituting a self-acting valve or valve-seat, to evenly regulate the flow of the gas, essentially in the manner and for the purposes set forth.

No. 13,437.—Stephen P Ruggles.—*Improvement in Gas-Regulators.*—Patented August 14, 1855. (Plates, p. 110.)

In the chamber *b* is placed a floating valve *c*, made of a thin metallic disc, fitting loosely in the chamber; when the flow of gas is shut off, it drops on to its seat; when the head of gas is let on, it raises the valve slightly from its seat, and the gas flows underneath it to the inner perimeter of chamber *b*, and thence to the burner. The floating of the valve over the current of gas is intended to regulate the quantity of gas escaping to the burner.

The inventor says: I am aware that a disc valve, without an opening in itself, but in connexion with side openings both above and below it, has been used, and that a valve with an opening has been used; but in neither case is the valve the regulator of the entire flow. These I do not claim.

But I *claim*, in combination with a gas-burner, a floating valve, which stands across and controls the flow of gas through the gas-way, substantially in the manner and for the purpose set forth.

No. 13,700.—Julius C. Dickey.—*Improvement in Gas-Regulators.*—Patented October 23, 1855. (Plates, p. 110.)

This gas-regulator is open at one end, to receive the screw of the gas-pipe, and has the other end perforated with holes, to admit the gas, and made so that the gas-pipe may be screwed on to the end of the same. To the perforated end, at the inner side of the tube, is applied a valve, with a valve-rod, to which valve-rod is secured, on the outside of the tube, a spiral spring, by means of a nut on the end of the rod, the spring and nut serving to keep the valve in its proper position.

Claim.—The valve-chamber B, cast in one piece, with the perforated plate I, in combination with the adjustment of the valve placed outside, as described, and for the purposes set forth.

No. 12,597.—Joseph S. Kirk and William H. Elliot.—*Improved Grate-Bar.*—Patented March 27, 1855. (Plates, p. 110.)

D, suspension-rod; B, detachable wearing parts, which, when worn away, can be replaced by new ones.

Claim.—The employment of a suspension-rod for the support of the grate-bar, arranged as described, or its equivalent. The constructing of the wearing and supporting parts, as described, separately, so that said wearing parts may readily be removed and replaced, for the purposes set forth.

No. 13,669.—Samuel Vansyckel.—*Improvement in Interlocking Grate-Bars.*—Patented October 9, 1855. (Plates, p. 110.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—So casting grate-bars, with projections and recesses on their sides and ends, as that, when laid together, they shall interlock, one over, under, or behind the other, in such manner as to prevent them moving vertically or horizontally, or from warping, whilst they may be readily removed or replaced, as set forth.

No. 14,007.—Charles Evans, assignor to Himself and George K. Goodwin.—*Improvement in Revolving Grates*—Patented December 25, 1855. (Plates, p. 110.)

In the accompanying drawings A is the fire-pot, which is made cylindrical, and caused to revolve within circular depressions in the side of the stove. C C¹ are the fire-grates, which are hinged at *a* to the circular heads of the fire-pot; the grates are kept closed upon the fire-pot by the circular recesses in which the latter revolves. From the top of these recesses the sides of the stove are cut away to enable the grate to be swung up from the fire-pot, as seen in fig. 2. This is accomplished by means of the bent lever D, having a handle projecting outside of the stove, which enters beneath the pin *b* upon one end of the grate; by turning this lever, the grate is thrown into the position seen at C¹, fig. 2, in which position it may form the front grate of the stove.

I *claim* the method described of hanging the cylinder within the recesses in the sides of the stove, and of raising the grate to its upright position, as set forth.

No. 12,239.—Michael B. Dyott.—*Improvement in Lamp-Shades.*—Patented January 16, 1855. (Plates, p. 110.)

The arrangement of the metallic shield B, in combination with the free space between the shield and the shade, (which rests on the wires C,) protects the shade from being scorched or burned.

Claim.—The arrangement of the shade A, shield B, and wires or their equivalent C, with the intervening space, substantially as described, for the protection of the shade, as specified.

No. 12,394.—Josiah H. Noyes.—*Improvement in Lamp-Extinguishers.*—Patented February 13, 1855. (Plates, p. 110.)

Claim.—Attaching the caps or extinguishers to the wick-tubes of a lamp by means of rods secured to the said wick-tubes, and in such a manner that the caps may be freely moved up and down the said rods, and applied to or removed from the top of the wick-tubes, as set forth. (See engraving.)

No. 12,520.—Frederick C. Rider.—*Improvement in Lamps*—Patented March 14, 1855. (Plates, p. 110.)

This improvement consists in having a short tube H on the inside of the wick-tube G; so that by adjusting the height of the tube by the screw J, the volume of the flame may be increased or diminished. *b* is the wick.

Claim—The use of the regulator-tube H, arranged and operated as set forth, in combination with the wick and wick-holder, as applied to the inner surface of the wick, to regulate and control the flame of the wick, substantially as set forth.

No. 12,550.—Elbridge Harris.—*Improvement in Lamps.*—Patented March 21, 1855. (Plates, p. 110.)

B is the metallic reservoir within the glass lamp A; F is the protector. The reservoir B is surrounded by ornamented paper, which shows through the glass surrounding the paper.

Claim.—Using within glass lamps of any form reservoirs of metal, which are provided with the usual tubes for burning common oils, or adapted by means of protectors to burn any fluid combustible.

Also, the mode of ornamenting such reservoirs, contained within glass, by means of paper with metal or ornamental surfaces.

No. 12,646.—Chas. Wilhelm and Anna Catherine Wilhelm.—*Improved Protector for Lamp-Shades.*—Patented April 3, 1855. (Plates, p. 110.)

g are the sections of mica, (or a whole piece of mica,) secured between the rings *f*.

The inventors say: We are aware that a patent has been granted to M. B. Dyott for a lamp-shade frame made of metal, in which he claims the arrangement of the shade, shield, and wires, or their equivalents, with the intervening space, substantially as described, for the protection of the shade This we do not claim.

We *claim* the introduction of mica as a transparent non-conducting material between the shade and the frame, for the purpose of preventing the shade from taking fire or being otherwise injured, whilst the light is free to be reflected, as though there were nothing interposed between them, substantially as described.

No. 12,814.—Dexter H. Chamberlain.—*Improvement in Lamps for Burning Fluid*—Patented May 8, 1855. (Plates, p. 110.)

The body of the lamp is filled with granulated pumice-stone, which absorbs the fluid within its pores, and also discharges it freely as it is required to feed the flame. By this means the danger of explosion is to be prevented.

Claim.—The employment of granulated pumice-stone as a packing for spirit-lamps and other vessels containing any inflammable hydro-carbon, in the manner and for the purpose substantially as herein set forth.

No. 13,170.—James D. Hays.—*Improvement in Lard Lamps.*—Patented July 3, 1855. (Plates, p. 110.)

Claim.—The combination of the cylindrical chamber B, piston E, and the valve D at the lower end of the wick-tube C, whereby the lard is retained in the wick-tube, when the piston is moved back to refill the chamber B.

No. 13,259.—Francis Blake.—*Improved Rosin-Oil Lamp.*—Patented July 17, 1855. (Plates, p. 111.)

The air enters at *a* (see arrows), and passes through F into G, and through H and through K to the flame. By turning the sleeve T the pin *g* (which passes through the inclined slots *f* and through vertical slots in the sleeve) will elevate or depress the rod M and the buttons L and I, thereby lessening or increasing the draught.

The bowl-shaped regulator N works up and down, to and from the body of the lamp, upon screw *o*; between this regulator and the lamp is enclosed an air-chamber P, which communicates with the external air by opening *b*, and with the passage Q by opening *c*. By raising or lowering N, the openings *b* and *c* will be diminished or increased, for the purpose of regulating the amount of air supplied to the outside of the wick.

Claim.—1st. The air-chamber G, within the lamp, in connection with the circuitous passage F, for the purpose set forth.

2d. The button I in combination with the button L and opening H, whereby the quantity of air that is admitted to the interior of the flame is adjusted to the height of the button above the wick, as described.

3d. The draught regulator N, constructed in the manner substantially as set forth.

No. 13,537.—Salmon Bidwell.—*Improved Locomotive-Lamp Case.*—Patented September 4, 1855. (Plates, p. 111.)

This invention consists in arranging that portion of the chimney above the burner of a lamp (for locomotive engines), so as that the external orifice of the chimney may be back of the lamp-case on either side of a line drawn from the burner of the lamp directly backward therefrom, for the purpose of bringing the external orifice of the chimney into one or both of the currents of air formed on either side of the smoke-stack and lamp-case, so as to prevent the eddy formed immediately in front of the smoke-stack from extinguishing the lamp by checking the draught. G represents the glass or front of the lamp-case. H H are the orifices for the escape of the smoke into the open air.

I *claim* the placing of the chimney horizontally, and in such a position as to discharge the smoke near the top and behind the lamp, as described.

No. 13,674.—John G. Webb.—*Improvement in Argand Lamps.*—Patented October 9, 1855. (Plates, p. 111.)

This invention consists in applying a button a little above the air-tube *b*, in combination with the ordinary button and with the external draught, so that the opening between the air-tube and the said button is as near or may be of the same width as the external draught between the button and the wick; by which means the air is compressed or thrown on to the base of the flame at opposite and equal angles, and with uniform force on each side of the flame, rendering the combustion more uniform.

Claim.—The arrangement of the button 5 and deflector or button *g*, as described and shown, when used in combination with the draught spaces *i* and *i*^{1}, on each side of the burner or flame, having the relative proportions set forth, and for the purposes as specified.

No. 13,675.—J. S. Brown, assignor to Jos. Kent.—*Improvement in Lard Lamps.*—Patented October 9, 1855. (Plates, p. 111.)

When the lamp is to be filled, the inverted cup is drawn straight out and the piston D screwed down to the bottom of the bowl A. A notch in the top of screw *m* will enable this to be done with a screw-driver. The lard is put either in the bowl A or cup C, which is then replaced. If the piston should fail to hold the lard in the cup C, it will only run down into bowl A, and there be held, by which means is insured perfect cleanliness. The top of the cup C is double, with a space H between the two covers, and a tube *d* through for the passage of the lard to the wick *g*. To prevent the cup C itself being lifted as the screw is turned, instead of the piston therein, a bead *a* is formed in the upper part of bowl A, into which arms *c* extend, jointed to cup C. By turning the cup sufficiently to withdraw the arms from their radial position and out of the bead, the cup is left free to be lifted off. The lower edge *h* of the cup is sharp, so that it will fit pretty closely, but not tightly, in bowl A.

Claim.—The combination and arrangement of the open bowl A with its hollow support B; the inverted cup C, with its air-space H and enlarged mouth *h*, and the piston D, constructed and operating substantially in the manner and for the purposes set forth.

No. 13,723.—John Stuber and Thomas Hardin.—*Improvement in Lamps.*—Patented October 30, 1855. (Plates, p. 111.)

The perpendicular portion of feeding-pipe C contains a rod D extending nearly to the bottom thereof, and filed on one side bevelling, and leaving a cavity between the rod and the outside of the pipe, largest at the bottom and growing gradually smaller, until it reaches the horizontal portion of the feed-pipe, thereby regulating the quantity of oil fed to the lamp, which may be made greater or diminished, by moving the rod up or forcing it down.

The oil escaping over the top of the wick is received in the basin G, and conveyed back into the oil-chamber A through pipe H.

Claim.—The use of tube H, connecting the drip-cup G with the reservoir A, in the manner described for the purpose specified. Also, the arrangement of tubes C C in combination with the rod D, in the manner described, for the purpose specified.

No. 13,729.—E. N. Horsford and James R. Nichols.—*Improvement in Lamps for Burning Volatile Liquids.*—Patented October 30, 1855. (Plates, p. 111.)

The nature of this improvement will be understood from the claim and engravings.

The inventors say: We do not claim the use of perforated metal or of wire gauze, as a means of protection in these lamps.

But we *claim*: 1st. The combination of the safety-wick tube constructed as described, with the safety-tube or casing *g* around it.

2d. In combination with the safety-tube or casing, the perforated safety-chamber *f*, with its tube barbed at the top *i*, to contain and hold the wick in place.

3d. Making the wick-tube in two parts *k m*, or divisions, separable or not, substantially as set forth, so as to form the safety-chamber in which the barbed portion of the lower wick-tube terminates.

No. 13,860.—William Bennett, assignor to the Union India-rubber Lamp Company.—*Improvement in Fluid Lamps.*—Patented November 27, 1855. (Plates, p. 111.)

The elastic bag B containing the fluid will expand under the pressure of the gas, and consequently will not break; and in case the lamp should be casually broken, the bag will retain the fluid and prevent accidents.

Claim.—The elastic bag or receptacle B placed within the body of a lamp, or within a proper framing or support, to receive and hold the fluid, substantially as described, for the purpose specified.

No. 13,910.—F. A. Jewett.—*Improvement in the Mode of Attaching Extinguishers to Lamps.*—Patented December 11, 1855. (Plates, p. 111.)

The nature of this improvement will be understood from the claim and engraving.

Claim.—Attaching the cap or extinguisher to the lamp by means of a spiral spring *b* coiled around the wick-tube and secured at one end to the cap and at the other to the screw-plate *c*, or in any other convenient locality, whereby the cap is tightly drawn down over the wick, as described.

No. 13,972.—Elijah Richmond, assignor to Ira Noyes.—*Improvement in Lamp Extinguishers.*—Patented December 18, 1855. (Plates, p. 111.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Attaching to the cap or extinguisher a tube placed at any desired angle with the same, leaving a clear space between the cap and its tube, as described, whereby the cap or extinguisher can be applied to or removed from the wick without removing the said cap-tube from the wick-tube, as set forth.

No. 12,200.—Charles W. Felt.—*Improvement in Entry-Lights.*—Patented January 9, 1855. (Plates, p. 112.)

To each door, *x*, *z*, *y*, (leading to entries or other rooms intended to be periodically lighted,) is attached a plate A, which moves with the door as it is opened or closed. The motion of either one of the doors and plates A is transferred (by a link connection consisting of wires and bell-joints, and by a hook *b* extending from that part of the link connection which is nearest the burner) to the toothed-wheel B. To the end of the axle C of this wheel is attached the cock D. The toothed wheel has eight teeth, and the cock D has two holes through the plug (to wit: four openings on its circumference) at right-angles to each other, and a small groove upon its circumference connecting these holes, to admit the passage of only sufficient gas for the minimum burning. The catch I prevents back motion of the wheel. As the shaft C makes one-eighth of a revolution at the opening of any of the doors, the opening of one of the doors will put the cock in the position of the minimum burning-point, and so on, alternately; the opening of the door to come in producing a full light, and the opening to go out reducing it to the minimum point.

In burning oil instead of gas, the wheel B is operated as above, and a four-armed wheel E acts upon a lever F, which operates a sliding-tube *f*, which loosely fits the wick-tube. The sliding of tube *f* upon the wick-tube above the top of the latter, partially cuts off its supply of air, and correspondingly reduces the intensity of the light.

The inventor says: I do not claim the cock D, or the link connection, those being, substantially, old; but I do *claim* the combination of the link connection with the cock D for gas, and the sliding-tube around the wick-tube for oil or other liquid illuminating material, in the manner and for the purpose set forth.

No. 12,291.—Lewis Hover.—*Improvement in Lanterns.*—Patented January 23, 1855. (Plates, p. 112.)

The base B is secured to the lantern or to the rim D by the hooks *e e*, which are kept over projection *c* by springs *d d*; and in order to detach the base the thumb is pressed upon button F, and the inner ends of the springs are forced inwards towards the centre of the base by the oblique position of the ledges *f f*, against which they slide, and the hooks are consequently thrown off the projection *c*.

Claim.—The arrangement of the springs *d d*, hooks *e e*, and ledges *f f*, operated in the manner described, as a fastening to secure the base B of the lantern to the other portion of the same.

No. 12,321.—Elijah F. Parker.—*Improvement in Lantern Frames.*—Patented January 30, 1855. (Plates, p. 112.)

Claim.—Passing the guard-wires *a* of lantern-frames through suitable holes *c*, in the corners or uprights, C, by which means soldering at such points may be dispensed with, as described. (See engraving.)

No. 13,250.—C. H. Butterfield.—*Improvement in Lanterns.*—Patented July 17, 1855. (Plates, p. 112.)

The inventor says: I do not claim any particular form of spring, nor the application of my improvement to any particular style or kind of lamp or lantern.

But I *claim* attaching a yielding or springing-plate B to the cap, in combination with a match holder A, so that lifting or throwing off the cap shall light a match placed so as to light the wick or lamp.

No. 13,286.—Chas. Waters.—*Improvement in Lanterns.*—Patented July 17, 1855. (Plates, p. 112.)

To the under surface of the flanch *c* there is attached a spring-catch *e*, the end of which passes through the shoulder *d*. One or more spring-catches may be used, and also two or more lips *f* permanently attached to the shoulder. The lower bead *h* of the glass-shade E rests upon the inner edge of flanch *c* of the band D, which is fitted to the lantern by means of spring-catch *e* and lips *f*, which project over the inner-edge of the annular plate C. The glass-shade, therefore, is secured between the lower edge of the top A of the lantern and the upper edge of band D, and is firmly secured to the lantern without the aid of plaster or cement. The shade can be detached from the lantern by merely throwing back the spring-catch *e*.

I *claim* the application of the spring-catch *e* and lips *f*, substantially as and for the purposes set forth.

No. 13,539.—C. H. Butterfield.—*Improvement in Lantern Guards.*—Patented September 11, 1855. (Plates, p. 112)

The two rims A and B of this lamp-guard are fitted to the small part of the lantern above and below the swell of the glass, and made with joints E and D; the rims are made so as to catch when pressed together. This lamp-guard can easily be removed by releasing the catches.

Figure 2 represents a plan of the lamp-case when opened.

I *claim* making the guard movable by means of the hinges and catches, as described, or any other substantially the same.

No. 13,577.—James H. Kelly.—*Improvement in Lanterns for Locomotives.*—Patented September 18, 1855; antedated June 20, 1855. (Plates, p. 112.)

This invention consists in connecting the chamber which receives the smoke from the burner with downward flues F, open at the bottom, so that the downward current over the lamp-case, produced by the bell-shape of the smoke-stack of the locomotive, will cause a steady downward draught through said flues, removing the smoke and promoting the burning of the lamp.

I disclaim the arrangement of lateral flues as applied in the lamp-case of Salmon Bidwell, also the arrangement of flues as used in the patent of J. A. Williams; my invention being an improvement on both of these.

I *claim* the construction of locomotive-lamp cases, with vertical descending flues open at bottom only, constructed substantially as set forth for the purposes specified.

No. 14,006.—Charles H. Butterfield, assignor to Amory Houghton.—*Improvement in Guards for Lanterns.*—Patented December 25, 1855. (Plates, p. 112.)

The springs A B allow the guard C to be opened apart, (after hook E has been withdrawn from eye *a*,) so that it may be sprung upon and made to embrace the neck and lower part of the lantern.

The inventor says: I do not claim making the guard movable by means of hinges and catches, or other contrivances equivalent thereto;

But I *claim* my improved mode of making the guard elastic, as set forth, or with springs at top and bottom to embrace the neck and lower part of the lantern, the same not only dispensing with hinges, but serving to maintain the guard in place, even when its clasp may be unhooked.

No. 12,209.—Guillaume Lambert.—*Improvement in Coke-Ovens.*—Patented January 9, 1855. (Plates, p. 112.)

When the oven B has just received a fresh charge which is ignited, and the charge in A has been for some time submitted to the coking process, the doors of A are all hermetically closed, as also are the doors at the rear end of B. The damper K is raised to open chimney F, and the damper L is lowered to close chimney G. The necessary air for the combustion of the smoke, etc., arising from the fresh charge, is allowed to enter at the doors in front of B, so that it may mix with the same and pass through the flue N to be burned in A, where a portion of the carbon is then deposited. The incombustible products of this combustion escape at a very high temperature through the flue C into chamber D, and are made to impart a portion of their heat by radiation to oven B, as they pass onwards to flue E, which leads to the chimney.

The inventor says: I do not claim combining a series of coke-ovens,

so as to be operated conjointly by the heat and volatile products of one passing to the next. Neither do I claim heating the charge by means of the escaping products of combustion passing through flues wholly or partly surrounding the ovens;

But I do *claim* the manner herein described of combining the ovens by means of flues and passages, whereby the smoke and gaseous products, generated in each during the earlier stages of the calcining process, are burned in the next, where the process is at a more advanced stage, and the whole of the products of the combustion of the combined ovens are returned under the first, or that in which the process is least advanced, to assist in heating the charge contained therein, and expedite the liberation of the volatile products.

No. 13,375.—Jno. P. Hayes.—*Improvement in Ovens.*—Patented July 31, 1855. (Plates, p. 113.)

The nature of this improvement consists in the arrangement of hot-air flues for the purpose of increasing the ventilation and circulation of hot air; and also in adapting the plate, which usually produces a returned flue over the top of an oven, so as to be loose or movable up and down, thus yielding readily so as to allow a convenient introduction or withdrawal of the movable lining which is frequently used in cast-iron ovens, as affording more convenient access for cleaning the flue spaces around the same.

The inventor says: I do not claim arranging or combining two ovens together, the one over the other, nor a movable box fitting within the same and forming the inner lining of an oven; as these have been known and used before.

Nor do I claim causing the hot air of one oven to pass into the other; nor the application of a partition plate so as to divide the space above the movable lining-box into direct and returned flues; nor the combination of direct and dumb flues for heating the ovens; nor ventilating and producing a circulation of hot air within an oven irrespective of the peculiar construction, arrangements, or combinations of the several devices, as specified;

But, 1st, I *claim* the pipes or hot-air flues P P extending up one or more of the heating flues of an oven, the same opening into the oven near both the top and bottom of the same, so as to form a communication between the upper and lower strata of air in the said oven, through the gas flue or flues in which they are located, and the said flues P P opening also near the bottom of the same to the outside of the said oven, for the purpose of admitting fresh air into the said oven, substantially in the manner as described and set forth.

2d. I claim making the partition-plate K so as to move or yield upward, substantially as described and set forth, when the same is used in combination with the movable box or lining *d* of an oven, for the purpose of allowing the ready admission or withdrawal of the said movable box as occasion may require.

No. 13,855.—Jean Louis Rolland.—*Improvement in Ovens for Baking Bread and other Aliments.*—Patented November 27, 1855. (Plates, p. 113.)

The products of combustion, as they leave the grate E, pass by the flues G, through chamber I, beneath the oven floor, and thence through the vertical conduits *k* into air-chamber L and to the chimney M. The baking floor N being revolved upon axis *o*, all its parts are equally exposed to the action of the heat proceeding from the flues G.

Claim.—The arrangement of the horizontal flues G within the hot-air chamber I and beneath the baking-floor N, operating in the manner substantially as set forth.

No. 13,717.—Julius Fink.—*Improvement in Cooking-Ranges and Air-Heaters.*—Patented October 30, 1855. (Plates, p. 113.)

The cold air enters the hot-air chamber N, and when heated ascends by its rarefication up through pipe C and out into the apartment. The chamber U above the dust-box T is common to the gas-flue passing around the oven B B and to the dust-box, as may be required, by means of single damper *d*, so hung that by closing the gas passage it will open the passage into the dust-box, and *vice versa*. When the grate is to be raked, the damper *d* is turned up, closing the gas passage and opening the passage into the dust-box. The draught through the stove being cut off, the ashes will ascend through the pipe D but a short distance, and will then fall back into the dust-box, whence they are readily removed. After the heated gases pass around the ovens, they enter pipe D, which is located within the hot-air chamber, where it becomes highly heated, and imparting its heat to pipe D, it reheats the gases within D, causing them to ascend with greater rapidity, and thus increases the draught.

The direction of the smoke and heated gases is indicated by arrows in full lines, the direction of the heated air by dotted arrows.

Claim.—The arrangement of the dust-box T and exit flue U, leading from the passages surrounding the oven, within the air-heating chamber, substantially as described, and for the purpose specified.

Also, in combination with a hot-air chamber, which is heated by conduction and independent of the heated or burning gases which pass around the oven, the carrying of said gases back and up through a flue located in said hot-air chamber, for the purpose of re-heating the gases and causing them to ascend more rapidly by their rarefaction, substantially as described.

No. 13,802.—D. W. C. Sanford.—*Improvement in Refrigerators.*—Patented Nov. 13, 1855. (Plates, p. 113.)

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I am aware that various modes have been tried and used for circulating air in refrigerators; but I am not aware that

in any instance a complete and continued rotation, purification, dessiccation, and refrigeration of the whole of the contained air of the refrigerator has been compelled, as it is in my invention.

I *claim* the arrangement set forth, for causing the perpetual rotation of the whole of the air contained within the refrigerating apartments; said arrangements consisting, when the refrigerator is closed, of an endless passage or chamber, the walls, shelves, and ice-receptacle of which are so placed and constructed that the air is compelled to circulate through the entire apartment or apartments, and from which the water of the melting ice is discharged immediately from the refrigerator, instead of flowing between its walls, the whole being constructed as set forth.

No. 12,882.—DAVID WEISER.—*Improved Composition for Filling-in Fire-proof Safes.*—Patented May 15, 1855.

The composition consists of about three parts of paper-stuff reduced to a pulp, about twenty-four parts of well-sifted ashes, nine parts of clay, and as much water-glass and salt water as will form a plastic paste.

Claim.—The employment and use of the composition of matter, substantially as hereinbefore set forth, as a fire-proof filling or lining for fire-proof safes, or other rooms, compartments, or places required to be made fireproof.

No. 13,639.—CHARLES DAVENPORT.—*Improved Apparatus for Heating Buildings by Steam.*—Patented October 9, 1855. (Plates, p. 113.)

The steam from the boiler flows into pipe K, and from thence into radiator I, where its heat will be abstracted by the metallic surfaces thereof, the condensed steam flowing down pipe R into vessel M. As the boiler, by means of pipe Q, communicates with vessel M, water will stand at the same level in the boiler and said vessel as well as in cistern L, provided the boiler is not making steam. But while steam is being formed, its pressure on the surface of the water in the boiler will have a tendency to force water into vessel M, and thereby raise the water thereof above such level. While the water in M is above such level, the valve O of pipe N will remain closed, in consequence of the extra pressure upon it; but whenever the water falls below the level of the water in the cistern, such valve will be forced open, and water will flow from the cistern into vessel M, and from thence through the pipe Q into the boiler. While the column of water in the vessel M remains above the level of the water in the boiler, it serves to force the steam through pipe K, and to maintain its circulation through the radiator—the vessel M thus serving to regulate the circulation of the steam, and at the same time close the valve O. Should the water in the boiler fall below the top of the mouth of pipe P, steam will rush through said pipe and into M, and be discharged through alarm-whistle T, when the combustion of fuel has to be arrested.

The inventor says: I do not claim a boiler, radiator, and supply cistern, so connected by pipes that the steam from the boiler may be made to circulate through the radiator, and from thence pass in a condensed state back to the boiler.

But I *claim* the arrangement of the vessel M and its connecting-pipes Q N P, and valve O, the supply-cistern L, the boiler A, the radiator I, and the leading steam and return-pipes K and R of the said boiler and radiator, the whole being made to operate together, substantially in the manner and for the purpose specified.

No. 13,654.—A. S. PELTON.—*Improvement in Radiators of Steam-Heating Apparatus.*—Patented October 9, 1855. (Plates, p. 113.)

The floating-valve *m* is placed in a chamber R in the bottom of the radiator, which valve, when there is a collection of water from condensed steam, will be raised until the water is discharged, when the float will fall and close the discharge-opening (underneath chamber R) before the steam is permitted to escape. *n* is the escape-valve. The porous-packing *w* serves to suppress the noise of the escaping steam, and yet permits the steam being forced through the same.

Claim.—The arrangement, substantially as specified, in a chamber exterior to the escape-valve of a porous-packing *w*, for preventing noise during the escape of steam from the heater, as set forth.

Also, the employment of the float-valve *m* in connection with the heater and pipes leading to the boiler, as specified, to prevent the accumulation of condensed steam.

No. 13,842.—PLINY E. CHASE.—*Improvement in Steam-Heating Apparatus.*—Patented November 27, 1855. (Plates, p. 113.)

B represents part of the fire place underneath the boiler A. The water in the boiler A being raised to a temperature making steam, the steam in the boiler will expand, gradually increasing its pressure upon the water in the steam-bell E, and causing the water of the regulating tank O surrounding the bell to rise to a level the height of which is proportioned to the pressure inside the bell. When the tension of the steam is such as to raise the level of the water to the dotted line *i i*, the supply of air to the fire-chamber is intercepted, and the fire is consequenly slackened; should the pressure of the steam be still increasing, the water of the tank O is forced to run over the partition I into pipe *d*, and there it is mixed with the water contained in the boiler, reducing the temperature of the latter. There is another supply of water to the boiler, arising from the condensation of steam in pipe *c* and globe D. If the head of steam becomes too powerful, notwithstanding the check of draught as above described, the water in the bell will be pressed below the level of its edges, and the steam will escape from E into flue G, which will check the combustion of fuel.

Claim—The peculiar arrangement of the pipes *c* and *d*, the draught-pipe G, and the tanks O and C, in combination with the steam-chamber E, in the manner described and for the purpose specified.

No. 12,382.—James Easterly.—*Improved Magazine Smoke-Consuming Stove.*—Patented February 13, 1855. (Plates, p. 113.)

The inventor says: I do not claim the use of a fuel magazine M, nor of a downward draught for the fire, neither being novel arrangements in stoves.

But I *claim* the constructing a stove as described, with openings *a* for the admission of air to the burning fuel E, at some point or points above the grate G, including between said points and the grate sufficient fuel for ignition at any one time.

No. 12,434.—James B. Blake.—*Improvement in Gas Cooking-Stoves.*—Patented February 27, 1855. (Plates, p. 114.)

A is the oven; B the shell or double case which surrounds the oven, and which is packed with a non-conducting substance; *a* the burners; *b* the opening for the admission of air; C space between the oven and case B, in which space C the gases are retained until partially cooled, when they descend and pass off through *f*.

Claim.—The described method of heating the oven of a gas cooking-stove, the oven being surrounded by a flue or chamber having an opening in one end for the admission of air, for the combustion of the gas which is burned immediately beneath the oven, and openings in the bottom for the escape of the products of combustion, the latter being retained in contact with the oven until sufficiently cooled to descend and pass off, in the manner set forth.

No. 12,474.—J. J. Anderson.—*Improvement in Cook-Stoves.*—Patented March 6, 1855. (Plates, p. 114.)

The ellipsoidal oven gives an even degree of heat from all parts of its surface, thereby rendering the baking qualities of this stove equal to those of the oval brick oven. The construction of the fire-back favors durability and strength, and the arrangement of the ash-box allows it to be readily removed for cleaning the return flue I.

Claim.—The construction of the ellipsoidal oven O in stoves, as set forth, arranged in contact at the front with the horizontally corrugated fire-back M, and detatchable ash-box P.

No. 12,639.—Thos. Moore.—*Improved Stove-Pipe Tube.*—Patented April 3, 1855. (Plates, p. 114.)

The inner tube *d* is of sheet-iron, the outer *d*^{1} of sheet-zinc. One end of each of these tubes is fastened to heads *c*, the outer surface of which heads is somewhat convex; so that when applied to a partition, only the edges of the heads will come in contact with the same. The tubes are so adjusted that they can be connected by inserting the end of one into that of the other, and when thus connected will admit of a

free circulation of air in the space between the two tubes by means of opposite apertures in either head.

Claim.—The double and adjustable concentric tubes, or stove-pipe thimbles, constructed in the manner described, for the purposes set forth.

No. 12,741.—Andrew Mayer.—*Improvement in Gas Cooking-Stoves.*—Patented April 17, 1855. (Plates, p. 114.)

The article to be roasted or baked is placed on a plate *o* in the oven A, the plate forming the bottom of the oven. The air heated by passing around and through the burner or burners C enters, through the perforated plates *a* above the burners, the hot-air chambers B B, (one on either side of the oven,) the hinged covers *e* of which may be opened to any desired degree to allow of its escape. The oven is heated by radiation from the bottom and sides and also from the roof, and by the heated air escaping into the other part. The heated air may also be admitted through openings *p p* by removing slides *n n*. If the covers *e* are closed, all the heat passes then through the openings *p p* and *d d*, thereby exposing the bottom side of plate *o* to the greatest heat.

The inventor says: I do not claim as new in stoves, separately considered, the several parts or devices specified;

But I do *claim* the arrangement herein shown and described, of the gas lamps or burners with their overhanging perforated plates or openings, side apertures or passages for distribution of the heat, oven and hot-air chambers or boxes, situated at the sides of the oven within the body of the stove and provided with lids and side valves, as set forth, and for the purposes specified.

No. 12,758.—J. Johnson and J. E. Crane.—*Improvement in Stoves, &c.*—Patented April 24, 1855. (Plates, p. 114.)

The object of this invention is to prevent counter currents of air (which frequently occur, owing to the low temperature of the air in the room, caused by opening of doors, windows, &c.) from throwing the heated air down into the cold-air passage, where it is apt to ignite the adjacent wood-work.

The cold air passes through pipe F into water-tank G, thereby opening valve H. The water is warmed by the heat from the stove, and the air becomes moistened by the gradual evaporation of the water. The air, passing up through the central passage L, becomes thoroughly heated. In case of a counter current passing down the passage L, the valve L will be closed thereby, and the counter current will be prevented from passing through the cold-air pipe F. The bridge I prevents the air from getting under the valve, and forcing it open instead of closing it.

The inventors say: We do not claim the central air-heating passage L separately, for that has been previously used;

But we do *claim* the employment of the valve H, in combination

with the bridge I, arranged in the manner described, for the purpose specified.

No. 12,913.—Charles B. Loveless.—*Improved Air-Heating Cook Stove.*—Patented May 22, 1855. (Plates, p. 114.)

The nature of this improvement will be understood from the claim and engravings.

The arrows in full lines indicate the course of the smoke, and the dotted arrows that of the air.

The inventor says: I do not claim the arranging of a narrow hot-air chamber in rear of an oven, so that the flues which conduct the smoke to the rear part of the oven shall also come into contact with one or both of the opposite sides of the said hot-air chamber; nor do I claim the combination of hot-air fixtures or flues with the heating and culinary apparatus of a cooking range or stove, because such a combination is well known, and has been used for many years; nor do I claim merely arranging hot-air flues, smoke-flues, and one or two ovens, so that the smoke, while passing in contact with the hot-air pipes or flues, may also pass against the three or four sides only of either one or both ovens;

But I do *claim* the improved arrangement of one continuous smoke-flue around an oven, and against hot-air flues arranged as described, whereby not only are the hot-air flues and four sides of the oven subjected to exposure to the heat of the smoke while coursing through such continuous flue, but the end of the oven and the end of the vertical hot-air chamber G are also exposed to be so heated; this invention being an important and useful improvement on the general combination and arrangements of hot-air and culinary fixtures, herein referred to and described.

No. 13,113.—Alva Worden.—*Improvement in Joints for Stove-Pipes.*—Patented June 19, 1855. (Plates, p. 114.)

To the ends of the pipes there is attached a half-circle tapering tubular screw, cut or swedged on separate connecting pieces or on the ends of the joints of the pipe. The same being double and tapering, the connecting ends enter loosely, and by a half turn of the pipe the joint is tightly closed and remains firmly joined; and at the same time the screw connecting by means of a half-circle, and being of a tapering form, it is readily loosened, and disconnected by a slight turn backwards.

Claim.—The inclined tapering semicircular grooves, constructed in the manner and for the purpose specified, all of which are fully demonstrated.

No. 13,194.—Robt. Wilson.—*Improvement in Stoves.*—Patented July 3, 1855. (Plates, p. 114.)

Three or more cylinders are supported one above the other, by being riveted to a plate at each end, or by means of two twisted rods *l*. To save wear there is used a loose roll of sheet-metal *g* within cylinder *a*. The upper cylinders *b* and *c* have cylinders *h h* within themselves; the spaces between *b* and *h* and *c* and *h* serving for the passage of the smoke. These inner cylinders can be used for baking, or, by opening the doors at each end, the hot air will be freely admitted to the room.

Claim.—The combined cylinder, stove, and oven, connected and supported as described, and lined with removable rolls of sheet-iron, for the purpose specified.

No. 13,314.—Francis Kenney.—*Improvement in Parlor Stoves.*—Patented July 24, 1855. (Plates, p. 115.)

When a direct draught is required the damper *q* is opened, and the dotted arrows 2 show the direction of the draught. When *q* is closed the arrows 3 show the direction of the draught, which passes down the pipes M into chamber H, and thence through the openings (regulated by the position of dampers *u u*) into the lower part of and up through pipe I into smoke-pipe J. The cold air (arrows 4) passes through passage *s* into the apartments at the ends of base E around pipes M, where it becomes heated and passes into the apartment through register *t*. Cold air passes up the tubes N (arrows 5) and becomes highly heated before coming in contact with the gases from the fire.

Claim.—The arrangement of the pipes M, tubes N, chamber H, and pipe I, when provided with the dampers *u u q r*, specially as shown and set forth.

No. 13,589.—Jno. Van.—*Improvement in Cooking-Stoves.*—Patented September 18, 1855. (Plates, p. 115.)

A is a cylindrical water-vessel divided into chambers by transverse partition *s*; *f* concentric cylinder for containing the fire, provided with a suitable grate (not shown in the engraving). The opening through the top of the water-cylinder allows the heat and smoke to pass up from the fire-cylinder into a heating space at the top of the stove. This opening is crossed from side to side by tubes *d*, which form a free communication between the two sides of the water-chambers for the passage of water, and, being surrounded by the flame, causes the water in them to be heated very rapidly. The object of having separate water-chambers is for each to contain water for different uses.

Claim.—Arranging of the water-cylinder, with separate chambers, fire-cylinder, or space in its centre, opening through its top, and cross heating-tubes, combined and operating substantially in the manner and for the purposes set forth.

No. 13,728.—Wm. Mootry.—*Improvement in Stoves.*—Patented October 30, 1855. (Plates, p. 115.)

The space between the cylinders A D is filled with wire-work. The wire-work being heated by contiguity to the fire, currents of air pass

in at the bottom (see lower arrows), thence through the meshes, where they become heated, and out at the open top (see upper arrows).

The inventor says: I expressly disclaim any metallic packing that does not contemplate regular cellular tissues. I especially disclaim the use of spiral metallic scraps. I *claim* the application and employment of iron-work or other regular metallic cellular interstices, combined with stoves, furnaces, and other heating and cooking apparatus, or such heated surfaces generally, when used in the manner substantially and for the uses and purposes before mentioned.

No. 13,868.—JOHN A. ELDER and WM. J. THORN.—*Improvement in the Arrangement of Flues and Dampers of Cooking-Apparatus.*—Patented December 4, 1855. (Plates, p. 115.)

By closing the dampers 5, 10, and 18, the products of combustion pass through the openings uncovered by withdrawing the damper 4 in wall S (see arrow 12), thence through flue 15 into chamber 16 and to the chimney 6. If it is too warm, damper S is to be closed, and damper 10 to be opened, when the heat will pass directly from chamber 16 to chimney 6. When the heat is not necessary around the oven, damper 5 should be also opened. When the oven is too hot, the draught of the fire-box is to be closed, and damper R to be opened, when the cold air will pass from the room into 14, and thence over or under the oven by operating the proper dampers.

The dampers R and S regulate the communication between the air in the room and the spaces 14 and 16. O is the oven; P the stove.

Claim.—The arrangement of the dampers 4, 5, 10, 18, and R S, in combination with the oven-flues 14, 15, and 16, in the manner substantially as described, for regulating and controlling the heat, for the purposes specified.

No. 13,971.—JOSEPH B. LANCASTER, administrator of JOHN K. LANCASTER, deceased.—*Improvement in Cooking-Stoves.*—Patented December 18, 1855. (Plates, p. 115.)

A steam-space F is formed around the oven A, and around the fire-chamber D^1 a water-space G, (for the production of steam,) which communicates with the steam-space by means of pipe *b*. Surrounding the entire outer surface of the water and steam-spaces G F is a space H I for receiving charcoal or a similar substance, to prevent the radiation of the heat, and thus render the stove non-conducting.

The inventor says: I am aware that the space around a portable bake-oven, heated by hot air, has been divided in a manner to form two chambers; the outer one of which served for non-conducting material, and the inner one for the circulation of hot air.

Also, that steam has been employed for the purpose of cooking, being generated by means of a cylindrical casing to the fire-pot. Therefore,

I only *claim*, as the invention of the deceased, the arrangement of parts as described and shown for the purpose set forth.

No. 12,306.—B. F. BABBITT.—*Car-Ventilator.*—Patented January 30, 1855. (Plates, p. 115.)

Fig. 1 is a section of a ventilator; fig. 2, a cross section of a car containing the ventilator. Fig. 2 is drawn on a smaller scale than fig. 1.

Claim.—The arrangement of a wind-wheel B, as described in connexion with a wire gauze disk or screen F, revolving in a tank of water E; the air passing through the said disk previous to entering the car, in the manner and for the purpose set forth. (See engraving.)

No. 12,534.—ISAAC P. TRIMBLE.—*Improved Apparatus for Operating Ventilators.*—Patented March 14, 1855. (Plates, p. 115.)

a a^1 a^2 are the metal bars which, by their contraction or expansion, operate the valve R.

The inventor says: I do not claim effecting the ventilation of buildings, &c., by operating the valves to the vents or air-passages by the force derived from the expansion of metal, as this has been before proposed;

But I *claim* having the valves or ventilating-doors connected to the said metal bands about midway between their fixed supports, so that the varying degrees of flexure shall effect the operation of opening or closing said doors in the manner and for the purpose described and shown.

No. 12,541.—V. P. CORBETT.—*Method of Self-Ventilation for Railroad Cars.*—Patented March 21, 1855. (Plates, p. 115.)

Claim.—Forming a series of ventilating holes C C C C in the sides of the car, between the ceiling and the windows B B B B, and providing in said holes vertical ventilating fans D D D D, which are arranged so as to be caused to revolve by the rapid movement of the car through the atmosphere, and thus made to exhaust the impure air from the inside of the car. (See engravings.)

No. 12,818.—D. H. FOX and JNO. FINK.—*Improvement in Railroad-Car Ventilators.*—Patented May 8, 1855. (Plates, p. 115.)

The inventors say: We are aware that air has been passed through water and injected into railroad cars; such, therefore, we do not claim. Neither do we claim the mere employment of suction to produce a current.

But we do *claim* the construction in or on the top of the car of a long shallow chamber *a*, communicating at several points *b* with the interior of the car, and by a tube *c* with a fan chamber h^1 beneath the car, whereby the partial exhaust created in said chamber by the running of the car produces a number of upward currents simultaneously in various parts of the car, sufficient to carry off the vitiated air and dust from the same, as hereinbefore set forth.

No. 12,827.—William Pauli.—*Improvement in Ventilating Railroad Cars.*—Patented May 8, 1855. (Plates, p. 115.)

The draught created by means of the hood upon the roof of the car carries the air into the car, wherefrom it escapes between the usual sashes *b* and the stationary glazed frame F. The upward current of the escaping air is intended to prevent the entrance of dust, etc.

Claim.—The arrangement of guard-sash F F on the sides of the cars, in connection with descending tubes D D and hood C upon the top thereof, by which the dust is prevented from entering a window when opened, while the exit of the air and ventilation of the car is not affected by said guard-sash, substantially in the manner described.

No. 12,851.—Job R. Barry.—*Improved Ventilating and Cooling Apparatus.*—Patented May 15, 1855. (Plates, p. 116.)

The air passes from the revolving fan A through the wheels B C, which revolve to about one-fourth of their diameter in water tanks M N. Thus the air comes in contact with a large amount of wet and cold surfaces on the wheels, and its temperature is reduced to nearly that of the water in the tank. From these refrigerating wheels the air passes through the ice in the box D, and then through the passages G and F up into the car.

The inventor says: I do not claim the devices herein described for excluding dust from railroad cars, separately, nor do I claim the passing air through an ice reservoir for the purpose of cooling the same previous to its introduction to an apartment;

But I do *claim* the arrangement of a fan and one or more refrigerating wheels, or their equivalent, with the water-tanks, ice reservoir, and return air flue, substantially as described, for securing effectual ventilation and cooling the air, in the manner and for the purposes herein set forth.

No. 12,992.—Ernest Bahr.—*Improved Ship-Ventilator.*—Patented June 5, 1855. (Plates, p. 116.)

This improvement is intended to prevent water from entering the vessel through the ventilator. If the water is forced up in the end D, it will probably close valve *d*; or if any escapes through, it will be checked by the guard-plate *e*. The same effect will be obtained by the water entering the end E, the guard-plate *h* and valve *i* obstructing its entrance into tube *a*; but still, if it should pass up the vertical portion of tube *a*, there are two valves *n n* to prevent its entrance into tube E, and the water will flow back through side apertures *r* into tube *a*. The same obstruction is presented to the water by the valves *o* and *p*. The end E is turned by hand so as to face the wind.

I *claim* the helical tube A, provided with valves *i d n o p* and guard-plates as shown; one end of the helix terminating above the deck C in two parts D E, the part E being provided with a wire wheel *g* and wire cloth covering *p*, said part E being movable, so that it may be turned to face the wind at all times, for the purpose as set forth.

No. 13,204.—Chas. Atwood.—*Improvement in Ventilating Railroad Cars.*—Patented July 10, 1855. (Plates, p. 116.)

The current of air is received into the passages C (open in front) at the sides of the tender, and passes through the flexible connection between tender and baggage car along an air passage on top of the baggage car, and thence through the cars, which are all so connected by means of side-doors L and flexible connections F as to form one continuous passage for the air. The platforms P (as will be seen from the sectional plan, fig. 3) have side-doors L, which are to be closed, as represented in the figures, when the train is in motion. The cars are to be connected by means of flexible connections F on frames *d* d^1. After the cars have been coupled together, these frames are brought together (from position fig. 2 into position fig. 1) and secured by means of clasps.

Claim.—The method described of constructing, attaching, and using the flexible connections, when constructed, attached, and used substantially as set forth.

Also, the combination of the flexible connections with any suitable method of receiving the air at the front end of the tender.

No. 13,542.—John Clark.—*Self-Regulating Valve for Ventilation.*—Patented September 11, 1855. (Plates, p. 116.)

This is an apparatus for operating dampers of stoves. When the room is a little colder than is desired, the cylinder A (made of glass or other material) is to be corked at *c*, and the bellows B closed, so as to make the cylinder air-tight. The toothed end of the rod C (attached to the bellows) is then connected to the rod which works the valve or damper of the stove. When the air in the room and in the cylinder gets warmer, it will expand and extend the bellows, and push the rod C, and thus act on the damper-rod; and when it becomes colder, the air in the cylinder will contract, and thereby draw back the rod C.

The inventor says: That which I design to *claim*, as my particular invention, is the air-tight cylinder and bellows, of whatever material they may be made, for the purpose of obtaining a motive power from the expansion and contraction of the air, and to whatever use it may be applied.

No. 13,725.—W. L. B. Lewis.—*Ventilating Railroad Car.*—Patented October 30, 1855. (Plates, p. 116.)

The deflector A moves in guides *b* around the periphery of the case B attached to the outside of the window-frame, and is provided with a wire-gauze screen K. Cords C C serve to pull the deflector either to the right or to the left, so as to compel a current of air to pass from the outside through the screen into the car, when the latter is under way.

The inventor says: I do not claim the use of a ventilating box or case, like that of Nelson Goodyear; nor do I claim the use of one or more sheets of wire-gauze or screens through which to pass the air,

so as to preclude the entrance of sparks and dust, as these have been used before.

But I *claim* the peculiar construction and arrangement of the ventilating box or case, as described and set forth.

I claim a reciprocating curved deflector A, adapted to be moved only horizontally to right or left, for directing currents of air into the car, in the specific manner set forth and described.

No. 13,732.—J. K. Taylor.—*Method of Ventilating Railroad Cars.*—Patented October 30, 1855. (Plates, p. 116.)

The upper and lower ends of the vertical slotted tubes *c* (outside of windows H) communicate with horizontal tubes *d*, which latter communicate with the flaring space *e*. As the car moves along, air enters the space *e*, and passes out through the slots of tubes *c* in thin sheets, as indicated by the arrows. These thin sheets of air prevent dust from entering the car through the windows, and also serve to draw the air out from within the car through the windows, and thereby cause, in connection with the fan F, (which latter drives a current of air through the water-box B, and up through tubes B into the car,) a current of pure air to circulate through the car.

I do not claim, separately, forcing air through water before it enters the cars, in order to purify it or cleanse it from dust, cinders, &c., for this has been done in various ways;

But I *claim* the vertical slotted tubes *c* placed at the outer sides of the windows H of the car, and having air forced through them by the means described, or in any other manner, for the purpose specified.

VI.—STEAM AND GAS ENGINES.

No. 12,261.—Gustavus Weissenborn.—*Improved Arrangement of Filtering Apparatus to Prevent Incrustation in Steam-Boilers.*—Patented January 16, 1855. (Plates, p. 117.)

The cold water enters through pipe B and jet-holes E into chamber D, where its temperature is raised by means of its coming in contact with the exhaust-steam entering through pipe C; the water passes into the basin-chamber F and over the basin F^1, (which is intended to retard its motion, and keep it so much longer in contact with the steam,) on and through a rough stone filter G, hence through a brush-wood filter H, and finally through a filter K which contains horse-dung or other compound impregnated with a free alkali. The water passes out through the perforations in the casing of filter K, and into feed-pipe M, which leads to the boiler.

The inventor says: I make no claim to the idea of purifying water before it enters the boiler for the purpose of preventing incrustation, for that has been done before.

I *claim* the arrangement of the exhaust-chamber D, girdled at its lower part by the cold water B^1, with the basin-chamber F and filters G H K, in the manner and for the purpose set forth.

No. 12,360.—Thomas Champion.—*Improvement in Steam-Boilers.*—Patented February 6, 1855. (Plates, p. 117.)

The object of the double cone S S^2 tube is, that the heat in rising through the lower cone, which is surrounded by water, may act with the greatest effect; but, while passing through the upper cone, which is surrounded by steam, it is prevented from heating it to a degree that would be dangerous, because it enlarges upward, and thus allows the heat to pass off freely. With tubes of uniform diameter, that portion passing through the steam becomes often overheated, and is liable to cause explosion.

Claim.—1st. Arranging an annular flue Q at the bottom of an upright boiler, for receiving the air at its mouth R, and conducting it at R^2 beneath the grate, as illustrated in figure 5 of the drawings. (See figure 2 of the engraving.)

2d. Making the vertical tube in the form of a double cone, the upper cone being inverted, and the two united together at their apices, the same being for the object and possessing the advantages stated.

No. 12,385.—Asahel Fairchild.—*Improvement in Steam-Boiler Chimneys.*—Patented February 13, 1855. (Plates, p. 117.)

Claim.—Connecting the chimney *s* of a steam-boiler furnace B to the flue connecting breeching *a* thereof, by means of a cylindrical joint *e d h b c*, arranged in such a manner that the chimney can be lowered into a horizontal position, (see fig. 2), without producing openings in said joint, and also without closing the connection between the chimney and the furnace-flues, substantially as set forth. (See engravings.)

No. 12,654.—Hiram Strait.—*Improved arrangement of Means for Freeing Steam-Boilers from Sediment.*—Patented April 3, 1855. (Plates, p. 117.)

A, steam-chamber; B, water-chamber; C, sediment-chamber; D, partition-plate; E, valve-plate; F, blow-off pipe, or flue for steam; G, blow-off pipe for water; H, blow-off cock, or valve of the sediment-chamber; I, operating rod of the valve-plate or series of valves; J, stop-cocks attached to the blow-off pipes; K, bracket to hold the valve-plate down on partition-plate. The sediments pass through the perforations in the valve-plate and partition-plate (when said perforations are brought directly over each other by means of operating rod I) and into the temporary blow-off chamber C for their final expulsion, which is effected by opening the stop-cocks J in the blow-off pipes.

Claim.—In the construction of a steam-boiler of any kind, the arrangement and combination of the valved partition, blow-off pipes, and cock or valves, so as to expel its sediment, mud, scales, impurities, or incrustations, at any time and in a few minutes, by the joint or separate force and pressure of its own steam and water, without exhausting either or suspending any of its ordinary duties or business, and thus render a steam-boiler strictly and thoroughly self-cleaning, substantially as herein specified.

No. 12,665.—HORACE BOARDMAN.—*Improvement in Steam-Boilers.*—Patented April 10, 1855. (Plates, p. 117.)

In boilers with vertical flues the tendency of the flame and heated products of combustion is to pass over the first flues of the series nearest to the fire-box, and not to descend them until checked near the end of the boiler. This disseminates the burning products and heat unequally through the flues. To overcome this irregularity is the object of this improvement. The tubes F are gradually diminishing in diameter throughout the boiler, the larger ones being placed nearest the fire-box A, and the smallest most remote from it, so as to have more flue space at one end than at the other, and thus draw the heat through those tubes over which its tendency to pass is the greatest, and restrain its passage through those in which the greater quantity of heat tends to pass, and thus equalize the heat throughout combustion chamber E. Instead of diminishing the size of the tubes, only the tops of them may be gradually diminished, leaving the main part of them of uniform size. This can be done by using a series of thimbles *a* (fig. 3), of the proper inner diameters.

The plates H, of the form exhibited in the illustration, are to facilitate the egress of the heat from the larger tubes and to check it through the smaller ones, so as to regulate the egress of the heat, on the same principle as its ingress (above described). By inclining the tube-sheets so as to be at right-angles with the inclined tubes, there is no difficulty in riveting. If the tubes were not perpendicular to the tube-sheets, the ends of the tubes would have to be bent to meet the sheets.

Claim.—1st. The graduation of the openings in the flues or tubes, in the manner and for the purpose set forth.

2d. In connection with the flues or tubes, the semi-division flue-plates H, in the chamber G, for regulating and equalizing the egress of the heated products through said tubes, as set forth.

3d. The inclination of the tubes and tube-sheets, for the double purpose of preserving a space between the tubes for the sediment to collect in, and from which it can be readily removed, and for preserving a square surface between the tops of the tubes and said sheets, so that they can be fairly riveted, as set forth.

No. 12,673.—JOSIAH J. DUTCHER.—*Improvements in Locomotive Boilers.*—Patented April 10, 1855. (Plates, p. 117.)

The inverted cone E, presenting a large heating surface to the fire with which it is surrounded, is to generate steam rapidly, and is also intended to prevent the fire packing, as the fire-box is larger at the bottom than at the top, where it receives the fuel, and allows the free escape of ashes.

By bringing the rod L in the position indicated in the figure in broken lines, the grates J J and ash-traps *c* will assume the position represented in the figure by broken lines. The fire will fall through the traps into the ash-pan. By removing the lever to its original position, the grates and traps are quickly replaced. The curb-plates *g* and *h* are to prevent any live coals quickly running out, and also to allow the ashes, &c., to cool before leaving the ash-pan.

Figs. 1 and 2 are vertical sections, fig. 3 a sectional plan.

Claim.—1st. The within-described arrangement of water-spaces within and contiguous to the furnace, and leading therefrom to the body of the boiler, consisting of the horizontal pipe D, inverted cone E, upright tube G, and horizontal tube I, all connected substantially as herein described. (See illustration.)

2d. In combination with a hinged fire-grate or grates to the boiler-furnace, I claim providing hinged traps in the ash-pan, to be lowered and raised, or opened and closed, simultaneously with the fire-grate or grates, by means of an upright rod K passing through the boiler, and suspended from a lever L, within the control of the engineer or fireman while at his usual post, the said rod K operating upon the said grates and traps by means of arms *d d d*^{1} *d*^{1} or their equivalents, all substantially as herein described. (See illustration.)

3d. Retarding the escape down the inclined ash-pan of the ashes, coal, &c., falling thereon through the grate by means of curb-plate *g h*, arranged as described, or in any equivalent manner, to make the said ashes, coal, &c., take a circuitous direction.

No. 12,835.—THOMAS J. SLOAN.—*Improvement in Apparatus for Regulating Supply of Water to Steam-Boilers.*—Patented May 8, 1855. (Plates, p. 117.)

The float *b* within the boiler *a* is attached to a rock-shaft *d*, by means of a rod *c*. The shaft *d*, which has steam-tight bearings in the casing *e*, has on its outer end an arm *f*, which is connected (by means of link *g*) to catch *h*, which is pivoted to the stem *i* of the steam-whistle valve *j*. The stem *k* of the supply-valve is linked to rock-shaft *n*, which shaft has on its outer end an arm *o*, provided with a pin *p*.

When the water in the boiler gets low, the sinking of the float raises arm *f* and catch *h*, until pin *p* of vibrating-arm *o* touches said catch, and draws out the steam whistle-valve *j*, thereby giving the alarm.

When the water and float rise above the high-water mark, the arm *f* is depressed until the upper end of arm *o* strikes the front part of said arm *f*, (as shown in dotted lines in fig. 1,) whereby the supply-valve

is kept open, so that the water which is forced in at every stroke of the supply-pump will follow the piston back and run out of the boiler, until the sinking of the float again sets free the arm *o*.

Claim.—The employment of the feed-water before it enters the boiler as a motor, for giving the alarm when the water is too low in a steam-boiler or generator, substantially as described, in combination with the float inside the boiler, for indicating the level of water and setting the mechanism, that the alarm may be operated by the mechanism receiving motion from the feed-water, substantially as specified.

Also, stopping the supply of water to the boiler by the employment of a stop to check the working of the valve, substantially as specified; but this I only *claim* when the said stop is simply set by the float within the boiler, as set forth.

No. 12,893.—Thomas G. Boone.—*Improvement in Steam-Boilers.*—Patented May 22, 1855. (Plates, p. 118.)

The radiant heat is conducted from the grates K to the water through the tubes G G^1 G^2, while that portion of heat not so taken off either remains to support combustion, or is carried and applied to the upper part of the tubes, and to the tube-sheet F. The upper parts of the tubes are adapted, from the extensive surface therein presented, to take from the flame, or heated air, and make effective in generating steam the heat of that part of the combustion, in addition to that taken direct from the fuel itself through the lower part of the tubes. The heated air is made still further effective by the employment of the tubes I, and *p*, which present a considerable immersed surface. The ascent of steam and water in the tubes G G^1 G^2 causes a downward current in I, to supply the displacement from the chamber C, which, after ebullition commences, is soon heated by water from the lower end of the tubes I. By this arrangement, the tubes G G^1 G^2 are plentifully supplied with water, while exposed to the intense radiated heat. The tubes I are placed inside of the tubes G^1 G^2, and are protected from the action of the fire by being packed around with fire-clay and sand, or with any non-conducting material.

Claim.—The arrangement of the vertical water-tubes, fire-surfaces, upper and lower water-spaces C and D, and non-conducting lining, for giving circulation, substantially as herein set forth.

No. 12,993.—Thomas Champion.—*Improvement in Feeding Water to Steam-Boilers.*—Patented June 5, 1855. (Plates, p. 118.)

This improvement serves to sprinkle all the inner surface of the boiler that is bare, or likely to become bare of water, while fire is acting on the opposite sides of the plates.

I *claim* supplying steam-boilers with all their water through a sprinkler that is connected with the lower water-space and feed-pipe by a valve at their junction, which allows the water that passes up through the sprinkler to jet the plates when the pump is not acting, and so long as any water remains in the boiler above the fire or feed-pipe, substantially in the manner and for the purpose set forth.

No. 13,111.—Charles F. Thomas.—*Improvement in Steam-Boilers.*—Patented June 19, 1855. (Plates, p. 118.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—The improvement of extending the tube-sheet *o*, smoke-tubes P P, and boiler M, or its enclosing-sheet R, into the fire-place I, and over the fire-grate K, as described, in order not only that the part so extended may serve as a beam or strut to support the crown-sheet against the superincumbent pressure of the steam, but that the flame and gases from the fire may not only pass against the tube-sheet and enclosing-sheet R of the extended part of the boiler, but also through the extended parts of the tubes within such projected part of the boiler, as specified, the same serving to greatly increase the extent of heating-surface exposed to the fire.

No. 13,146.—Thos. Champion.—*Improved Steam-Boiler Furnace.*—Patented June 26, 1855. (Plates, p. 118.)

When the fires are up, the damper I and the furnace and draught-doors are closed. The steam from the engine is then let into the pipe A, and through its branches into the flues C, where it mingles with and drives the smoke and other gases back into the fire to be consumed; thus furnishing a forced draught through the flues and back into the fire; the necessary atmospheric air being furnished through pipes D E to keep up regular combustion.

Claim.—Using the exhaust-steam in a closed stack, as a blower to return the heated gases or products of combustion, with which it commingles back through flues or passages to the fire again and again, to be reburned, substantially as described.

No. 13,168.—Jacob Harshman.—*Improvement in Steam-Boilers.*—Patented July 3, 1855. (Plates, p. 118.)

The inventor says, in his specification: "I maintain that, in case of steam-boilers, the copper covering C holds a peculiar government over the elements within a boiler in affinity with certain external elements; that in certain localities there are elements surrounding the steam-room of boilers that will, under certain conditions of heat, unite in explosive proportion with the elements within. The copper covering will conduct off the excess of caloric in such cases, so that violent explosions will be prevented. By applying the copper covering to stoves, the surrounding atmosphere is prevented from being vitiated by deleterious gases, which emanate from ordinary iron stoves. The heat is radiated more uniformly through the room."

Claim.—Forming an external casing or covering of copper for stoves and all heat-diffusing devices, or apparatus, and steam-boilers, in the manner and for the purposes as herein shown and described.

No. 19,193.—Robt. Wilson.—*Improvement in Apparatus for Heating Feed-Water to Steam Boilers.*—Patented July 3, 1855. (Plates, p. 118.)

The escape-pipe *b* from the cylinder enters the cistern *c*, and has a valve on its upper end to allow the escape of steam, and to prevent the ingress of water from the cistern. The exit-pipe *f* is bell-mouthed at top to collect the condensed steam, as said steam strikes the cold air. Pipe *e* supplies a constant jet of cold water. Pipe *g*, with a force-pump within it and a valve at bottom, serves to urge the water from the cistern into the boiler *a*, and thus keep it supplied.

Claim.—The arrangement of the feed-water pipe *e*, opening within the exit-steam pipe *f*, in relation to the exhaust-steam pipe *b*, within the feed-water reservoir, whereby the entire exhaust-steam may be condensed, and the entire feed-water pass through the reservoir, operating as and for the purposes set forth.

No. 13,223.—James Murphy.—*Improvement in Steam-Boilers.*—Patented July 10, 1855. (Plates, p. 118.)

c is the tube with the bead *n*, and *d* is the tube-sheet, grooved so as to receive the metal *o*.

Claim.—In the construction of tubular steam-boilers in combination with beads or their equivalents on the tubes, grooving the surface of the tube-sheets around or partly around the tube-holes, to receive the metal of the tube when riveted, substantially as described, by means of which I am enabled more effectually to secure tight and strong joints than by any other known method, as set forth.

No. 13,298.—Wm. Ball.—*Improvement in Feeding Water to Steam-Boilers by Auxiliary Engines.*—Patented July 24, 1855. (Plates, p. 118.)

Pipe F, which connects the boiler A with the feed-engine, (not represented in the engravings,) enters the boiler at the exact level at which the water is required to stand. Should the water-level rise, the additional quantity of water thrown into pipe F would so obstruct the passage of the steam through cock M as instantly to reduce the speed, and consequently the feeding capacity, of the feed-engine. Should the water-level fall below the mouth of the pipe, steam alone would pass through the pipe, and thus the speed of the feed-engine would be accelerated.

Claim.—Causing the pipe F, which conveys the steam from the boiler to the feed-engine, to enter the boiler at the exact level at which the water is required to stand, for the purpose substantially as set forth.

No. 13,363.—Paul Stillman.—*Improvement in Water-Gauges for Steam-Boilers.*—Patented July 31, 1855. (Plates, p. 118.)

A is the boiler-head to which the gauge is attached; B glass tube; G the chamber, and *h* the key of a cock for forming or stopping the connexion between the tube and the boiler; *j* guards for protecting the glass tube, secured to G by passing through lugs on G, so that they may be removed if necessary. The glass can be easily removed and replaced by removing one of the keys, the axes of which are on a line with the tube; by this means, also, access can be had to the glass for other purposes; and by reversing the upper key, water can be blown through the glass; and by reversing the lower key, steam is blown through so as to cleanse the tube.

Claim.—The described glass water-gauges, in their construction and arrangement as specified, with the cocks having the axes of their chambers and keys in line with that of the glass tube, and the chambers having double water-ways, for the purposes set forth, and the movable guard-rods supported by lugs on the chambers, in the manner described.

No. 13,425.—J. J. Dutcher.—*Improvement in Steam-Boilers.*—Patented August 14, 1855. (Plates, p. 119.)

The products of combustion pass from the fire-box F through *a* C *h d* D and *l* to the smoke-box. The water circulates around *a* C, through C, between *e* and *d*, through *g* and *l*, and around D, having a complete circulation both through and around the flues.

Claim.—1st. Placing within the cylindrical water-body B of a boiler one or more cylindrical flues C or D, terminating at their ends in frustrums of cones, which frustrums all have the truncated ends towards the fire-box, and the bases towards the chimney, and serve to form communication through the cylinders from the fire-box and towards the chimney, substantially as set forth.

2d. The arrangement of the two cylinders C D, cones *a b d f*, pipes *c g*, passages *h* and *l*, as fully described.

No. 13,488.—Frederick P. Dimpfel.—*Improved Method of Facilitating the Removal of Incrustation from Steam-Boilers.*—Patented August 28, 1855. (Plates, p. 119.)

Metal plates *b* are inserted into the tubes, so as to prevent the incrustation from forming on the entire circle of the tube-surface, which causes a main difficulty in the cleaning process, as the circular crust must first be broken before it can be removed.

Claim.—The method, substantially as described, of facilitating the removal of incrustation in steam-boilers, by inducing breaks in the circle of the incrustation, in the manner described.

No. 13,567.—Joel Densmore.—*Improvement in Feed-Water Apparatus of Steam-Boilers.*—Patented September 18, 1855. (Plates, p. 119.)

The sliding-valve E uncovers the hole F at the time the piston-head I arrives at the end of its stroke towards F. The pressure of the water in the boiler through pipe M closes the valve P. The motion of piston-head I towards F, together with the condensation of the steam in the pump-cylinder S, opens valve O, thereby drawing the water up through tube N, and filling the pump-cylinder. The hole F remains open until the piston gets to the end of its stroke towards the boiler A, when it closes, and remains closed until the piston-head gets back to the end of its stroke towards F. As the piston-head moves towards the boiler, the cylinder behind it is filled with steam admitted from pipe C by the opening of valve E, while the water with which the cylinder was filled is forced into the boiler through valve P and pipe M. If the water should rise any higher than line B, it would be forced by the steam through C, and through valve-opening E into the pump-cylinder, and through piston-valve K, and at the return-stroke of the piston-head it would be repumped into boiler A.

I *claim* the arrangement of the tube C, to enter the boiler at the water-line B, with the steam-chest and pump-cylinder, constructed and operated in the manner described, by which the steam of the boilers assists the pump worked by the engine to force water into the boiler, as herein set forth.

No. 13,583.—John M. Reeder.—*Improvement in Safety Apparatus for Steam-Boilers.*—Patented September 18, 1855. (Plates, p. 119.)

The object of this invention is to limit the engineer to any given quantity of steam, and make it impossible for him to carry more, as slot E, in socket D, permits stem F to rise with weight G, which is to be the exact weight of steam required, while the upper collar P, on stem B, prevents weight on ring A having any effect, and the collar F, below cap C, prevents stem B from being taken out. When the steam exceeds the given limit, the water flows freely (see arrows), and dampens the fire. The valve I then immediately seats itself.

Claim.—Connecting the valve-stems D and F, so that the valve I may be raised by hand from the outside to flood the fires, but cannot be weighted from the outside to increase the steam over a given quantity, as set forth.

No. 13,619.—Chas. Moore.—*Improvement in Steam-Boilers.*—Patented October 2, 1855. (Plates, p. 119.)

A circular partition T surrounds the water-space S, extending up above the water-line U, so as to prevent the highly heated water over the flue-chamber I, and that which passes up through pipes P, from mixing with the water next to the outside of the boiler, so as to generate most of the steam in the pipes P, and over the chamber I, and inside

the partition T, without heating all the water in the boiler so hot as would be necessary if the circulation of the water were not limited.

The horizontal parts of the tubes are surrounded by the burning fuel, so as to generate the steam from the heat of the centre of the fire.

1st. I *claim* limiting the circulation of the water in a steam-boiler, by means of a partition so constructed as to separate the water over the fire, or some portion of it, or the water which is highly heated, or that which ascends through the tubes, from mixing with the water around the sides of the boiler, which is at a lower temperature, substantially as described, for the purposes set forth, and thereby prevent it from descending, so as to enter the tubes again at their lower ends.

2d. I claim so constructing and arranging the tubes in the fire-space that the burning fuel will surround the horizontal parts of the tubes and a portion of the perpendicular parts, substantially as described, for the purposes set forth.

3d. I claim extending the tubes downwards, which pass through the fire-space after they leave said space, and termininating them perpendicularly in the water-space, so as to prevent or retard the water which is highly heated, or the steam generated in the tubes, from escaping at the lower end, substantially as described.

No. 13,761.—Henry N. Pettengill.—*Improvement in Steam-Boilers.*—Patented November 6, 1855. (Plates, p. 119.)

The fire from the furnace passes through the flues C to the back end of the boiler into a casing, from which it returns through the flues E. The water-chambers H connect with the boiler at H^1. The projections I I^1 extend longitudinally from one end of the boiler to the other. The feed-water pipe J communicates with the projections I by means of the pipes J^1, and with the chambers H by the pipes J^2. By means of the chambers H there is no waste heat, as the heat, in passing through the outside main flues, is taken up in the water-chambers H and outside projections I^1. Thus a large amount of fire-surface is obtained.

The inventor says: I do not claim any one of the several parts described; but I *claim* the arrangement of the flues C and E, the water-chambers H H, and projections I and I^1, with the feed-water pipes J and J^1, combined in the manner and for the purpose set forth.

No. 13,903.—Josephus Echols.—*Improvement in Water-Gauges for Steam-Boilers.*—Patented December 11, 1855. (Plates, p. 119.)

B is the gauge-tube; I, the float with the scale suspended from it, the latter passing down below the apertures G H; these apertures are provided with glasses *g* convex towards the interior of the tube, so as to be able to resist the inside pressure. The scale can be seen and read off through said glasses. The upper end of the tube communicates with the steam, and the lower end with the water in the boiler, as usual.

The inventor says: Although I have described the glasses on each

side as being attached to nuts in frames which can be removed, I do not wish to limit myself to this, as glasses on one side may be secured directly to the gauge-tube, and be got at for the purpose of cleaning when the glass or glasses are removed on the other side.

Nor do I wish to be understood as limiting myself to the special mode of construction specified, as other equivalent modes may be substituted.

I *claim* making gauge-tubes, for indicating the height of water in steam boilers, with an aperture provided with convex glass, presenting the convex or arched surface to the pressure in the tube, substantially as and for the purpose specified.

No. 13,983.—Henry F. Gossin and Louis A. Gossin.—*Improvement in Steam-Boiler Furnaces.*—Patented December 25, 1855. (Plates, p. 119.)

The partition walls 1 2 3 and 4 are all arched at the bottom so as to leave open spaces; the partitions 2 and 4 come close up to the boiler and support it, but the partitions 1 and 3 leave open spaces between their upper edges and the surface of the boiler. The cold air, by reason of its greater gravity, will pass through the lower arches, and the heated air will ascend and pass through the said passages between the upper edges of the partitions and the boiler.

Claim.—Constructing the flues of boiler-furnaces with cross-walls, or diaphragms, perforated with passages, substantially in the manner and for the purposes described.

No. 13,209.—Francis Brown Blanchard.—*Improvement in Air and Steam Engines.*—Patented July 10, 1855. (Plates, p. 120.)

A communication between the steam-space A and either one or both the chambers C C^1 can be effected by opening or closing the valves *v* on top of the pipes M M. When the steam is admitted into chamber C, it will take up a portion of the heat therein, thus reducing the heat of the gases therein and increasing the rapidity of the current passing through the stack of pipes into chamber C^1. Such an increase in the velocity of the current will, of course, cause it to yield up less of its heat to the tubes than would result were it to remain longer in contact with them. If steam is admitted into C^1, the volume to pass through the tubular stack will be diminished, consequently its motion slower; and, after it has expended most of its heat in the tubular stack, it will come in contact with the steam, to which it will yield a portion of its heat until the temperature of the mixture is equalized.

In the diagram, fig. 1, A is the boiler; I, the air-receiver; A^1, the air-condenser; and A^2, the air-pump. E, fuel-supplying tube; *h* are the grate-bars.

The inventor says: I *claim*, as arranged with the boiler and stack of tubes *b b b*, or their equivalents, the two chambers C C^1 and their respective connection-pipes M M; such chambers, pipes, and stack of

tubes being used for the purpose of regulating the temperature of the mixture of steam and gases, or producing results substantially as specified.

I also claim, in combination with the air-pump and the furnace, the tubular air-condenser, constructed substantially as described, and for the purpose of reducing the heat of the condensed air and relieving the air-pump from back pressure, substantially as set forth.

I claim combining with the coal-feeder the distributing valve *f*. I do not claim hollow grates, but I claim arranging them on an angle, as described in combination with arranging them with and directly under a fuel-supplying tube or hopper, so that the fuel dropped out of the latter, and upon the inclined grates, may be distributed by them, as set forth.

No. 13,348.—John Ericsson.—*Improvement in Air-Engines.*—Patented July 31, 1855. (Plates, p. 120.)

b^1, working-piston; c^1, supply-piston; *f*, exhaust-port; *e*, induction-port. The regenerator consists of tubes *k*; *m* are the heater-tubes. By means of a hand air-pump, applied to some part of the regenerator, a supply of atmospheric air is introduced at about the pressure of the atmosphere, and then the engine is in a condition to begin its operation. Starting with the pistons of one engine in the position represented in figure 2, at the extremity of their outward-stroke, as the crank s^1, moving in the direction indicated by the arrows, is making that part of its circuit near the outer dead-point, and therefore imparting but little motion to the working-piston b^1, the supply-piston c^1 is carried from the working-piston and towards the head of the cylinder with a rapid motion by the action of the cam K^1 on the roller J^2 of the arm g^1, the cam rotating in the direction of the arrow, and its acting face being formed as represented, that the piston may be gradually started, rapidly accelerated, and, near the end, gradually arrested, and there retained in a state of rest as the extremity of the cam passes the roller. During this inward motion of the supply-piston, the working-piston will be opened by the pressure of the atmosphere, to permit cold air to enter and fill that part of the cylinder between the two pistons. So soon as the supply-piston stops, the exhaust-port closes, and the continued inward motion of the working-piston begins to compress the cold air thus supplied, which of course closes the self-acting valve d^1, through which the supply was admitted by atmospheric pessure. Thus supplied, cold air continues to be compressed by the working-piston, until the end of its inward-stroke; and, as the power for effecting this compression is derived for the time being from the other engine, it is important to observe the condition of the connections. At the time the supply-piston of one engine is started, and the air is entering by atmospheric pressure, and when the arm o^1 on rock-shaft p^1, with which the working-piston is connected by the rod n^1, is at its greatest leverage, the corresponding arm of the rock-shaft of the opposite engine is at its shortest leverage, but is moved inwards, and the supply air, by reason of being gradually compressed, increases the resistance, the arm o^1 gradually shortens in

leverage, and the same arm of the opposite engine gradually, and in nearly the same ratio, increases in leverage on the principle of the bent lever; thus applying the power required to compress the supply air to the best advantage. It should be borne in mind, however, that the power thus applied to compress the supply air is not actually expended, but merely borrowed; for it is so much added to the elastic force of the air by which, when heated, the engine is impelled.

Just before the supply-piston begins the inward-stroke, just described, the eduction-valve *g* is opened, the induction-valve *h* having been previously closed so that the charge of the heated air, by which the previous stroke of the engine was effected, is permitted to escape freely into the atmosphere, so that the power required to move the supply-piston inward is very slight, the air escaping freely to the atmosphere on one side, and entering by atmospheric pressure on the other, through the valve d^1; but as the heated air exhausts or escapes from the cylinder, it passes around and among the series of small tubes *k* of the regenerator, thus imparting its heat through the metal of the tubes to the cold air contained inside of the tubes, which air is thus partially heated preparatory to being finally heated in passing through the heater-tubes. In this way, much of the heat which would be otherwise wasted is saved. The supply of cold air having been introduced and compressed, the engine is prepared to be impelled by the expansive force of the heated air. The eduction valve *g* having been closed during the greater part of the inward motion of the working-piston, the induction-valve h^1 is now opened, which admits the heated air from the heater of the cylinder, by which the supply-piston is forced outwards towards the working-piston. The form of the fall of the cam l^1 is such as to cause the piston to be carried back with a rapid accelerated motion, until it comes nearly in contact with the working-piston; and, at first, in this outward motion of the supply-piston, the already compressed supply air between the two pistons is still further compressed, not by the power of the engine, but by the elastic force of the heated air, the supply-piston being as it were suspended between the heated air from the heater on one side and the cold air of the other, with the self-acting valve *r* (in the side of the cylinder) interposed between the two; for it must be remembered that, as the heater and regenerator are in communication, the air, which is a perfectly elastic fluid, will be under equal pressure in both, notwithstanding a portion is more highly heated than the other; and, as the supply air in the cylinder is simply separated from the air in the regenerator by the interposed valve *r* in the side of the cylinder, the supply-piston will be moved outwards by the heated air, until the supply air is compressed to an equal tension, and then the further motion of the supply-piston, effected by the cam l^1 as it approaches the working-piston, will transfer the supply air from the cylinder to the regenerator, through valve r^1. The only power expended by the engine in this transfer will be the small amount required to move the supply-piston, between two equal pressures, to give the slight preponderance to the one necessary to open the valve *r*, through which the transfer is made. The moment the supply-piston passes this valve and overtakes the working-piston, the preponderance of pressure ceases, and the valve closes by gravity.

I *claim* the method of supplying fresh air to the engine, compressing and transferring it to the regenerator and heater, or either, by the action of the supply and working-pistons within the one cylinder, operating on the principle and in the manner substantially as described, whereby the air is admitted, under atmospheric pressure, as the supply-piston is moving from the working-piston, as the previous charge of heated air is exhausting; so that the said supply-piston moves in equilibrio, or nearly so, and by which also the supply-air is finally compressed and then transferred to the regenerator and heater, or either, as the supply-piston moves between the supply-air and heated-air, during the periods of the nearly stationary position of the working-piston.

I also claim, in combination with the double-piston movement of each cylinder, the methods of connecting the working-pistons of two single-acting engines to constitute a double-acting engine, by means of two sets of vibratory arms attached to each other, and vibrating on a common centre connected with the two working-pistons, and with the two cranks on opposite sides of the crank-shaft, the two sets of arms acting on the principle of the bent-lever, and the crank-shaft being so located relatively to the cylinders and the centres of vibration of the arms, substantially as described, that the working-piston shall be at the end of its inward stroke at the time the crank is passing the dead point furthest from the point of connection of the connecting-rods with the vibrating-arm, as described, by which the power of that working-piston which is being impelled by the heated air is applied to the best advantage to operate the other working-piston during its return-stroke, and by which also the working piston remains nearly at rest during the time the supply-piston is making that part of its outward-stroke, during which the partially-compressed air is finally and fully compressed and transferred to the regenerator and heater, or either, as described.

No. 12,715.—Alfred Drake.—*Improvement in Explosive-Gas Engines.*—Patented April 17, 1855. (Plates, p. 121.)

The water-jacket I I surrounds the cylinder, and communicates, by means of pipe *t*, with the stationary tube P P^1, on which the hollow piston-rod slides; and the water passes from the interior of the piston-rod through opening 3 into the hollow piston, circulates therein, and returns into the piston-rod through aperture 4, and finally escapes from the piston-rod through the hole 5. A stuffing-box *x*, packed with asbestos, or fine wire, forms a tight joint between the piston-rod and tube P P^1, at the extreme end of the former.

The construction of the igniter is apparent from the figure. The blow-pipe *y* y^1 is attached to the under-side of cap *v* v^1; the thimble *s* s^1 s^2 is attached to the under-side of the piece *k* k^1.

In starting the engine, a quantity of air and gas is thrown (by a hand-pump) into reservoir R, sufficient to heat up the igniter, the piston being so placed that the extremity of one of the igniters s^1 is exposed. Cock *l*, attached to the supply-pipe which communicates with the blow-pipe *y* y^1, is then opened, and a light applied to opening *u*,

and thus the trail is fired. The flame of the compound blow-pipe being directed against s^1, raises the temperature of the igniter at s^1 to the exploding point. The first motion of the piston is then given by throwing into the cylinder, from reservoir R, an explosive mixture, which, being fired by the igniter, impels the piston. The piston, in its travel, draws in a charge through the induction-valve, at the opposite end. This charge is, in turn, fired by the exposed igniter at the opposite end, and thus a reciprocating motion is maintained.

The inventor says: I do not wish to claim the employment or application of explosive admixtures of gases to engines;

But I do *claim:* 1st. The igniting apparatus, composed of the thimble $s\,s^1\,s^2$ and the interior tube or blow-pipe $y\,y^1$, arranged and operating substantially as hereinbefore described.

2d. The arrangement and combination of the hollow piston-rod, piston, and jacket surrounding the cylinder, for the purpose of maintaining a constant circulation of water for cooling, substantially as hereinbefore described.

No. 13,598.—William Mt. Storm.—*Improved Method of Actuating Gas-Engines.*—Patented September 25, 1855. (Plates, p. 121.)

Let A represent the cylinder of an engine in all respects similar to the steam-engine. Upon the top of its valve-chest A^1 is located the chamber or separator B, in which is a double coil B^1, which communicates by the pipe C with a small water-boiler, or heater, or, more specifically, with the water-space or bottom of such heater, which is not shown on the drawing. The top end C^1 of the coil, which I call the "flasher," communicates similarly with the steam-space of such heater. It will be evident that if the bottom of the flasher, or coil, is something above the level of the water in the heater, the coil will be filled with steam of a temperature corresponding to its pressure, and the coil will thereby be heated accordingly. This steam, on yielding heat through the coil of the gas-charged water, which is to be at each revolution of the engine thrown upon it, will, in proportion, be condensed and run down by its gravity back into the water-space of the boiler or heater. If, on the other hand, the height of the water in the heater is such as to fill the coil with water, rapid circulation will occur, keeping up uniformly the proper temperature, and answer every requisite for small engines; but in large engines it is desirable that the coil should be filled with steam, because it is desirable to be able to blow through with steam and warm up the engine before starting—a thing which the gas does not readily effect, because (and therein lies one of the greatest sources of economy) it does not part with its latent heat, like steam, by contact with cold surfaces within temperatures at all approachable in practice, unless abundance of water is at the same time present, as before explained, and then, of course, the water takes up the moderate amount of heat set free, and not the engine. To blow through with steam then at starting, supposing steam to fill the coil, I have a branch pipe D, with a stop-cock D^1, which effects the purpose, as will be readily seen. The bed-frame, or shear of the engine, may be cast

hollow, so as to form an extended air-tight chamber E, accessible by means of man-holes. A side view of the interior of this chamber is shown broken off in the drawing, so as to expose the interior and parts within. This chamber constitutes the cold receiver, or absorbing or recombining vessel, whichever it may most properly be termed, and may form a vessel or chamber distinct from the engine, if deemed more convenient, and would do so per necessity in the case of a steam-engine already built being altered to run by this method. This chamber should contain some gas-charged water, the level of which may be represented by the line $x\,x$. Now, suppose the flasher (coil) heated in the manner known, E^1 is a pump whose length of stroke is made adjustable either by hand or, as I have devised, by the action of the governor of the engine, so that the quantity of gas-charged water it throws into the flasher (this being its purpose) shall be proportioned to the wants of, and load on, the engine, for the moment, this pump being worked with and by the engine, and so arranged and located that the gas-charged water from the receiver runs into it by its own gravity. As the piston moves on, while it is filling on one side of its piston it is forcing the gas-charged water from its opposite side, over through the pipe F, into the circle of perforated pipe $x^1\,x^1$ within the separator, from which circle, which constitutes a rose, it flies out in a shower of small jets over the hot coil, when the gas is flashed off from the water and creates a pressure in the separator, while the water falls to the bottom, out of contact with the coil, and forms a thin layer on the bottom of the separating chamber, where it still gives off gas during the decrease of pressure in the separator for the moment, caused by the withdrawal of the supply passing to the engine during the current stroke of its piston.

This momentary discharge of gas from the charge of water, after the removal from the source of heat, depresses its temperature usefully, leaving less to be rarefied in the cold receiver, as all that it possesses above the temperature of the latter, on its final release from the separator, must be. As the engine finishes its stroke, or rather just prior to this, this charge of now decharged water descends through the pipe to the chamber z; to enable it to do which, a like portion is allowed to descend from this chamber by means of the pipe and cock z^1 (the latter opening and closing properly for this purpose) to the cold receiver. Thus an undue accumulation of discharged water in the separating vessel is prevented. The gas meantime passes through the hollow column o, open at the top and not at the bottom, so that the gas may pass to the valve-chest of the engine, while the water cannot, and, passing through and actuating the engine, is allowed to escape, or exhausts through the pipe F^1 into the cold receiver. This exhaust-pipe passes, as is seen, the length of the receiver, or cold chamber, under the gas-charged water, and is perforated with holes to permit the water to enter the pipe, and the gas to escape from it into the water, as it exhausts each in small jets, by which means great surface of mutual contact between the water and gas is provided; and surface I have found has a powerful influence in causing a more quick and sudden absorption, and my experiments would appear also to show that it has a considerable

influence even on the quantity absorbed. Although the water is already charged, it will promptly absorb the further comparatively trifling addition it receives at the moment from the engine; because it is not, of course, charged to its absolute maximum under the given temperature and pressure, if any, in the receiver, and it is maintained at the same degree below this maximum by the corresponding arrival to it of the charge of discharged water from the separator. Thus an accumulation of free gas and a consequent back pressure (exceeding any chosen point) retarding the engine is prevented in the receiver; and as at the same time a corresponding quantity of charged water is withdrawn to be forced into the separator, any accumulation of water in the separator is prevented. The exhaust-pipe at its end rises clear of the water, so as to permit an unimpeded exit to the spray that is likely to be coming out each time with some momentum. Operated in this manner, the engine shows and maintains a good engineer's vacuum in the cold receiver.

The air may be expelled by the steam used for blowing through as in the ordinary steam-engine, by opening the pot-cock G, drawing the slide-valve G^1 forward so as to open the port H of the engine, the valve of the branch pipe D being open, when, as will be easily traced, the steam will drive any air that may have leaked in from the separator, valve-chest, port H, pipe and pot-cock G, and last, from out of the receiver by the opening (at other times covered with an air-tight bonnet) in the side of the receiver, above the water (this opening is H^1). All the cocks are now shut, the steam in the passages and receiver quickly condenses, and a vacuum is left in the latter. I I represent the extremities of a gridiron coil, through which water by a difference of temperature at the two extremes of the coil, amounting even to five or ten degrees, will circulate rapidly to and from a tank or other source not shown, and without admixture take up the heat arising with each charge of discharged water, conveying it away from the receiver, and keep the gas-charged water in it cool. It is very desirable that its temperature should not exceed 100° F., and as much down to about 40° F. as may be convenient. To prevent leakage is, as before remarked, the only point demanding special care in the management of this engine. To avoid any chance of leakage at the fixed joints is, as a matter of course, perfectly easy, and the moving or working joints may be reduced to three, viz: cylinder stuffing-box, that of the air-pump, and that of the valve-rod *c*.

A trifling leak is not of any moment; yet such a leak as is often neglected in the steam-engine, could not properly be permitted here. To overcome this difficulty, the stuffing-boxes should be made of extra length, so as to permit the employment of double gaskets 22^1, with a skeleton ring between, so as to maintain there a space extending entirely around the piston-rod; and as no oil need be used for the stuffing-boxes, the gas-charged water being a fine lubricating medium, the gaskets may be solid rings of vulcanized India-rubber, in the form shown. This makes a frictionless, perfectly tight, and lasting joint, both between the space 3 and the cylinder, and between such space and the external air. Still, however, should there be, from any neglect, leakage by the greater pressure in the cylinder part 2^1, the gas is caught in

the recess 3, where it is free to expand on the instant to a low, and therefore less insinuating pressure, while from the space 3 passes a small pipe 3^1, by which the gas that has worked through is led to the receiver, into which it would be drawn and absorbed by the water. This will cover all danger and loss from leakage when the engine is worked with a compressed atmosphere of gas in the receiver, as hereinbefore suggested and hereinafter described; the little pipe from the space 3 may lead to any small vessel containing water, or the space itself may be filled with water, and this will instantly absorb, and so save, any gas that may happen to pass by 2^1. These means perfectly master the difficulty of loss by chance leakage. Having now described the method of working my engine with a vacuum, I will describe the other method mentioned of working with an actual pressure in the receiver maintained by the same means below or above any chosen point, say 1 to 3 atmospheres, by which method I can attain greater force and economy than can be done even with the air of the vacuum. To prepare the engine for so working, suppose the gas-charged water to be in the receiver as before, and all air (which, if left present, would cause no particular inconvenience by this last method of working) to be expelled in the manner described. The flashing-coil being heated up, gas-charged water is injected upon it; the gas is set free therefrom, and passes to the cold receiver until there is a permanent excess pressure of gas over the water beyond the maximum it can absorb at the given pressure chosen. Every cubic inch of water will now contain say about 2.000 times its bulk of gas, if set free and expanded to the pressure of the atmosphere. The water which had held this gas absorbed may be now drawn away entirely from the separator by the branch-pipe and cock T shown in dotted lines, and the engine is ready to run. The pump E^1 may be left idle, and in lieu of it the pump J, about one-eighth the contents of the engine cylinder, is employed and worked stroke for stroke with the engine. This pump has a pipe J^1 extending down from each of its valves into the gas space of the cold receiver, where their extremities are surrounded by a wooden cylinder of much larger diameter than themselves, and of height sufficient to reach from the bottom to the top, or nearly so, of the cold receiver.

These wooden cylinders *k* have an extensive opening in their sides, over which is extended some absorbing material, as cotton-wick, shown in vertical lines; the ends of the wicks entering the water, which the wicks thus take up by capillary attraction, and become saturated. Now as the pump draws, the gas must pass it through and between this wick, and it becomes heavily laden with the gas-charged water in suspension, and so laden is forced by the pump, on its return stroke, over through the pipe K^1 and through a nose L in the jets upon the flashing coil; the gas is flashed off from the particles of water held in suspension, each particle being, as it were, effervesced and still more finely subdivided. This creates great pressure in the separator, aided at the same time by the free gas, which formed the vehicle to this water, being at the same moment heated and expanded, the whole now passing to the engine to actuate its piston, which is meanwhile resisted

by the far less pressure in the receiver; but as the pressure therein is the source of a pressure always proportionally greater in the separator, this back pressure is indirectly only a greater gain. The exhaust passes to the cold receiver and is absorbed, &c., as before, thus maintaining the same difference of pressure between the cold receiver and separator as at the commencement.

The inventor says: I *claim* operating an engine by the agency of water charged with a gas permanently uniform at ordinary atmospheric temperatures and pressures, and over which water has a self-acting power of absorption, when the process consists in passing a given quantity of the gas set free in charges under pressure, by heat, through the engine, actuating its piston, and thence to a closed, cool, and wet vessel; while contemporaneously therewith I cause to pass to said vessel a sufficient quantity of the said water, which had just previously held the gas absorbed, to re-absorb it—both water and gas being cooled meanwhile, by means specially provided, to an extent sufficient to cause their re-combination in the original form of gas-charged water; by all of which means the motive power of the gas is obtained, without the necessity of converting the water into steam; while, at the same time, the gas is thereby re-concentrated and preserved for re-use, without entailing an accumulation of water in the heating or separating vessel, or an accumulating pressure of free gas in the cold-receiver, all as set forth.

No. 12,216.—Jno. A. Reed.—*Improvements in Oscillating Engines.*—Patented January 9, 1855. (Plates, p. 121.)

Each of the trunnions *d* has a screw in its end, to tighten the valve and compensate for the wearing by the friction, should the friction in its bearings render it necessary.

The inventor says: I do not claim any of the parts of the oscillating steam-engine as my original invention; nor any of the parts of said engine by me employed to carry out and effect my said improvements, as my invention, independently of their connexion in the combination specified.

But I do *claim* as my invention and improvement on the oscillating steam-engine the arranging and placing the valves and steam-ports on each side of the cylinder and in combination therewith, so as to let the steam in both sides of the cylinder at the same time at opposite points, so that the steam from opposite points may meet in the cylinder, and so balance the pressure as to prevent that severe friction which is occasioned by letting the steam in one side only of the cylinder at a time. Also the trunnion-bearing, made adjustable to the trunnion by the set-screws, and so arranged that the conical trunnions may be accurately adapted to the conical seat, as herein set forth.

No. 12,299—Geo. F. Wood.—*Improvement in Oscillating Engines.*—Patented January 23, 1855. (Plates, p. 121.)

The changing of the position of the induction (fig. 4) and eduction (fig. 5) valves, by turning them one-sixth of a revolution, (in a direction opposite to the arrows,) will effect the reversal. The valves when they oscillate in the direction of the arrows will take steam above and exhaust from below the piston. The change of position of the valves for reversal is effected by forked lever F, which is bolted to two flanches *f f*, one on each side of the valves, so that it will move both in the same direction. The catch *h* holds the lever at the top of the circular-way G. By pulling *h* back, and moving F down until *h* catches into notch *i*, the valves describe the one-sixth of a revolution necessary for a reversal. If a notch is provided near the middle of the arc and the lever brought there, the engine will be stopped. Arc G is hinged to a lever H, which has its fulcrum at *m*, and whose other end *k* enters a notch in a piece *l*, which projects from the front of the cylinder. The oscillation of the cylinder gives a vibrating motion to H, and through a rising and falling motion to arc G, thereby oscillating the lever F and valves E and I, the valves always moving in the opposite direction to the cylinder.

The inventor says: I do not claim the induction of the steam by the oscillation of the cylinder bringing its ports at proper times into and out of communication with ports in the ends of the induction and eduction pipes, or in disks connected therewith.

But I *claim* the arrangement of the separate induction and eduction valves I E, communicating with separate induction and eduction ports and passages *p p*^{1} through the two trunnions, and connected with the same lever F, substantially as set forth, to move simultaneously and the same distance for stopping or reversing the engine.

And I also claim transmitting an oscillating motion from the cylinder to the valve-lever F, substantially as described, for the purpose of moving the valves from their ports to meet those of the cylinder-trunnions, and thus cause a quick induction and eduction.

No. 12,726.—Abraham Masson.—*Improvement in Rotary Engines.*—Patented April 17, 1855. (Plates, p. 122.)

There are four cylinders C and pistons P arranged within a hub D, which hub is provided with journals M, these journals being fitted to stationary boxes. The ends of the piston work against a stationary circular guide-way F placed eccentrically in reference to the hub D. The steam enters through the steam-plate at S P. As each cylinder-base in turn passes S P, it opens a communication through aperture O, and the steam enters the cylinder. The pistons being pressed against the guide-way F, a revolving motion will be imparted to the hub. When the piston end is at 1, the steam begins to enter, and continues till 2. Between 2 and 3 the steam acts by expansion. At that time another cylinder receives steam at 1, and the first cylinder begins to discharge steam through aperture E.

Fig. 4 is an inside view of the steam-plate.

Claim.—The combination of the four steam-cylinde s and pistons with the curved guide, arranged and operating so as to produce a continuous rotary motion, in the manner and for the purpose substantially as hereinbefore described.

No. 12,746.—JOHN J. THOMAS.—*Improvement in Rotary Engines.*—Patented April 17, 1855. (Plates, p. 122.)

Disk C is fast on shaft B, and is fitted to work in contact with two faces *f g*. The annular piston-chamber *b* is fitted with two slides *h h*^{1}. One of these slides is always in place to form a close partition or abutment within the chamber; but each is withdrawn in its turn, (by means of cam E and rods *i*,) in a direction parallel with shaft B, to allow the piston D to pass in its revolution. The steam passing through the induction-pipe enters chamber *c*, (see arrows, figure 1,) then passes through passage *d* into chamber *b*, between the back of the piston and the closed slider *h*, and gives motion to piston and disk (see arrow, figure 2). The exhausting is effected in front of the piston through passage *e* into chamber *m*, which is always in communication with the eduction-pipe.

Claim.—1st. The attachment of a piston D to a disk, which forms one side of the working-cylinder or piston-chamber, and works in contact with a bearing-face *f*, on the cylinder outside of the piston, and another face *g* inside of the piston, substantially as herein shown and described.

2d. Constructing the engine, substantially as described, with a central chamber *c* within or surrounded by the working-cylinder or piston-chamber *b*, and with another chamber *m* on the opposite side of the disk C, which carries the piston, and establishing communication between the chambers *b* and *c* by a recess *d* in the disk on one side of the piston, and between the chambers *b* and *m* by an opening through the disk on the other side of the piston; either of the said chambers *c* or *m* being the induction or suction chamber, and the other the eduction or discharge chamber, and the said chambers supplying the cylinder and receiving its discharged contents, as herein set forth.

No. 13,107.—SYLVESTER STEVENS.—*Improvement in Rotary Engines.*—Patented June 19, 1855. (Plates, p. 122.)

The nature of this improvement consists in dividing the cylinder into two separate and distinct chambers, which are separated by a revolving disk, to which are attached two pistons, one for each partition. These pistons, in lieu of being placed opposite to each other, are set a short distance apart, so as not to receive their steam at the same instant, whereby the single disk is enabled to pass the dead centre.

Claim.—The revolving disk D, with its valves *b b*^{1}, operating in the manner substantially as set forth.

No. 13,550.—CHRISTIAN ERNST OFFHAUS.—*Improved Rotary Steam-Engine.*—Patented September 11, 1855. (Plates, p. 122.)

Steam being admitted into nozzle Z, the same passes through F into cylinder B and acts upon the piston-valves, turning thereby the centre piece D and shaft A, said steam escaping again after the piston-valves have moved sufficiently around and have come opposite the channel P^1 through said channel and passage F^1 to the escape-steam pipe K. Supposing that, in the position represented in the drawing, the space between the piston-valves M^1 and M^2 is filled with steam, the opening *n*^{2}, through the circumference of the plate E, will, as soon as the same has passed the abutment *w* in groove *v*, open a passage for the live steam coming from F into said groove *v*, through said opening *n*^{2}, the groove *m*^{2}, and through hole *q* to the inside of the inner half of the piston-valve M^2, closing thereby, by its action upon said part of the valve, said piston-valve M^2 as soon as the steam escapes from the other half, after coming opposite the channel P^1, and keep said valve, by its action, shut until the same has passed under the projection G, forming, in that position, an uninterrupted surface and a regular circle with the centre-piece D, as above described. When the centre-piece D has moved far enough to bring the piston-valve M and the recess T past the projection G, the live steam will enter through the passage or recess T under the centre-piece D, behind the piston-valve M. The opening *n*, through the circumference of the plate E, will then have passed the abutment *u* and come in communication with that part of groove *v* which is connected through passage *q* with the escape-steam pipe K, opening thereby a free passage through said opening *n*, the groove *m*, and the hole *q*, with the escape-steam pipe K, to allow the steam which was behind this part of the piston-valve M, and has by its action kept said valve shut, to escape into the steam-escape pipe, producing thereby a vacuum behind that part of the piston-valve, when the steam, which, as above mentioned, has been led behind the other part of said piston-valve through the recess T, will gradually open the same, said gradual opening of the piston-valve being regulated by spring-bar L.

When the motion of the engine is desired to be reversed, the valve U in nozzle Z is first changed, to change the entrance of the steam into the cylinder. The wheel R is then a little pulled out to bring the pin (with which it is connected to plate E^1) out of its hole, and then turned round, when the wheel R, by its action upon segments *h*, turns the piston-valve frames so as to change the position of the piston-valves, so that the centre-piece D will be turned the reverse way around. The openings *q*^{1} through the plates *d*^{1} of the piston-valve frames will then correspond with openings leading to the grooves *m*, or *m*^{1}, or *m*^{2}, communicating with openings *n*, *n*^{1}, *n*^{2}, in the circumference of the plate E^2, and communicating then through the groove *v*^{1} with the steam or exhaust passages, so as to allow, through those passages alternately, the steam and vacuum to act upon the inner half of the piston-valves, in the manner as above described.

I *claim*, 1st. The construction of the revolving piston in rotary engines, with piston-valves; said piston-valves being made to open and

shut by the action of the steam, without any extra friction against any part on the inside cylinder.

2d. I claim the arrangement of the openings and passages in the side-plates E E¹, in connection with the grooves V V¹ in the cylinder, forming a communication between the inner sides of the piston-valves and the steam and exhaust passages, alternately, in the manner and for the purpose as described.

3d. I claim the construction of the piston-valves and frames, and the manner of changing the position of the same when the motion of the engines requires to be reversed.

No. 13,763.—Elias Matteson, Walter M. Parris, and Hervey Parris.—*Improvements in Rotary Steam-Engines.*—Patented November 6, 1855. (Plates, p. 123.)

A is the frame-work; F the main shaft, to which are attached the different parts comprising the steam-wheel; G another shaft, to which is attached the rotary steam-abutments C, which are made to fit the bottom and sides of the annular steam-chamber I I: the abutments and steam-wheel work together in the manner of friction-rollers. *k k* are two annular air-chambers with openings *b b* and sliding piston *c c*. B are cases or circles which enclose the annular steam-chambers and form their periphery, *j j* being an opening through which the abutments are admitted to form connection with the steam-wheel. Z are adjustable cranks which are attached to the main shaft and to the ends of steam-wheel by means of set-screws Y, with their rollers X, and fixed steam-pistons *a a*, on a line parallel to the main shaft. Said rollers as they revolve with the main steam-wheel are alternately brought in contact with the inner surface of the ellipses D, and give them a vibrating motion, which is communicated to the crescent-formed balance-beams V, on their fulcrums *p p*.

By means of the arms O, the undulating motion of the balance-beam V is communicated to the levers M, which work sliding-valves in the steam-chest I by means of rods R, such combination being to effect an adjustable cut-off. K is the main steam-pipe. S are escape-pipes. J are pipes which conduct the steam alternately to opposite sides of the abutments as the engine is reversed. H is a roller with its hand-lever L and arm N, to which are attached rods Q, that work oval slides with flanges *i i* that extend each side the abutments, and are so constructed as to alternately open and close the steam and escape pipes on opposite side of the abutments, as the engine is reversed by the action of the hand-lever.

The inventors say: Suppose the hand-lever L to be drawn towards you, which would close the steam-pipes J and open the escape-pipes S on the opposite side of the abutments, and close the escape-pipes and open the steam-pipes, and admit the steam on the side towards you and cause the steam-wheel to revolve in that direction by acting conjointly upon the fixed steam and sliding air-pistons *c c*, which are forced against confined air until the air becomes as compressed as the steam, and so passes on until the roller X on the wrist of the adjustable crank

Z comes in contact with one of the arms of the adjustable ellipses D, opposite the place of starting, and gives said ellipses a vibrating motion, which motion is communicated through the afore-described combination to the cut-off valve, and closes the same, and then as the piston moves onward in its revolution and the force of the steam in the engine becomes diminished by expansion under a cut-off, the air-spring, then having the balance power, gradually drives the steam back again into the steam-chamber, so that it is all returned before the escape takes place; thus is a reciprocal action kept up between the steam and the spring balance; then, still under a cut-off, it passes the abutment and on to the place of starting, where the steam is again let on by the action of the roller on the opposite side of the ellipses. Meantime the steam is acting on the opposite piston in the other apartment of the steam-wheel.

The inventors say: We do not wish to confine ourselves to any particular number of steam-chambers, nor to any particular number of pistons in a steam-chamber; nor do we wish to confine ourselves to slotted abutments; for we do not consider it will alter the nature of our invention, whether the pistons pass the abutments by slots in the same, or by slots in the steam-wheel.

But we *claim*, 1st, the cut-off crank Z and anti-friction roller X, in combination with the ellipse D and balance-beam V, when so constructed as to alternately open and close the cut-off valves, substantially as described, and for the purpose of effecting an adjustable cut-off.

2d. We claim the air-spring to steam wheels, when so constructed as to have direct influence on the steam-piston, and by its reciprocal action to maintain a steady, even motion of the engine, when in unison with the cut-off, in the manner and for the purpose substantially as described.

No. 13,786.—John H. Hathaway.—*Improvement in Rotary Engines.*—Patented November 13, 1855. (Plates, p. 123.)

Piston D is firmly attached to shaft E, fitted to play in cylinder A, of which part C B is cut away. The piston, as well as the head F, fit steam-tight, and the latter is attached to slide G working in frame H, which is hung on the hubs of A, and has a swinging motion, governed by lever I. Steam having been admitted at V, and the head F being held in place by a cam, (not represented in the engraving,) the piston D is forced round until it arrives in position D¹, when the cam above mentioned releases the head F, and another cam swings the frame H and (assisted by the steam in the cylinder) draws F out of the cylinder A, and then immediately raises it in time to allow D to pass it, when the cams throw it down again, and swing it into the cylinder ready for another charge of steam, as already described. The dotted lines F¹, G¹, H¹, represent the position of the frame and head when swung out and elevated.

The inventor says: I do not claim the use of a circular, or nearly so, aperture in A, when the head or abutments are moved in other ways, nor the precise form or arrangements of the parts described.

But I *claim* moving the head F by means of a radial arm having its centre of motion corresponding to the centre of the shaft, so as to withdraw the head from the cylinder, before elevating it, in the manner and for the purposes set forth, or any other substantially the same.

No. 12,179.—Warren S. Burgess.—*Improved Arrangement in Double-piston Steam-Engines.*—Patented January 2, 1855. (Plates, p. 123.)

By this arrangement of parts the stuffing and piston rod, (now in use,) and the guides for said rod, are dispensed with.

Of course, the steam is admitted alternately at one or the other of the outer ends of cylinder A, thus never acting upon the inner piston faces.

Claim.—Having two pistons B B placed within one cylinder A, the pistons being attached to rods C C, or their equivalent, so as to be a requisite distance apart; and attaching the connecting-rod E directly to the rods C, or their equivalent, substantially as herein shown, and for the purposes as herein set forth.

No. 12,187.—John Smith.—*Improved Crank Connection in Double-piston Steam-Engines.*—Patented January 2, 1855. (Plates, p. 123.)

The inventor says: I do not claim the employment of two pistons within a cylinder separately, but I do *claim* the employment or use of two pistons B B connected by a cross-head or plate C, which has a slot D through it, in which the crank E of the shaft F fits, whereby the pistons are directly connected to the crank, and a rotary motion given the crank-shaft without the intervention of the usual piston and connecting rods, as herein shown.

No. 12,619.—Louis Bollman.—*Improvements in Condensers for Steam-Engines.*—Patented April 3, 1855. (Plates, p. 123.)

Supposing that the eduction of the steam from the cylinder is to commence, and that previous to the commencement there is a vacuum in the condenser A equal in value to one pound pressure per square inch. The piston E will be, at that time, forced upwards by the pressure of the atmosphere, and this force will be balanced by spring *b*, so as to hold disc-valve I stationary in position to close the entrances *e e* to injection-tubes H H. This position of the piston will be somewhat higher than the one represented in dotted lines in fig. 2. When the eduction commences and the steam begins to enter the condenser, the vacuum will be destroyed, and the atmospheric pressure will be insufficient to hold up the piston E, which will be forced downwards by spring *b* until it reaches the position represented in full lines in fig. 2, when it will be arrested by stop *c* on the piston-rod abutting against *d*. In this position the valve I opens the water passages *e e* fully to inject the water into the condenser. In a short time the pressure in the condenser will be reduced, and the atmospheric pressure will gradually force up the piston again till it closes *e e*, and so forth.

P is a small injection pipe entering eduction pipe B; Q, a small receiver below eduction passage C which leads into the condenser; S, pipe for supplying the feed or hot-water pump from the receiver. Piston E may fit and work within opening R between C and Q. When the eduction commences, (piston E being down,) the feed-water is injected through P by opening a valve-cock and closing it when a sufficient quantity has been injected. At the time of the termination of the injection of the feed-water, the temperature of the condenser will have been reduced only a few degrees, as the water is heated mostly by the latent heat. The particles of water passing along with the steam rush through R into Q. Passage R only remains open as long as there is considerable pressure in the condenser and eduction passage, as it is closed when the pressure has been reduced to a certain degree by the piston E entering passage R. (See dotted lines, fig. 2.) Thus is prevented the exposure of the heated water to the vacuum, in which it could not exist above a certain temperature without being again converted into steam.

Claim.—1st. The method described of controlling the injection of cold water into the condenser, by connecting the injection cock or valve with a piston E, or its equivalent, which is exposed on one side to the pressure of the atmosphere, and on the other to the pressure within the condenser, and is acted upon substantially as set forth, by variations in the pressure in the condenser, so as to increase or diminish the injection as the said pressure diminishes or increases, and to stop the injection when the desired vacuum is obtained.

2d. The employment, substantially as described, for the purpose of heating a sufficient quantity of water to supply the boiler to a higher temperature than the water delivered by the air-pump, of an additional injection pipe P, to inject the said quantity of water at the commencement of eduction into the eduction pipe or passage, the cylinder, or any convenient place near the entrance to the condenser, combined with a receiver Q, which is arranged in any way substantially as described, and furnished with any suitable means, substantially as described, of opening it at the commencement of eduction and injection to receive the said water, and of shutting it off from the condenser, before the temperature of the latter is too much reduced.

No. 12,947.—Wm. W. Hubbell and David Matthew.—*Improvement in Vapor Engines.*—Patented May 29, 1855. (Plates, p. 123.)

The nature of this improvement consists in evaporating the fluid by separating it into numerous small streams near the surface of the water in the boiler, and allowing it to descend from near the surface in small particles, by its weight, in contact with the flues or the different particles of hot water, and thereby become suddenly heated, and evaporate and rise in expansive vapor as power to be used in the cylinders of the engine, and from them to pass into a close condenser, where it is restored to its fluid state, and received into a reservoir containing both water and this fluid, and from this reservoir supplying the fluid to the boiler in quantities proportionate to, and governed by, the pres-

sure in the boiler, by means of a safety feed-pump, supplying the distributor in such manner that the supply, evaporation, and condensation of the fluid are made uniform and dependent on each other. The pipe A is the distributor; it is fed through U^1 from receiver D, pipe U, by means of the safety-pump, (fig. 1,) which connects at U and U^1 with said pipes U and U^1. B is the condenser, consisting of vertical flat tubes connected by horizontal tubes *g*; in the top of each of the flat tubes is contained a jet tube *l*, and all the tubes *l* connect to the water supply pipe W. The vapor comes through X into the receiver C and condenser B, where it is condensed, and runs into receiver D, being extracted by the safety feed-pump through pipe U. The safety feed-pump regulates the supply of fluid to the boiler by having one or more properly loaded safety-valves 7 leading back to the fluid reservoir of the condenser, also having one or more feed-valves 6, operated by the pressure in the boiler. 8 is a common valve.

Claim.—The combination of the distributing perforated pipe or plate, the safety feed-pump, governed by the pressure, and the condenser or its equivalent, to produce a uniform supply, evaporation, and condensation or return of the fluid, substantially as described.

No. 13,019.—HENRY WEBSTER.—*Improvement in Steam-Engine Regulators.*—Patented June 5, 1855. (Plates, p. 123.)

Valve *f* hangs quite free, but when the governor is in operation will be forced by the escaping water into contact with the inclined piece *j*. The rod E, with the incline *j*, are so adjusted by screw *m*, that when the engine works at the desired speed, valve *f* will open just wide enough for the escape of the water pumped up to vessel C, and allow the float to remain stationary. When the velocity of the engine increases or decreases, the float D will rise (see dotted lines) or fall, and carry with it rod E, and act accordingly on the incline and the valve.

Claim.—In this class of regulators, controlling the escape of water by the flap-valve *f* and the rod E, with its inclined piece *j*, all applied and operating substantially as set forth.

No. 13,202.—THOMAS SILVER.—*Improvement in Marine Steam-Engine Governors.*—Patented July 3, 1855. (Plates, p. 123.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: In the arrangement of my marine-engine governor, I do not claim as a novelty the introduction of a spring, as that plan has been adopted for the purpose of collapsing or contracting centrifugal balls to the centre of a horizontal plane, in governors operating in a vertical or fixed position.

I am also aware that a single bar, with a centrifugal ball on either end, and resting at the centre, has been proposed; that the pillar or shaft on which it rests may be placed horizontally, for the purpose of transmitting more readily the motion of the engine, the principle of its action being that of ordinary governors, and having no spring.

I *claim*, in governors, the employment of two oscillating balanced bars, in combination with the spindle and spring, or any equivalent substitute therefor, in such combination, the whole being constructed and arranged as set forth.

No. 13,415.—JOHN ARTHUR and EVAN ARTHUR.—*Improvement in Governors for Steam-Engines, &c.*—Patented August 14, 1855.—(Plates, p. 123.)

The centrifugal force acquired by the rings *a* will overcome their elasticity, and compress them, (see position represented in dotted lines in the engraving,) and thereby act upon the throttle-valve.

The inventors say: We do not claim the invention of a governor which acts by the agency of a centrifugal force, to move a slide lengthwise on a spindle, and through it to act upon the device which controls the power and speed, as the common ball governor acts on that principle;

But we *claim* a governor composed of one or more arcs, rings, or bands of elastic material, applied to a revolving spindle, with a rigid attachment to the said spindle at one point, and a loose or sliding attachment at another point, the sliding part or parts being connected with the throttle-valve, a device which controls the power or speed, the whole operating as described.

No. 13,646.—THOMAS GOODRUM.—*Improvement in Portable Boring-Engines.*—Patented October 9, 1855. (Plates, p. 124.)

The engine carries one or more auger-stocks *c a f*, geared with its crank-shaft D, and receives steam from a boiler through a flexible pipe attached at H. The sliding-pipes enable the whole weight of the engine to be supported by the steam, so that the operator only requires to guide the auger by means of handles E F attached to the frame of the engine. The reason of making the sliding-pipes in more than two pieces is to have several sizes of pipe, so that one may be made to slide whose area is suitable for the working pressure of the steam, to balance, as nearly as possible, the weight of the engine.

Figs. 2 and 3 are drawn on an enlarged scale.

Claim.—1st. Conducting the steam to the engine through a pipe which is fitted to slide within another pipe, substantially in the manner described, whereby the weight of the engine may be supported by the pressure of the steam.

2d. The employment of two or more sliding-pipes I I^2 I^3 I^4, of different sizes, and within the other, in combination with suitable clamps *l*, substantially as described, for the purpose of securing all but such one of the said pipes whose area, acted upon by the working pressure of steam, will receive an aggregate pressure about equal to the weight of the engine.

No. 13,721.—Peter Hogg.—*Improvement in Surface-Condensers for Steam-Engines.*—Patented October 30, 1855. (Plates, p. 124.)

The coils *b b b*, being separately attached to the vessel *a*, can be separately removed and replaced for repairs. The water enters through pipe *i* the rotary-pump *j*, which discharges the water into and causes it to circulate in the vessel *a* (this circulation being kept up by means of revolving paddles *l*.) The cold water thus circulates around the coils, entering at the bottom and escaping through pipe *k* at the top of the vessel as it becomes heated by extracting the heat from the coils, and thus effectually condenses the steam in the pipes. *e* leads to the air-pump.

Claim.—The arrangement of two or more coils or worms of pipes within a surrounding vessel, when the several coils are, in succession, coiled of a smaller diameter and placed one within the other, and each separately attached at top and bottom, in the manner essentially as and for the purpose specified.

Also, causing the condensing water which enters the surrounding vessel to travel around in the said vessel, for the purpose specified, and by means described, or any equivalent therefor, as set forth.

No. 13,748.—Thomas Doyle.—*Improved Arrangement of Two Beam-Engines with Parallel Shafts.*—Patented November 6, 1855. (Plates, p. 124.)

This mode of connecting the engines forms a simple arrangement for driving two shafts, to which it causes the power to be transmitted equally, if the resistance be equal, or always in proportion to the relative amount of resistance.

Claim.—The arrangement of two beam-engines in line with their cylinders contiguous to each other, and the connexion of the piston ends of the beams by an intermediate beam C, substantially as and for the purpose set forth.

No. 13,917.—Joel W. Pettis.—*Improvement in Packing Pistons for Steam-Engines.*—Patented December 11, 1855. (Plates, p. 124.)

E is a split ring applied inside the packing-rings C; the outer ends of the radial arms F fit into notches in the interior of ring E, and the inner ends into notches in the central bearing. By screwing up nut *b* the force exerted by the arms F to cause the expansion of the packing-rings will be increased, so as to compensate for their wear.

The inventor says: I do not claim the forcing out of the packing by means of radial arms within the piston, when the said arms have only a sliding rectilinear movement produced by cones at the centre, as such have heretofore been used; and I consider that arrangement inferior to, or more likely to get out of order than, and not so easily adjusted as, the arrangement of the arms to work as described.

But I *claim* the arrangement and application of the arms F F, substantially as described, between the packing-rings and a movable centre bearing, whether the said centre bearing be movable, to adjust or tighten the packing by means of a central rod passing through a hollow rod, or by other means.

No. 13,934.—William W. Wade, assignor to William W. Wade and Charles Burnham.—*Improvement in Variable Cut-off Gear for Steam-Engines.*—Patented December 11, 1855. (Plates, p. 124.)

The form of induction-cam D is that of a circle with an abrupt offset *d*, the effect of which is to give a very sudden opening to the valve, commencing before the stroke of the piston has quite terminated, and giving a full opening to the induction port, almost at the instant the engine is on the centre. The form of cut-off cam F is substantially like that of cam D, in order to give a quick movement to the valve in closing it. The cam F is fitted loosely to a collar *g*, which is secured tightly to the shaft, and this collar has an opening *h* between it and the shaft, to receive an inclined piece *i* attached to a sliding collar H, which fits loosely to shaft G. The inclined piece *i* works in slot *k* which is made in the cam. As the shaft G revolves, its collar *g* carries round the inclined piece *i* and sliding collar to which it is attached, and the inclined piece drives the cam. As the inclined piece is pushed in or out, the cam is advanced or carried back on the shaft, and the movement of the valve to cut off the steam will take place earlier or later; and therefore, by connecting the collar H with a governor, the speed of the engine can be governed.

Claim.—The arrangement of the induction and cut-off cams D and F upon the parallel shafts G and E, to operate in a yoke frame containing two separate yokes C C^1, one before the other, substantially as described.

No. 13,468.—John Matthews, Jr.—*Improvement in Pressure-Gauges.*—Patented August 21, 1855. (Plates, p. 124.)

The tube A has offsets at one side in the form of hollow plates *b*. By forcing steam or other fluids into the tube, the effect will be to expand or press apart the horizontal portions of the offsets *b;* and thus the side of the tube where the offsets are becomes elongated, while the straight side *d* remains stationary. This elongation of one side produces a deflection of the tube, which (by a proper connexion of the upper end of the tube with an indicator) will indicate the pressure. As this tube is made by electrotyping upon a core of easily fusible material, (stearin or the like, which is to be melted when the electrotyping has been finished,) there is no solder employed in making the tube, the soldered places generally being apt to crack. The effect of expansion or contraction by changes of temperature is merely to elongate or shorten the tube without bending or deflecting it.

Claim.—The construction of a gauge tube, in the manner set forth; that is to say, having offsets thrown out along one side, for the purpose substantially as described.

No. 12,495.—Jno. Williams.—*Improved Arrangement of Exhaust-Pipes in Locomotive Engines.*—Patented March 6, 1855. (Plates, p. 124.)

This improvement consists in creating a draught through the lower flues of the boiler, by the interposition of a curtain, consisting of two cylinders surrounding the exhaust-pipes and wings *b* placed in the smoke-arch, by which the draught is directed more perfectly through these flues, and thus a flue-draught produced in them.

Claim.—Surrounding the exhaust-pipes *e e* with cylinders *a* and *d*, and the outer one connected by wings *b b* with the sides of the smoke-arch, for the purpose of economizing fuel and power of the engine as well as equalizing the draught through the lower flues of the boiler, substantially as set forth.

No. 12,805.—John E. Wootten.—*Improved Arrangement of Means for Regulating the Discharge of Exhaust-Steam in Locomotives.*—Patented May 1, 1855. (Plates, p. 124.)

The exhaust-steam pipes B B communicate with chamber C. In this chamber slides the valve-tube *c*, which, when in its lowest position, fits with its bevelled lower edge upon the seat *d*, which projects from the bottom of the chamber. In proportion as the valve-tube is more or less elevated, the annular opening between it and the seat will be increased or diminished, and with it the force of discharge, and consequently the draught through the tubes of the locomotive.

The cylinder D communicates, as shown in fig. 3, with two hollow trunnions *f g*, on which it oscillates. The space behind the piston E communicates with the steam or water in the boiler through trunnion *f* and proper connecting-pipe. The space in front of piston E connects with the exhaust-steam chamber C through trunnion *g* and connecting-pipe. The area of piston E and of the annular section of the valve-tube *c* are so proportioned that a pressure upon one, acting through levers *h j*, will balance a corresponding pressure on the other. Thus is counteracted within the cylinder D the effect of the pressure of the exhaust-steam on the lower edge of valve *c*. The motions of the piston E elevate or depress the valve *c* by means of piston-rod *e*, levers *h j*, connecting-rod *k*, cross-beam *l*, and rods *m*. The rise of the cross-beam *l* is limited by the elasticity of the elliptical spring *n*. In this manner the pressure of steam from the boiler, acting on one side of the piston E and in combination with the elasticity of the spring, the two forces acting reciprocally on each other, regulates the position of valve *c*, and thereby the area of the discharge-passage of the exhaust-steam.

Claim.—The arrangement of the piston E, within the cylinder D, in communication with the steam or water space of the boiler, and with the exhaust-chamber C, in relation to the spring *n*, rods and levers and beams *h j k l m*, and valve *c*, operating as and for the purpose herein set forth.

No. 13,238.—Chas. F. Thomas.—*Improvement in Means for Increasing Draught in Locomotives.*—Patented July 10, 1855. (Plates, p. 125.)

The deflector T is carried backward near its periphery, as seen at *a;* the rearward curve of it constituting a reverse deflector for the purpose to deflect air through openings U into passage M, when the engine is run backwards. The openings U can be closed or opened by an annular valve-plate V, which is so connected with the butterfly-valves S S, by means of rods W, that when it is turned to close the openings U, it shall open the valves S, and *vice versa.*

The inventor says: I do not claim combining with a chimney a tube for receiving a current of air, and injecting it into the chimney in order to improve its draught; nor do I claim so combining a steam eduction-pipe with the chimney of a locomotive steam-carriage that the steam proceeding from the pipe may be caused to flow or rush into and up the chimney, so as to improve its draught; nor do I claim combining with the furnace or fireplace of a locomotive steam-engine an air-blast apparatus; nor do I claim merely arranging on the front of the chimney or flue of a locomotive steam-carriage a funnel or mouth for introducing air into the flue or chimney, and increasing its draught when the carriage is in motion, so as to carry the funnel or mouth against the air.

But I *claim* combining with an air-receiving mouth L (arranged on the front ends of the locomotive steam-carriage,) the chimney I, and smoke-box O, a secondary chimney K and a concentric or surrounding air-passage M, whereby, when the steam-carriage is in movement on the railway, a current of air may be caused to rush into the chimney and around and above the mouth of the secondary chimney, and so as to aid in increasing the draught through the smoke-tubes as specified.

And, in combination with the air-deflector T, the air-passage L. I claim one or more closing valves or doors to the former, a covered deflector *a*, and one or more other mouths or openings U U, and a closing contrivance or annular valve V, the same being so applied as to enable the engine, either in moving forward or backward, to cause a current of air to enter its chimney, in the manner and for the purpose as specified.

I also claim the manner in which the valve *c* is made and applied to the passage M and the secondary chimney K, in order that it may not only serve to diminish the discharging mouth of said passage, but deflect or contract the tubular current of air passing out of it, and so as to improve the draught of the same.

No. 13,270.—David Matthew.—*Improvement in Apparatus for Heating Feed-Water to Locomotive Engines.*—Patented July 17, 1855. (Plates, p. 125.)

c d is the tubular heater; the heated gases in their course from the flues to the openings between the sectional cones *f* cause the heat to act directly against and around them; the exhaust-pipes *g* force the

current up through the sectional cones, causing the current to rush between each sectional cone.

Claim.—The arrangement of the tubular heater, sectional cones, and short exhaust-pipes, in relation to each other and to the smoke-box, as set forth.

No. 13,648.—Samuel L. Hay.—*Improvement in the Variable Exhaust of Locomotive Engines.*—Patented October 9, 1855. (Plates, p. 125.)

a b is the blast-pipe, provided with perforations *c*, and an orifice *d* in the top; it is enclosed by another pipe *f*, which is free to work up and down. The difference between the area of the orifice *e* and the inner area of the lower part of *f* will be the surface acted upon by the discharging steam to raise pipe *f*, thereby admitting a free discharge of all the surplus steam over the amount required to produce the determined amount of back-pressure; the outer end of lever *h* can be weighted so as to increase or diminish the back-pressure.

Claim.—The application of a self-regulating and adjustable blast-pipe to a locomotive engine, as described, or such modification of it as shall be substantially the same.

No. 13,939.—Wm. E. Cooper.—*Improved Nozzle for Exhaust-Pipes of Locomotives.*—Patented December 18, 1855. (Plates, p. 125.)

The object of constructing the nozzle of an exterior cone A, and interior cylinder B, is to afford sufficient space at the base to receive freely all the steam entering through the pipes *c d*, and distribute it equally to all its parts, and at the same time to allow its escape only through a narrow circular opening *a b*, extending around its top.

The inventor says: I am aware that in the various multiplied forms of exhaust-nozzles, the steam of escaping vapor has been already formed into various shapes; one of which is, in effect, a ring, a conical plug being fitted in the orifice to regulate the area of the opening by varying its position; but none of these have been with the intent, nor have they produced the effect of mine, inasmuch as the blast has never been efficient, except on its outer surface.

I *claim* the blast-nozzle described, which forms the escaping steam into a circle, or its equivalent, and permits the products of combustion to pass up both sides of the annular steam-track or current, as set forth.

No. 13,145.—Jos. Henry Tuck.—*Improvements in Packing for Stuffing-Boxes, &c.*—Patented June 26, 1855. (Plates, p. 125.)

This packing is made of canvass, saturated with India-rubber. The canvass is then cut, in a diagonal manner, into strips of required width; the diagonal ends are cemented together so as to form any length of fillet required; then it is rolled up into a roll and allowed to cement in a firm but elastic or flexible roll. Where greater elasticity is required, the canvass is to be rolled around an India-rubber core. Figure 1 represents a cylindrical packing; figure 2 is another manner of rolling up packing to be used in conical seats; figure 3 represents packing rolled around a core *a*.

Claim.—The forming of packing for pistons or stuffing-boxes of steam-engines, and for like purposes, out of saturated canvass, so cut that the thread or warp shall run in a diagonal direction from the line or centre of the roll of packing, and rolled into form either in connection with the India-rubber core or other elastic material, or without, as set forth.

No. 12,829.—Gilbert Richards.—*Improvement in Spark-Arresters.*—Patented May 8, 1855. (Plates, p. 125.)

The sparks, as they are carried upward by the draught, will be thrown by the deflecting-plates D into the angular recesses *a*, formed by the flanch B, the sparks having a tendency to pass therein, owing to their momentum, while the smoke will pass around the edge of the plates D, and ascend through the centre of the casing A.

Claim.—The spiral flanch B and deflecting-plates D, arranged as herein shown, and for the purpose as set forth.

No. 12,865.—David Matthew.—*Improvement in Spark-Arresters.*—Patented May 15, 1855. (Plates, p. 125.)

The chimney-tube R, extended into the smoke-box, comes down directly over the exhaust-pipes; by its position near the bottom of the box, and by the current caused by the exhaust, the heavier sparks are to be drawn up that would otherwise be left in the smoke-box in an ignited state, and injure it, and obstruct the lower flues. An open annular space is left between the base of chimney I and the top of tube R; and the exhaust-pipes do not pass through the sides of this tube, to discharge into it, as this would obstruct the draught, but present their mouth to its lower end.

Claim.—The annular space between the base of the smoke-pipe I and the section R, extending down into the smoke-box A, with the exhaust-pipes D underneath, arranged as and for the purposes herein set forth.

No. 12,915.—David Matthew.—*Improvements in Spark-Arresters.*—Patented May 22, 1855. (Plates, p. 125.)

A is the separating-cone, K the saddle-pipe, N the spark-arrester, O the case, and P the chimney. The V cavities form entrances to the openings *m*, which are at the upper points of these cavities; an iron plate closes the top; the lower part of the cone sits in the saddle-pipe, which receives the sparks, and conducts them off. When the current of smoke, sparks, &c., is thrown against the cone by the force of the exhaust-steam in the chimney, and strikes into the V cavities, the sparks pass through the openings *m*, striking the top plate, and falling

back into the cavities on the inside, which conducts them down, while the smoke and gases pass off.

Claim.—The separating head or cone, having the surface that is exposed to the current from the chimney formed of V cavities, or projections and openings, for the purpose of separating the sparks from the current of gases.

Also, the saddle-pipe, for the purpose of supporting the head, and conducting the current of sparks and gases through it, substantially as herein shown and described.

No. 13,216.—Daniel Deshon, 2d.—*Improvement in Spark-Arresters.* —Patented July 10, 1855. (Plates, p. 125.)

The deflector or plate J serves to give the proper direction to the current of steam as it escapes; the further the plate J is run down from its highest position, the more the current of steam will be thrown towards the sides of the stack (the engraving represents the plate in about its lowest position). The grating D, for arresting the sparks, is placed on the side of the stack, thus leaving the top of it clear from obstructions to the draught.

Claim.—The arrangement of the deflector at the base of the pipe, and the curved flange C at the top, and the gauge or grating D at the side, as and for the purpose set forth.

No. 12,355.—William Mt. Storm.—*Improvement in Steam-Generators.* —Patented February 6, 1855. (Plates, p. 125.)

The thermostat consists of two horizontal zinc straps J^1, connected at their middle by a vertical zinc strap J^1, and riveted at their ends to a rectangular iron case H^1, into which the steam enters at A^1 directly from the boiler, and through which it passes to the superheater by means of pipe B^1. The difference between the expansion of the iron case and the zinc straps will actuate the rod K^1 and cock C^1.

By partially opening cock P^1 when the desiccator is likely to become overheated, water from the boiler will enter into the desiccator, according to the extent to which the cock P^1 is open, and forming steam will take up any excess of heat beyond that due to the pressure of the steam, if the supply of water allowed to enter is sufficient; but if limited, any desired excess of heat or superheat may be retained. If the desiccator were allowed to fill, the water could not rise above the level of pipe B^1, where it enters the desiccator; for, if it should, the steam formed in the latter, being confined, would promptly become of greater pressure than that in the boiler, and press the water out, till it could itself escape by B^1 to the main steam-dome.

Claim.—1st. Enclosing a thermostat in a steam-tight space, forming a part of the steam-conducting passage to the engine, and from such thermostat forming an exterior and adjustable connection to a cock or valve, as C^1, located in the exit-pipe of the boiler in such manner that, being moved by the thermostat, it shall direct more or less of the steam

through the superheater; the whole device, by acting in conjunction, thus controlling, while being actuated by, the temperature of the steam going to the engine.

2d. Regulating and tempering the heat in the desiccator, by the admission to it, as may be necessary, of water from the boiler, by means of an especial communication, as pipe O^1, the quantity admitted being governable by the adjustment of a cock, as P^1, all substantially as explained.

No. 12,682.—Alexander B. Latta.—*Improvement in Steam-Generators.* —Patented April 10, 1855. (Plates, p. 125.)

E is the water-jacket, A A the coil, the ends C C of which pass, turn down, and connect immediately with the upper part of the water-jacket. The lower ends F F of the coil, coming through the water-jacket, connect with the pumping-engine, which receives the water from an open vessel, which is supplied with water from the reservoir through a pipe provided with a cock, to regulate the quantity of water as it goes into the pumps. The pump can be disconnected from the engine, to be worked by hand. The open water-vessel, or any equivalent, is to enable the engineer to see the water as it is going in. By means of gauge-cocks N N, the engineer ascertains whether or not the water is all converted into steam. D is the safety-valve. Gauge-cocks G G, in the water-jacket, serve to determine when an excess is coming over, by the water rising in it. In commencing the generation of steam, there should be no water in the coil; the fire being lighted, and burning briskly, the engineer commences to work the pumps by hand, and injects water into the coil, which, by this time, has become hot enough to generate steam. As soon as sufficient steam has been generated to fill the steam-chamber, the hand-pumping ceases, and the pumps are connected with the engine.

Claim.—1st. Combining a steam generator or boiler, consisting of a coil of tube, with a furnace, in such manner that the flame, or products of combustion, shall come in immediate contact with said coil, when this coil is combined with a feed-apparatus and gauges, which will enable the engineer to inspect constantly the supply of water, see that it is not interrupted, test its sufficiency, and regulate it at pleasure, according to the varying demands of the boiler, or close the dampers, if the feed should be interrupted, substantially as described.

2d. While confining the admission of water to the receiving end of a coiled tube boiler, limiting the quantity therein, and the supply thereof, to the quantity demanded for immediate conversion into steam, for the purpose of avoiding the weight of a large quantity of water; producing steam promptly, saving fuel, and preventing the water from being thrown out of the tubes by the steam formed in the lower part thereof, substantially as described.

3d. Causing the discharging end of a coiled tube generator to communicate with and discharge itself into the water-jacket, while all other communication of said coil with said water-jacket is avoided, as described.

No. 13,563.—Albert Bisbee.—*Improvement in Steam-Gauge Cocks.*—Patented September 18, 1855. (Plates, p. 125.)

The outer end of the body A of the gauge-cock has a screw-thread cut in it for the male screw of the stopper C to fit and work into; this recessed portion of the body is extended beyond the stopper-seat F, so as to form an annular space I, surrounding an annular projection H, composing the stopper-seat portion of the body, the outlet aperture B running centrally of the body from its inner end to the stopper-seat surface F. E is an India-rubber disk.

I *claim* the arrangement, substantially as specified, of the India-rubber disk, or facing, to the screw-plug or stopper, imbedded and bound at its edges by an extension of the body of the plug, as described, with the stationary annular stopper-seat of the cock, essentially as set forth.

No. 13,652.—George M. Longacre.—*Improvement in Economizing Steam.*—Patented October 9, 1855. (Plates, p. 126.)

The steam is generated in boilers *a*, and passes at high pressure under the evaporators *b*, and from thence to the second set of boilers *c*, which furnish the steam for the engine.

The advantages of this system, the inventor states, are, first, that the surplus heat is taken up by the second boiler before the gases from the fire pass to the chimney; secondly, the greater pressure in the first set of boilers entirely dispenses with the necessity of a pump to keep up the circulation from the first into the second; thirdly, a less surface of pans and length of pipe will answer to produce a given amount of evaporation, as the temperature of the boiling steam is higher than by any other plan.

Claim.—The employment of two sets of boilers, in the manner and for the purposes described, having steam of different pressure and temperature therein, and passing the steam from the boiler of the highest pressure through the pipes of the evaporators, &c., to the other boiler, from whence it is used to move the machinery of the mill.

No. 13,711.—Jos. Woodruff.—*Improvement in Elastic Diaphragm Steam-Pressure Regulators.*—Patented October 23, 1855. (Plates, p. 126.)

The piston F, which is acted upon by diaphragm D, has a smaller diameter than the inner periphery of curb E, and is guided in its central position by chains H, attached with one end to the piston and with the other to the curb. The steam enters at *c*.

The inventor says: I do not claim the convex or cup-edged piston, as it may have been used before; but I *claim* the chains H, as arranged in relation to the cupped-edge or convex surface of the piston, for controlling and guiding the piston, and keeping it in its central position without coming in contact with any substance to cause friction when operated upon by the diaphragm, as set forth.

No. 12,203.—George W. Hubbard and William E. Conant.—*Improvement in Operating Slide-Valves in Direct-action Engines.*—Patented January 9, 1855. (Plates, p. 126.)

Supposing the steam-port *m* of the engine to be open, and piston B to have so nearly finished its stroke to the right, that the tappet-arm *b* is just coming in contact with the tappet a^1 to move the valve to effect the reversal, (as represented in figure 1,) then the ports *i* i^1 of the small cylinder are closed, and so have been from the commencement of the stroke of B. B will continue its motion until it brings valve E to a central position over the ports, when, both steam-ports being closed, the motion of the piston ceases, and (the direct-action engine having no fly-wheel) the motion of the valve E would cease also, but that during the above motion of the piston B, the valve-rod F moves the small valve *h*, and opens the port *i* to admit steam to the small cylinder *g*, to act on piston *f*, for the purpose of driving the valve E to the end of its stroke, and opening port m^1 for reversal, as shown in figure 2. During the greater portion of that part of the movement of the valve E produced by the piston *f*, the valve-rod F and valve *h* are stationary as the projection or hook *d* on the rod is moving from end to end of the recess *e*; but just before the stroke of valve E is completed, the end of the recess comes in contact with the said projection or hook, and the remainder of the stroke causes the valve *h* to be moved far enough for its passage *k* to be closed by the cut-off *j*, and the movement of the valve E ceases. The ports *i i* of the cylinder *g* remain closed, and the valve E stationary, and all the valve gear in the condition represented in figure 2, until the engine piston in its movement to the left brings the tappet-arm into contact with the tappet *a*, when the valve E is operated in a manner the reverse of that above described.

Claim.—Connecting the slide-valve E and its tappet-rod F in such a way as to allow either a certain amount of motion independently of the other, and combining them with a steam cylinder *g*, piston *f*, slide-valve *h*, and cut-off *j*, so as to operate substantially in the manner herein described.

No. 12,207.—William Cleveland Hicks.—*Improved Arrangement of Slide-Valve and Exhaust-Passages in Steam-Engines.*—Patented January 9, 1855. (Plates, p. 126.)

The engraving plainly illustrates the nature of this improvement.

Claim.—The producing (by one slide-valve and valve seat) of two or more exhaust-passages from each end of the cylinder for each induction or steam-port, substantially as in the manner described.

No. 12,399.—John Tremper.—*Improvement in Steam-Valves.*—Patented February 13, 1855. (Plates, p. 126.)

Claim.—1st. The valve composed of a ring, without ports or passages in its sides, applied substantially as described within a casing containing a fixed head or cup *b*, and a passage or passages *d*, leading from one side to the other of the said fixed head or cup.

2d. The guard-ring C applied substantially as described, either with or without the lip *i*, for the purpose of protecting the inlet side, or end of the valve, against the percussive effect of the rush of steam or other fluid, at the commencement of the stroke of the engine. (See engraving.)

No. 12,507.—Noble T. Greene.—*Improvements in Cut-off Valves for Steam-Engines.*—Patented March 14, 1855. (Plates, p. 126.)

a a are the two slide-valves, connected by rods *b* with rocking-levers *c*, on arbors *d*; the arbors have cranks *e*, which are weighted by means of weights *f*, to close the valves when the levers are liberated. Bar *g*, which receives a reciprocating motion from any suitable part of the machine, is guided between standards *h*, and tappets *j* slide in vertical mortises in said bar; the tappets are constantly forced up (by means of spring *l*) against the lower edge of gauge-bar *m*; shoulders *k* on said tappets determine the limit of their motion downward. The gauge-bar *m* has a stem *n*, sliding in a standard *o*, and can be either set at desired heights by means of a set-screw, or it can be connected with the governor, in order to regulate the height to which the tappets may be forced up by the spring, which will determine the period of closing the valves.

Claim.—Combining with the rocking-levers, or their equivalents, for operating the valves, the spring-tappets on the sliding-bars, substantially as described and for the purpose specified.

Also, in combination with the sliding spring-tappets, that operate the rock-levers, substantially as described, the employment of the gauge-bar or any equivalent therefor, to regulate the period of closing the valve, whether the said gauge-bar be regulated by a governor or by other means, as set forth.

No. 12,564.—H. Uhry and H. A. Luttgens.—*Improvements in Valve-Gearing for Steam-Engines.*—Patented March 20, 1855. (Plates, p. 127.)

The differential rocker G is hung upon a spindle *n*, parallel to the main rocker shaft O, and the spindle is stationary within two arms *l k* of the same, while the differential rocker turns freely upon it; the latter is provided with two arms, one F *o* forming a quadrant arm, which holds a sliding-block (not represented in the engraving) operated by an eccentric; the extremity of the other arm *o* forms a joint to receive a valve-rod operating the exhaust-valve, the motion of which is mainly due to the motion of the main rocker, which is connected to the stationary or shifting-link motion, but is modified and regulated by the position of the block within the quadrant-arm of the differential rocker. The eccentric which operates the quadrant-arm of the differential rocker is fitted and fastened upon the crank-shaft, besides the two eccentrics which operate the ordinary-link motion, all three having in this case the same amount of throw; the throw of the additional eccentric may, however, be varied as deemed proper. The eccentric

near its extremity is secured by a pin to a block, which latter is fitted so as to slide freely within the slot of the quadrant-rocker arm; the end of the eccentric rod is fastened by a pin to a connecting piece, which forms a link between the former and the reversing lever, the fulcrum of which has its bearing in a part of the framing of the engine. The second arm of this lever, forming an angle of about ninety degrees with the former, has secured to its end the reversing rod, which latter may be secured at its other extremity to an ordinary reversing lever.

The main valve C^1, or the one operated upon by the ordinary link-motion, is a solid plate without cavities, and its seat is provided with two steam-ports e^1 and f^1, by which the steam enters passages leading to the ends of the cylinder. The second valve d^1, or the one operated upon by the differential rocker, is supplied with the exhaust-cavity k^1; its seat has two steam-ports i^1 and g^1, and one exhaust-port h^1; the steam-ports opening into the same passages which lead to the ends of the cylinder, these passages being properly extended so as to meet their respective steam-ports. The valve-seats are made of a W shape, each V forming a seat for one of the two valves.

The first-mentioned valve, operated by the ordinary-link motion, fulfils the offices of distributing the steam to the cylinder, supplying outside lead, and cutting off the steam in proportion to the decrease of travel; the other valve exhausts the steam, while, at the same time, it opens and cuts off the admission of steam near full stroke of the piston.

A description of the operation of this mechanism would occupy too much space.

The inventors say: We do not desire to confine our claim to any precise manner of construction or application of the improvement, as, from its capacity of being applied to steam-engines of different designs and purposes, its adaptation may, as already stated, call for modifications of parts connected with the improvement.

But we *claim* the differential rocker G, operated substantially as described, in connexion with the stationary or shifting link motion, for the purposes of increasing the opening of the steam-ports at the higher grades of expansion, and retarding and varying the time of exhaust, without incurring early compression attending increase of inside-lap on an ordinary valve.

We also claim the duplicate valve-seats B^2 and B^1 being arranged parallel to each other, provided with steam-ports f^1 e^1 i^1 g^1, and an exhaust-port h^1; the two steam-ports g^1 and e^1 towards the front of the cylinder, joining in the passage J^1, lead the steam to that end of the cylinder; the other two steam-ports i^1 and f^1 leading the steam into one passage K^1 towards the back end of the cylinder.

No. 12,592.—Wm. H. Guild and W. F. Garrison.—*Improvement in Operating Valves in Direct-acting Steam-Engines.*—Patented March 27, 1855. (Plates, p. 127.)

The operation of this valve will be understood from the engravings. The inventors say: We do not confine ourselves to the particular

form of the valve, or arrangement of the ports, further than is necessary to the within described operation.

We *claim* giving to the valve the whole or part of the movement necessary to effect the change in the direction of the engine-piston, by means of the steam acting upon a piston E, which is arranged and applied to work perpendicularly to the valve within a cylinder D attached to a cap fitted to the back of the valve, and is supported against the pressure of the steam by a rocker *e*, or its equivalent, by which it is caused to operate, substantially as set forth.

No. 12,624.—Thos. Goodrum.—*Improvements in Valves for Steam-Engines.*—Patented April 3, 1855. (Plates, p. 127.)

The operation of this valve will be understood by reference to figures 2 and 3, both of which represent the valve in the same position; one figure showing its relation to the ports *a a* at one end of the casing, and the other figure its relation to the ports a^1 a^1 at the opposite end, at the same time. The cut-off is there supposed to be adjusted to cut off at about half-stroke. The right-hand engine is supposed to be just passing the centre; the left-hand one to be at half-stroke. The valve makes one revolution in the direction of the arrows for every revolution of the engine-shaft. The bearing *i* of the valve is just passing the port *a* of the right-hand cylinder, and commencing to admit steam from the interior of the valve through the opening, while the bearing g^1 is just opening the opposite port a^1 of the same cylinder to the exhaust. The port *a* of the left-hand cylinder, which has been receiving steam, is just being closed by the plate *p*, while the opposite port a^1 is full open to the exhaust-cavity e^1. The time of cutting off can be varied. The dotted lines in figures 2 and 3 represent a position where the cutting off will take place later than in the position represented in full lines; *k* is the induction, *g* the eduction pipe.

The inventor says: 1st. Though I do not claim to be the first inventor of rotating tubular valves for the induction and eduction of the steam, I *claim* the rotary tubular valve having openings and cavities, arranged substantially as described, to communicate with the induction, and with one, two, or more openings or ports *a* leading to one end, and a corresponding number of ports a^1 leading to the opposite end of one, two, or more cylinders, whereby the same valve is enabled to control the induction and eduction of steam to both ends of one, two, or more cylinders.

2d. I claim the variable cut-off, consisting of two segments of cylinders *o* and o^1, and plates *p* p^1, applied within the tubular valve, substantially as described.

3d. I claim arranging the valve-casing and the tubular valve with the axis of the valve in line with the cylinder or cylinders, as described, so as to bring the valve into an equally convenient position relatively to two or more cylinders, and enable the length of the passages leading from it to the cylinders to be reduced to the greatest possible degree.

No. 12,729.—John B. Schenck.—*Improvements in Cut-off Valve-Gear.*—Patented April 17, 1855. (Plates, p. 128.)

Cam B is firmly secured to crank-shaft A; cam B^1 is movable upon shaft A; both cams have grooves *a* precisely similar. Cam B^1 operates the cut-off valves. *b* b^1 are loose sleeves upon a fixed shaft C. The ends of arms *e* and e^1 are connected by a lever *f*, to which is attached valve-rod *g*. Figs. 3 illustrate the operation of these parts. The time of cutting off the steam can be varied by moving cam B^1 on the shaft, so that it may act sooner or later after cam B; worm-wheel *j* is cast with the cam B^1; the endless screw *k* is supported in bearings *l l* attached to cam B, and gears with the worm-wheel *j*; the screw carries a bevel-wheel *m*, which gears with bevel-wheel *n* on arbor *x* of a finger-wheel *o*, said arbor turning freely in a bearing near the periphery of the cam. This finger-wheel in revolving with the cam passes during every revolution between two pins *p* and p^1 attached to an arm *q*, which rocks on a stationary fixed pivot *r*. This arm is connected by rod *s* with a governor. While the engine is going at the proper speed, the governor holds the arm in such a position that the finger-wheel passes between the pins *p* and p^1 without touching them, and therefore the relative positions of the cams are not changed; but if the engine goes too fast or too slow, it draws the arm in such a direction that one of the pins will be struck by the fingers of the wheel and move the wheel, bevel-gear, screw, and worm-wheel in the proper direction to either advance or retard cam B^1, and thus cause it to act sooner or later after cam B, and thereby cut off earlier or later. In order that the tendency to increase the speed of the engine may not cause the cam B^1 to be moved farther back than is necessary to allow the valve to remain open full stroke, the bevel-gear *n* is not secured fixedly to the arbor of wheel *o*, but is only attached by means of two spring-pawls *t* t^1 and ratchet teeth *u* u^1. Pawl *t* is made with a tail *w*, which, when cam B^1 is moved back as far as desirable, comes in contact with a stud *v* secured to cam B^1, thereby disengaging the pawl from the tooth, so as to allow the finger-wheel and arbor to rotate without the bevel-wheel.

The inventor says: I do not of themselves claim the employment of two cams or eccentrics applied to a single slide-valve, the one to open the steam ports, and the other to close them to cut off the steam; neither do I claim making one of the said cams or eccentrics movable for the purpose of varying the cut-off.

But I *claim*: 1st. Connecting the slide-valve with a lever *f*, which is also connected at different points with two arms *e* e^1 of unequal length, working side by side, and receiving motion substantially as herein described from separate cams on the crank-shaft of the engine, or some other shaft having a corresponding motion therewith, the whole operating to give the valve a double movement, as herein set forth.

2d. Effecting the connexion between the finger-wheel *o* and the bevel-wheel *n*, or its equivalent, through which the said finger-wheel transmits the movements of the governor to the cut-off cam B^1, by means of pawls *t t* acting upon ratch t-teeth *u*; and providing a stud or stop *v* on

the opposite cam to that which carries the finger-wheel, for the purpose, when the cut-off cam arrives in position to give full steam for the whole stroke of the piston, of liberating the pawl by which the motion is transmitted in the direction for retarding the operation of the cut-off cam, and thereby rendering it inoperative, substantially as herein described.

No. 12,873.—JOHN A. REED.—*Improvement in Steam-Engine Valves.*—Patented May 15, 1855. (Plates, p. 128.)

One face a^2 of the valves, when removed from its seat, forms the communication between the cylinder and the exhaust passage *t*; the other face a^1, when withdrawn from its seat, forms the communication with the steam passage *r*.

Claim.—Bevelling the edges of the cylindrical valve *z*, or its equivalent, and bevelling the edges of the steam-ports *s t*, whereby I am enabled to move the valves within the ports; the bevelled edges of the ports thus being valve-seats, and the bevelled edges of the valves being faces to fit thereto, as herein set forth.

No. 12,904.—MARCUS D. DU BOIS.—*Improvements in Valve-Gear for Oscillating Engines.*—Patented May 22, 1855. (Plates, p. 128.)

The rock-shaft E passes transversely through the steam-chest, which, by means of a toothed segment F and rack, operates the valve; outside the steam-chest it carries the three-armed lever *c d* d^1, so arranged that the continuation of the central line of arms *c* bisects the angle formed by *d* and d^1. It also carries another three-armed lever *e f* f^1, arranged as shown in the figures. The stud *g* projects from a sliding piece H, which slides in ways on standard G. The cylinder A oscillates on trunnions T. Suppose the piston to be moving in the direction of the arrow, but the engine to be on the centre and about to take steam at the left-hand end of the cylinder, the arm *c* is then in the position of figure 3 on the right-hand side of stud *g*, and the oscillation of the cylinder causes the arm *c* to turn the shaft E and segment, and move the valve to open port *a*. The arm *c* then passes over the stud. As the cylinder terminates its oscillation, the arm *f* is caught by the spring-catch *h*, so that, as the cylinder returns towards a central position, the catch acts upon *f* to move the valve to close the ports, after which the arm *f* works clear of the catch. Figure 2 represents the ports just closed, and the arm *f* just leaving the catch. The engine is now nearly on its centre, and arm *c* is just coming into contact with the left-hand side of stud *g* to move the valve to open port a^1. When the valve has a short stroke, and the valve is not moved far enough by stud *g* to bring arm *f* or f^1 in position to be caught by *h* or h^1, the catching will be insured by the arm *d* or d^1 on the same side, striking against *i* or i^1 and throwing the arm over the catch. The length of stroke can be varied by raising or lowering sliding-pieces H and stud *g*.

Claim.—1st. Furnishing the rock-shaft E, by which motion is to be given to the valve, or valves, with three arms *c f* f^1, arranged substantially as described, so that the arm *c* will be brought, by the oscillation of the cylinder, into contact with a fixed stud *g*, and thereby be caused to give a movement to the valve to open the ports, and that the arms *f* f^1 will alternately be brought, by the same means, into contact with fixed spring-catches *h* h^1, for the purpose of giving the valve a movement to close the ports, as herein fully set forth.

2d. Furnishing the rock-shaft with two arms *d* d^1, arranged substantially as described, to strike two fixed pieces *i* i^1, when necessary to throw the arms *f* f^1 into a position to be caught by the spring-catches *h* h^1, for the purpose of moving the valve to close the ports.

No. 12,966.—DAVID STODDART.—*Improvement in Cut-Off Valves.*—Patented May 29, 1855. (Plates, p. 128.)

The steam connexion from the boiler to the engine being opened, the main piston commences its stroke, and continues till it passes the hole O midway in the cylinder connecting to the space under P; then the steam behind the piston rushes through the connecting-pipe, and, acting on disk P, closes the valve, while the main piston continues to the end of the stroke; the steam behind it, and also under P, by reason of expansion, being gradually reduced to nearly one-half its initial pressure. But if the area of P is sufficiently large, the reduced pressure will still hold the valve shut until the engine exhausts, when the steam under P will rush back again to the cylinder, leaving unbalanced the pressure of steam above the cut-off valve exerted on its face; and hence the cut-off valve opens to give the engine steam for the return stroke, when the like operation is again performed. X represents part of the cylinder.

Claim.—So arranging the disk P, connected with the cut-off valve, and in relation to the space below P, connecting it by a passage to the cylinder, that the cut-off valve will be operated by steam from the cylinder, as set forth.

No. 13,128.—CHAS. S. HARRIS.—*Balance-Valve.*—Patented June 26, 1855. (Plates, p. 128.)

Claim.—The combination of two valve-surfaces C C acting on the two feather-edged valve-seats E E, one inside and the other outside the casing or box, in such a manner that the pressure in one direction on one is compensated by an equal pressure in an opposite direction on the other, so that the valve will remain in a state of rest without being affected by any pressure, whether on the inside or outside of the casing or box.

No. 13,276.—JNO. B. STOTT and ALEXR. FERGUSON.—*Improvement in Cross-head Attachment for Working Steam-Engine Valves.*—Patented July 17, 1855. (Plates, p. 128.)

When the inclined end of bar X reaches the cam M^1, it presses the latter aside, moving arm K, shaft J, lever H, and valve-rod G, a little from right to left, and operating the valve so as to close the steam-

passage. The continued expansion of steam moves the piston on until the edge of T touches M^1, which it moves a little further back, and thereby gives the valve a further motion, slightly opening the steam-passage. At the same time that the vertical face of M^1 presses against the face of T, the projecting lip overlying the upper oblique surface of T slides over it, raising M^1 vertically against its spiral spring until it reaches the recess V, when it drops into it just at the close of the piston-stroke. The operation of the parts is similar during the backward stroke of the piston.

The two plates T are connected by a right and left handed screw, which can be operated by thumb-screw Y, thereby bringing the two plates nearer together or further apart, and thus regulating the time for cutting off steam.

Claim.—The method of operating the valves of steam-cylinders by the process described, to wit: By a series of trips attached to and sliding with the cross-head of the piston, which trips operate in succession upon the arms of a vibrating shaft, connected with the valve-rod through cams fixed near the ends of the arms: the trips themselves consisting of a variable and adjustable one to move the valves so as to cut off the steam before the end of the piston's stroke, leaving the eduction passage slightly open; a second to shift the valves a little further, at the end of the stroke, so as to take steam for the new stroke and open wider the eduction passage; and a third to shift the valves so as to open the induction and eduction passages to their fullest extent. The two first movements of the valve being made by the movement of the cross-head in one direction, and the other by the reverse movement thereof, the last operation being produced by the joint action of the spring-cam on the arm K and the recessed trip V, substantially as set forth.

No. 13,328.—Charles A. Wilson.—*Improvement in Oscillating Valves and Gearing for Pumping-Engines.*—Patented July 24, 1855. (Plates, p. 129.)

Y is a cushion piston; M M, hollow spaces filled with steam and forming a jacket for the valve; L, exhaust-pipe; J, cylindrical steam-chamber, with opening *a a* into the steam-pipe; *m*, two valve-ports opposite each other, both of the same size and shape as the equal ports H^3, H^4, F^3, and F^4 in the valve-seat, and one-half the area of H and F, H^2 and F^2, in the bottom of the seat; K, exhaust space; *c c*, two lugs on the end of the valve extending near the front or right-hand side of trip-lever Q, embracing tightly the safety-arm O, and so regulated as to admit the necessary play of the trip lever, which, striking against them alternately in its descent, opens the valve-ports by turning the oscillating valve; figure 2, underside view of the valve-tripping apparatus; *r r*, set-screws in L^2 L^2 for regulating nicely the time when the cams begin to act on the safety-arm, for the purpose of cutting off the steam at any desirable period before the trip-lever in its returning motion, passing the vertical plane through its axis, falls and knocks open the valve-ports for the opposite end of the cylinder.

The inventor says: I do not claim producing an equilibrium of pressure on the interior surface of the oscillating valve: that has been more or less perfectly accomplished by many before me, and probably by that of Mr. Wright, of Rome, New York, and by Bloomfield's patents of A. D. 1854. But I have, as I believe, effected what has never before been accomplished in balancing all pressures, both interior and exterior, on the oscillating valve, arising from steam at the boiler tension, expanding or exhausting; while at the same time I have relieved it from all weight of working-gear, so that it has nothing to impede its motion or cause wear in its chamber, except the friction developed by the pressure required on N, figure 4, to produce a steam-tight joint and its own weight.

I *claim:* 1st. Balancing oscillating valves under all lateral pressures on the exterior arising from steam or air, and regulating the exhaust-ports as described.

2d. Balancing the end pressure in the interior, caused by steam in conical valves V, by the annular recesses *b b*, equal and opposite to *a a*, and the balance-piston N, or steam-valve on a bevelled seat, as described.

3d. Supporting the tripping apparatus, consisting of the angle R, trip-lever B, toggle-joint T, and upper lever S, or their equivalents, so as to relieve the valve from all weight, and consequent friction and wear, as described.

4th. Using the safety-arm O to insure and regulate the cut-off, and the cam-jogs L^2 L^2 of depth regulated by cutting set-screws *r*, or other equivalent devices for operating the same, as set forth.

5th. Using the independent rod A B attached to the piston of the steam-cylinder for working the valve-gear, whereby, bringing the steam-cylinder and pump close to each other, space is economized while power is gained, as has been described.

No. 13,359.—Frederick Perry.—*Improvement in Cut-off Valves for Steam-Engines.*—Patented July 31, 1855. (Plates, p. 130.)

This valve is pressed to its seat by the steam. B is the main valve; C C the detached cut-off valves, having double ports to match those in the main valve and stops *b;* D D are the expansion and contraction plates for graduating the movement of the cut-off valves, and have stops *c* to match those on the cut-off valve; they are connected with suitable links J to the eccentric wheels *g* attached to the shaft *k; a a* are two small sunk channels in the top face of the main valve, over which channels the cut-off valves are placed, constantly covering them. The valves sliding over the channels are regulated by their stops *b* striking the stops *c* on the expansion plates in their inward motion, and the stops *d* on the ends of the grooved guide *f.* As these stops *d* are stationary, the cut-off valves move outward the same distance in every direction. *e e* are the grooves in the guide *f* for guiding the expansion-plates in their inward and outward motions in presenting their stops *c c* to determine the amount of cutting off the steam. The axle *h* is worked from the governor. The channels *a a* should be no larger

than will secure the cut-off valves from slipping, as too large channels would cause too much pressure on the said valves.

Claim.—The combination of the channels *a a* and holes *p p*, with the cut-off valves D D and exhaust recess O, as described, or their equivalents, for the purposes herein set forth, or any other purpose for which they are suitable, merely modifying the parts to suit circumstances, while the principles involved are the same.

No. 13,369.—NORMAN W. WHEELER.—*Method of Operating Steam-Valves.*—Patented July 31, 1855; antedated March 1, 1855. (Plates, p. 130.)

The parts being in the position represented in the drawing, steam is admitted into the cylinder to the left of piston B in g^1 and between the pistons K K. When B passes over and beyond port g^2, the steam passes through g^2 into C D between the two pistons of unequal areas K H, which will move all the pistons towards the left by virtue of the greater area of H than that of K. This movement will continue after K shall have passed over and closed g^2, and cut off the flow from cylinder *a* by virtue of the expansion of the steam already contained between H and K, until H (to the left of K) shall have passed the exhaust-passage *r*, and the steam is released through *r* into *f*. This movement will have changed the positions of the pistons H H at the ends of valve-rod *t*, so that the induction and exhaustion into and out of the cylinder *a* is reversed, and g^2 is brought between pistons at equal areas, so that the valves remain at rest until B has completed its return-stroke and brought g^1 from the exhaust to the steam-side of the piston B. These movements being repeated, secure a reciprocating motion of B.

The inventor says: I am aware that valves of steam-engines have been actuated by steam-pressure, applied to pistons other than the main working pistons in the "starting gear" of the early German and English river and marine engines, and that the separate and individual parts of the engine are old and well known, and do not claim them; neither do I claim closing cut-off valves by steam-pressure released from the working cylinder through a passage opening into said cylinder near the desired point of cutting off.

I *claim*, first, actuating the induction and eduction valves of any double-acting reciprocating steam-engine by means of steam-pressure derived from the working cylinder, and released therefrom by the passage of the working piston over and beyond appropriate ports, when the pistons, or their equivalents, upon which such pressure acts, are so arranged that no movement of the valves shall result from the passage of the working piston over the first of two or more such ports in any full stroke.

I claim releasing the steam contained between pistons of unequal areas by the passage of the larger one over its exhaust-port, and stopping the supply between the same pistons by the passage of the smaller one over its induction-port, substantially as described.

No. 13,498.—E. G. RUSSELL.—*Improved Regulating-Valve for Steam-Engines.*—Patented August 28, 1855.

The shoulder *j* forms a stop when it comes in contact with the valve-seat *a*, and it is bevelled at *e* where the slot *d* terminates, so as to leave a small portion of the slot uncovered when the shoulder is up to the seat, for the purpose of preventing the steam from being shut off entirely.

The inventor says: When steam is first admitted at *b*, as it rushes upon the valve it drives the valve along until the shoulder *j* is up to the seat, and then holds it, until, by the passage of steam through the small opening at *e*, the chamber C is filled with steam, and, on equilibrium being restored, the valve is forced open by spring *g*. In consequence of the free egress of steam from the chamber C, (when the engine is in operation,) the pressure of the steam in that chamber will always be less than it is in the inlet-chamber, and there will be a tendency to close the valve, but that is prevented by spring *g*, which balances the excess of pressure. As the velocity of the engine increases, the quantity exhausted from the outlet-chamber increases, and the relative pressure on the outlet side of the valve is diminished; consequently the valve is acted upon by the steam-pressure in the inlet-chamber, and the opening of the slot is contracted.

The inventor says: I do not claim to be the first inventor of a regulating-valve, the area of whose opening is increased or diminished by any tendency to increased or diminished velocity.

But I *claim* the hollow cylindrical valve D, open at one end and closed at the other, fitted in a cylindrical seat, with its closed end on the inlet side of the said seat, and provided with a slot at one side near the closed end, to allow the steam to pass through its interior, and having a spring applied, to balance the excess of pressure on the inlet side, and to give a tendency to open the valve, the whole operating as described.

No. 13,527.—PHILIP W. MCKENZIE.—*Improvement in Valves for Regulating Steam-Engines.*—Patented September 4, 1855. (Plates, p. 130.)

A is the steam-pipe, down which the steam passes from the boiler to the cylinder. When the stroke of the engine-piston first commences, the current of steam through pipe A, taking the direction of the arrows, is slow, and insufficient to overcome spring P and move the cut-off valve. By the time the piston has attained the desired speed, its force is sufficient to drive the valve down to the bottom of channel H, and shut off the steam. When the valve has reached this position, the pressure of the steam, acting on a surface equal to the area of its bottom face, will keep it closed until the induction-valve covers the port of the engine. The adjustable stop p^2, below the lifting-plate K, prevents the cut-off valve from coming close down on its seat H. When the induction-valve covers the port of the engine, sufficient steam is allowed to pass through the slight opening between the cut-off valve

and its seat, to start the cut-off valve, and the valve will immediately be opened full by the spring P, to admit steam for the next stroke of the piston. The governor may be so connected with rod S as to lower it as the speed increases, together with the spring-bearing *v* attached to the end of rod S, whereby the spring will be weakened, and *vice versa*. The too rapid opening of the cut-off valve is prevented by the cushioning of the steam in cylinder E, which cushioning is produced by valve *d* closing opening *e*, and causing the steam to escape only at *j* by the adjustable valve *k*.

I *claim:* 1st. The construction and arrangement of the cut-off valve I, and its seat H *m* I, and the disk *k*, and the application to the said valve of a variable spring P, or their equivalents, whereby the valve is made to cut off the supply of steam by the action of the current of steam in the passage from the boiler to the engine, when it has attained the desired speed.

2d. The employment, in connection with the cut-off valve, of the piston I working in the cylinder E, which is provided with a valve *d* and adjustable valve *k*, to prevent the too sudden opening of the said valve, the said piston, cylinders, and valves operating as set forth.

3d. Providing for the opening of the cut-off valve by means of the spring P, as soon as the slide or other induction-valve covers the port of the cylinder, by the employment of a stop p^2, to prevent the entire closing of the said valves.

No. 13,637.—Henry E. Canfield.—*Improvement in Cut-off Valves for Oscillating Engines.*—Patented October 9, 1855. (Plates, p. 130.)

B is the valve box; G, pipe leading to the boiler; F, exhaust pipe communicating with the space enclosed by partition D. When the piston is at the end of its stroke, (see fig. 1,) the partition D will cover both of the steam ports E E. In fig. 2 the piston is represented at half stroke. The loose valves C^1 C^2 alternately cover the steam ports; and by adjusting the set screws H^1 H^2 so as to increase or diminish the distance travelled by the loose valves, the steam can be cut off at any part of the stroke.

Claim.—The arrangement in oscillating engines of separate loose valves, moving independent of each other, when the motion is given them by the oscillation of the cylinder, for the purpose of cutting off the steam at such part of the stroke as may be desired, substantially as shown and described.

No. 13,889.—John Tremper.—*Improved Means of Connexion between Regulator-Valve and Governor's Stem.*—Patented December 4, 1855. (Plates, p. 130.)

A, throttle-valve stem; C, governor-valve stem. The position where the governor and valve are disconnected is represented by dotted lines.

Claim.—Effecting the connexion between the throttle-valve cut-off, or other regulator-valve, and the governor-stem, by means of a pin *d*, working within a slot *a* or against a bearing face, the said slot or bearing face having an escape opening *b*, opposite to which the pin *d* is brought by the cessation of the operation of the governor, whereby the pin is allowed to escape from the said slot or bearing face, and thereby effect the disconnexion of the governor from the valve or cut-off instantaneously, to allow the valve to be closed by a spring or weight provided for the purpose, to stop the engine immediately after the governor ceases to operate the said pin *d*, being attached to the governor rod, and the said slot or bearing face *a* and escape opening *b* being in or upon the lever of the throttle valve or cut-off, or, what is equivalent, the pin being attached to the said lever, and the slot or bearing face and escape openings being in the connecting-rod of the governor, or in a plate connected therewith, or, what is equivalent, by a toothed rack and segment, substantially as described.

No. 13,923.—E. D. Leavitt, Jr.—*Improvement in Slide-Valves for Steam-Engines.*—Patented December 11, 1855. (Plates, p. 130.)

Valve A is made tapering in a transverse direction, (from *c* to *d*,) as seen in fig. 3, but has its two faces parallel in a longitudinal direction, as shown in fig. 1. The valve-seat *a* and the interior face of cover D of the steam-chest S are tapered laterally to correspond with the tapered faces of the valve. By thus tapering the valve, one side *c* is made to have a greater area than the other side *d*; and consequently the steam tends to force the valve in the direction of the arrow, and thus keeps the valve tight between the faces *a b*, notwithstanding any wear. In order to admit of the necessary lateral movement of the valve to compensate for the wear, the valve-rod B is fitted to a slot *e*, which is made through the valve and plates C C, which are fitted snugly to the rod, and serve as guides to this lateral movement.

Claim.—Making the valve and the corresponding parts of the steam-chest, between which it works, of tapering form laterally, and fitting the valve to its rod in such manner as to be capable of lateral movement, substantially as described, whereby the valve is always kept tight between the seat and the back of the steam-chest by the pressure of the steam, and the wearing of the rubbing-surfaces is always compensated for.

VII.—NAVIGATION.

No. 12,435.—Samuel R. Bryant.—*Improved Anchor-Tripper.*—Patented February 27, 1855. (Plates, p. 131.)

Having dropped the small end of supporter B into step *c* and within openings *e e*, and having secured the pawl C and hold-fast D to the bed-frame A, it may be bolted to the cat-head, or wherever required; B is then moved back until its curved corner comes flush with the front of frame A, and the chain-link is shoved up within the space between the guard *a* and frame B, until it is sufficiently high to allow the curved end *g* of supporter B to be again moved to the front, and within the link; the pawl C is then moved around pin *f* until it arrives directly in the rear of the upper end of supporter B, and the hold-fast D is dropped, when it will be locked. When it is required to drop the anchor, the hold-fast D is lifted and the pawl C shoved to one side.

Claim.—The supporter B, the pawl C, and the hold-fast D, as arranged in relation to the guard *a*, for the purpose set forth.

No. 12,622.—Richard V. De Guinon.—*Improvement in Anchors.*—Patented April 3, 1855. (Plates, p. 131.)

The flukes, forming a concave basin of large area, (suitable for sandy or muddy bottom,) are so constructed that they can be attached to the ordinary anchor.

The inventor says: I do not claim fitting an anchor so as to hold in mud or sand, by providing either large, fixed, or movable flukes in themselves; but I *claim* the method described of fitting a pair of movable flukes *g* to a suitable anchor, so as to fit it to hold in soft or sandy soil, by means of the tie-rods *h*, thimble 2, and collar 1, for the purposes as specified.

No. 13,847.—Peter H. Jackson.—*Improvement in Cat-Head Anchor-Stoppers.*—Patented November 27, 1855. (Plates, p. 131.)

On reference to figure 2 it will be seen that the ring *h* of the chain sets into a fork *f* of the hasp *e*, within the vertical line from the centre of fulcrum-pin *d*, and therefore the weight of the chain tends to keep the end of the hasp *e* in notch *i*, without any strain on locking-piece 6; but, when the same is drawn aside to clear the lock 6 from the end of hasp *e*, the cam-piece 7 pushes the end of the hasp *e* sufficiently out of notch 1 to throw the weight of the chain to the other side of the fulcrum-pin *d*, when the hasp will turn down and the chain-link *h* slide off.

The inventor says: I do not claim the hasp *e* in itself, neither do I claim retaining the upper end thereof by means of a hook or locking-piece; but I *claim* the combination of the locking-piece *g* with its cam 7 combined with the hasp *e*, so that said cam-piece 7 forces the hasp *e* out of the notch 1, as said locking-piece *g* is turned to one side, and causes the ring or loop over the hasp *e* to be thrown off or disconnected, as specified.

No. 13,991.—William H. Merrill.—*Improvement in Hoisting-Blocks.*—Patented December 25, 1855. (Plates, p. 131.)

By the cap protecting the upper journal or pintle, and the roll the lower pintle, dirt or any other obstruction is prevented from getting into the bearings and clogging the roll.

The inventor says: I do not claim the use of friction-rolls upon the cheeks of blocks, for these have long been in use; but I *claim* the roll, figure 2, the upper rockets or cap, figure 4, and the lower pintle or step, figure 3, used together, for the purposes and in the manner substantially as set forth.

No. 12,380.—Henry T. Dexter.—*Improvement in Wharf-Boats.*—Patented February 13, 1855. (Plates, p. 131.)

In the engraving A represents the turn-table, (below decks,) and B the inclined gangway leading down to it, wide enough for a dray to pass.

Claim.—So constructing a wharf-boat that a turn-table may be conveniently located therein, upon which a dray may be drawn and turned around, and so that freight may be delivered or received from any part of the boat without much handling, substantially as described.

No. 13,315.—Edwin B. Larchar.—*Improvement in making Gutta-Percha Boats.*—Patented July 24, 1855. (Plates, p. 131.)

Figure 1 represents a bottom view of the male mould; figure 2 the female mould, secured together by clamp-screws *a;* figure 3, sectional view of female mould; figure 4, side view of male mould; figure 5, air-chamber, with the under part of slip-off; figure 6, said under part of the air-chamber, to be attached to the other portion of the chamber (fig. 5) by searing the edges of the latter with a hot iron before the whole is pressed in its place on the boat.

The inventor says: I disclaim any particular form of boat, air-chamber, or bulkhead, or any cylindrical or other supporters, or gunwales, or to the mere making of gutta-percha vessels.

I *claim* the method of making a safety boat or other vessel of gutta-percha mixed with glue, so that the air-chambers or other parts, if separately formed, may, together with the boat-body, be so united and completed at one pressure, that if the braces, knees, thwarts, supporters, or other accessories to the boat proper are solid, the whole, with the inner and outer forms, may be made or completed together at one time and at one pressure, substantially in the manner described.

No. 13,510.—Nathan Thompson, Jr.—*Improved Collapsible Boat.*—Patented August 28, 1855. (Plates, p. 131.)

a is the kelson, to which, by means of hinges a^1, are secured the triangular flaps or bottom pieces *b b;* at each end of the kelson are hinged the ends, bow, and stern of the sides *c c*, which may be constructed of one piece of flexible or elastic material, such as wood. When the flaps are turned up, the sides can be collapsed and all the component parts of the boat—sides, flaps, and kelson—will lie parallel and in contact with each other. The hinges at the sides of the boat have a piece of flexible water-proof material secured to them as shown at f^1, in order to make the joints water-proof. Figure 1 represents the boat when open; figure 2 when collapsed. To strengthen the boat, swinging pieces *l* may be added, which, when folded up, also lie parallel with the kelson. To these braces pieces *m* are hinged, which serve as thwarts. (See figures 4, 5, 6.) The sides are connected to the ends of the kelson by a bolt *f* (attached to the sides) and an elongated ring *e* (fast to the kelson.) to accommodate the motion of the jointed ends of the sides in opening or collapsing the boat.

I *claim:* 1st. The combination of hinged flaps or bottom pieces with elastic or flexible sides, in the manner and for the purpose specified.

2d. The combination of hinged flaps with a centre kelson and flexible or elastic sides, as set forth.

3d. I claim either of these combinations in connection with water-proof fabric for closing and securing the joints between the several parts, applied substantially as specified.

4th. I claim a hinged swinging brace, in combination with a hinged thwart thereto attached.

Lastly, I claim the sliding-joint in combination with the bow and stern hinges, whereby the effective length of a kelson or flaps may be altered so as to suit the exhausted and collapsed states of the boat.

No. 12,703.—William Thomas.—*Improvement in Cabin Chairs.*—Patented April 10, 1855. (Plates, p. 131.)

No description required.

Claim.—Placing the seat F between a frame E, which is attached by pivots *e e* to the body of the chair; the seat having friction-rollers or wheels *f f* attached to its under side, which work upon the lower curved portion of the frame E, as herein shown; whereby the frame and body of the chair are allowed to turn or be inclined in accordance with the motions of the vessel and the seat at the same time, always remaining in a horizontal position, as herein described.

No. 12,325.—Jesse Reed.—*Improvement in Cable-Stoppers.*—Patented January 30, 1855. (Plates, p. 132.)

By more or less depressing the lever H, the jaw D can be made to press more or less heavily upon the chain, and thus retard or stop its motion.

The inventor says: I do not claim stopping the motion of a chain-cable by subjecting it to pressure between two plane surfaces.

But I *claim* the described arrangement of the lever H, the crank G, and the upper jaw D, whereby the latter is allowed to accommodate itself to the varying size of the links, and the operation of stopping the chain is assisted by the friction of the chain itself upon the upper jaw.

No. 13,593.—James Emerson.—*Improvement in Pressure-Stoppers for Chain Cables.*—Patented September 25, 1855. (Plates, p. 132.)

While the chain is wound up, the jaw B may be raised; but while the chain is being let out, the jaw is thrown over upon the bed-plate, as shown in the engravings. If it is desired to retard the motion of the chain, the upper end of lever E is turned around, by hand, in the direction indicated by the arrow, and the jaw will be pressed down upon the chain, both the vertical and horizontal links being subjected to pressure; and if it is desired to stop the chain entirely, the lever E is still further depressed, and the pawl D will catch against the upper sides of the vertical links.

Claim.—The arrangement of the jaw hinged at its one end, and having a pawl at or near the other, with the bed-plate for operation together, the whole being constructed substantially as specified.

No. 13,760.—Charles Perley.—*Improvement in Chain-Locker Pipes.*—Patented November 6, 1855. (Plates, p. 132.)

c is a circular flanch formed around opening *b*; *d* is a flanch extending out on one side of opening *b*, and formed with a groove 2, for allowing the chain to run into or out of the chain-locker. *g* is a cover to exclude rats, and to prevent the entrance of water.

The inventor says: I *claim* the locking piece *f*, constructed substantially as specified, and applied to the chain-locker pipe, in the manner and for the purposes set forth; and in combination with said locking piece *f* and flanches *c* and *d*, I claim the cover *g* for the purposes and as specified.

No. 12,143.—Farnham Z. Tucker.—*Improvement in Life-Preserving Rafts.*—Patented January 2, 1855. (Plates, p. 132.)

A series of hollow metal cylinders A are connected together by transverse bolts *a;* at each end of the cylinders there are two transverse bars *d*, one on the upper and one on the lower surfaces of the cylinders, and *e* are bolts which pass vertically through the cylinders and bars *d*. Bolts *a* and *e* pass through tubes *f* in the cylinders, to prevent leakage. Ropes *h* serve as hold-fasts for passengers. These cylinders can be stowed away in a detached form, and be secured together in a very short time when required.

The inventor says: I am aware that buoyant cylinders of metal or India-rubber, either made in sections or of one chamber throughout,

have been used as life-preservers, boats, and rafts, and I therefore do not claim constructing a raft of such tubes.

But what I do *claim*, as of my invention, and desire to have secured to me by letters patent, is the manner I have set forth of connecting such buoyant cylinders, by passing rods through tubes at right angles, as shown in the drawing by letters *f f a* and *e*, and secured by nuts, in connexion with the straps or bands *d*, whereby I make a strong, convenient, and ever-ready life-preserving raft.

No. 12,220.—Nathan Thompson, Jr.—*Improvement in Life-Preserving Seats.*—Patented January 9, 1855. (Plates, p. 132.)

The legs *a* of these seats when serving as seats are retained in position by a spring *g*; when to be used as life-preservers they are opened, (they being hinged in *f*,) and while held in both hands passed round the body, when the spring will hold them in that position. These life-preservers, as will be seen, adapt themselves to various sized persons.

The inventor says: I do not claim herein hinged or adjustable buoyants attached to the legs of a seat, as the buoyants herein described are firmly secured to the legs of the stool; neither do I claim a divided top life-preserver in combination with legs arranged in such manner that one half of said top may be in front and the other half in the rear of the person using it as a life-preserver, because in this life-preserver the whole of the top buoyant is on the same side, or is wholly in front or in the rear of the user. Neither do I claim a buoyant seat generally, nor any special kind of buoyants, nor any precise method of construction, nor any specific materials, so long as the two parts of a seat provided with top and bottom buoyants are separated, and then connected by means of a hinge and a spring, as herein set forth, or substantially so. Neither do I claim a special kind of hinge or spring, nor do I limit myself to the use of one of each in each life-preserver, as two, three, or more hinges all in a line, or numerous springs all effecting the same purpose, might be employed. Neither do I limit myself to any precise location of the point of separation, so long as that point is so placed that it will serve the herein described purposes.

But I do *claim* the adapting or accommodating life-preserving seat, whose components are a separated buoyant seat, a hinge, and a spring, combined with each other in the manner and for the purposes substantially as are herein specified.

No. 12,375.—Hiram Berdan.—*Improvement in Life-Boats.*—Patented February 13, 1855. (Plates, p. 132.)

The ribs F turn on vertical pivots *b c*, so that they can be folded against the central frame A B D, as seen in fig. 3. The gunwale-bars E are hinged at *a* to the ends of the central frame, and can be turned down and folded against said frame. When to be ready for use, the ribs F are swung outwards, and the gunwale-bars are fitted into notches *e* at the outer ends of the ribs, and an India-rubber cover G is drawn over the whole of it.

The inventor says: I do not claim of themselves either the hinged or pivoted ribs or the hinged gunwale-bars.

But I *claim* the method described of keeping the gunwale-bars E E in place when the boat is extended for service by means of the notches *e e*, which are made in the ribs F F to receive the said gunwale-bars.

No. 12,405.—Geo. Blanchard.—*Improvement in Life-Saving Rafts.*—Patented February 20, 1855. (Plates, p. 132.)

F^1 are the floats, and F^2 the spaces for storing provisions, &c. The levers B are connected to the bars C, and these bars C have spring-catches E bolted on their ends; the bars and springs slide in cases D. The springs escape and take effect on the edges of the cases D, to secure the raft when opened at the desired distance. The ends of the chains F are connected to bolts A, and to the chains are connected perpendicular bolts G, and the upper ends of the bolts G are bolted to the central joints of the levers B; the chains F and bolts G serving to form additional lifting braces or supporters to the connecting levers B when the passengers are on the raft. There are also additional connecting chains K, which are made fast to the metallic bolts A, and are brought to bear on the outside of the floats to prevent them from spreading.

Claim.—1st. The arrangement of the toggle or jointed levers B in relation to the buoyant cylinders or floats, and the catches or locks C D E, by which, when let fall, the raft, by its own weight, is extended and locked, and made entirely ready for immediate use, as set forth.

2d. The arrangement of the braces G with the chains F and K, in connexion with the floats or buoyant cylinders and jointed levers, for the better sustaining of the bed formed by the extended levers, and for the holding of the parts of the raft together in a sufficiently firm and yet yielding condition, to enable the raft to be a safe and well-sustained life-preserving structure, as described.

No. 12,450.—Jos. Stevenson.—*Bed-Boat or Life-Preserver.*—Patented February 27, 1855. (Plates, p. 132.)

a is the mattress; *b* the frame-work which forms the sides of the boat; *c* the part which forms the bulkhead or ends of the boat when in use on ship-board; these parts fold underneath, as shown in fig. 1, the bottom of the berth being cut out to admit their passing through; *d* air-tube, and *e* stop-cock; *f* India-rubber cloth apron, intended, when the bed is converted into a boat, to keep out the water, it being drawn up and fastened to the knobs *g*. When in use as a bed, the aprons may be spread out flat, as shown in fig. 2. *i* is a hollow belt of India-rubber cloth covering the joint formed by the junction of the two sides.

The inventor says: I do not claim the material of which the boat is constructed, nor do I claim a flexible or folding boat, as these are not new.

But I *claim* so hinging the bulkheads or bows to a flexible boat as

that they may be turned down out of the way for stowage in the bunks or berths of a vessel, and may be as readily drawn up and laced, so as to form a bow substantially as described.

I also claim, in combination with the hinged bulkheads or bows, the apron which is drawn up over the joint of the two bulkheads, for the purpose of preventing any water from entering the boat through said joints, in the manner described.

No. 12,473.—JOHN ALLEN.—*Improvements in Life-Boats.*—Patented March 6, 1855. (Plates, p. 133.)

By turning the right and left handed screw B the frame can readily be extended or contracted (see figures 1 and 2). The water acting upon the flexible cover of the frame (reducing and enlarging its inner capacity) makes it operate like a bellows-pump, so as to draw in fresh air and discharge air from within. The inside of this boat can be reached through a man-hole. Weights secured to the bottom rib will keep the boat right side up. The pipes are properly provided with valves.

Claim.—1st. A life-boat, composed, substantially as described, of a frame and a flexible covering, and provided with inlet and outlet pipes and valves, so that, when the flexible covering is closed up perfectly water-tight, the action of the waves on the said flexible covering, and the tossing about of the boat on the water, will keep up a constant pumping action, and thereby supply fresh air to and discharge vitiated air from the interior.

2d. The construction of the frame, substantially as set forth, of the two tubes A A, and right and left handed screw B, and the longitudinal ribs *b b*, all combined and operating as described.

No. 12,537.—EDWARD LYON BERTHON.—*Improvement in Folding Life-Boats.*—Patented March 20, 1855; patented in England, June 12, 1851. (Plates, p. 133.)

l and *f* are water-proof canvass covers; *m m* are the bottom boards, hinged in the middle. The nature of the invention, and its operation, will be understood from the engravings, without further description.

In figure 1, part of the covers, wales, and bottom boards are represented as being removed, so as to exhibit other parts.

Claim.—Hinging longitudinal ribs of the two sides to the stern and the stern-post, in such manner that those ribs shall be capable of being folded down, and shall lie parallel with the keel when the boat is collapsed, as described.

No. 12,743.—J. T. PHEATT.—*Improvement in Life-Preserving Doors.*—Patented April 17, 1855. (Plates, p. 133.)

The inflatable bags C are placed on the panels so as not to project beyond the faces of the frame-work, in order to protect them better against accidental injury. Even if one of the bags should be rent, the buoyancy of the door will be but little reduced, and a horizontal floating level of the door may be maintained by omitting to inflate the panel and compartment diagonally opposite to the injured compartment.

Claim.—The arrangement herein shown and described of the inflatable water-proof coverings or bags on or over the panels, and within or below the face-level of the surrounding and intermediate frame-work of the panelled door or partition, as and for the purposes set forth.

No. 12,184.—C. LOCHER.—*Improvement in Folding Life-Boats.*—Patented January 2. 1855 Plates, p. 133.)

The central frame *a b d f e c* is provided with supports for the reception of the pivots *s t* of the ribs *g*. These ribs, thus pivoted to the central frame, are connected by a chain *i*, one at each side of the central frame. When the ends *j* of the chains are connected, the ribs stand at right-angles to the frame, as shown in the lower part of figure 2, which represents a top view of the apparatus. When the ends of the chains are disconnected, the ribs can be folded over one another, as represented in the upper half of figure 2. The ribs, when extended, serve to support a covering of water-proof material, so as to form a boat. Figure 3 is a cross section, figure 4 a side view of one of the ribs, and figure 1 a side view of the boat.

The inventor says: I do not claim hinging or pivoting the ribs to the keel, or to a central frame, so as to be folded or extended at pleasure; but I do *claim* connecting the folding-ribs by means of a chain, or chains, being applied, substantially as described, to spread all the ribs at once, and when spread, to serve the purpose of keeping all in place.

No. 13,546.—GEORGE K. HOOPER.—*Life-Preserving Bed for Ships.*—Patented September 11, 1855. (Plates, p. 133.)

B B, C C, are metallic air-tight pontoons; the pontoons B B are hinged at *a* and supported at their inner ends by springs D, so as to give increased elasticity immediately underneath the shoulder-blades of a person reposing upon the mattress E. A is a wooden frame.

I *claim* my improved manufacture, or life-preserving spring pontoon bed, as made of a wooden frame or mattress, a series of pontoons, and a series of springs, arranged and connected together substantially as specified.

And I also claim the improvement of making each of the pontoons B B of less depth at its inner edge than it is at its outer one, or that which is hinged to the frame, when the said pontoon is of such size as to project beneath the shoulder-blades of a person when reposing upon the mattress E, the object of so constructing said portion having been heretofore specified.

No. 13,771.—Peter Van Zile, Searles M. Griffin, and J. Warren S. Dey.—*Sofa Life-Boat.*—Patented November 6, 1855. (Plates, p. 133.)

D D are the air-chambers, and C C the tops of the air-chambers, forming seats. The engravings represent the life-boat as open (E being the hinge) and forming two sofas.

The inventors say: We do not claim, broadly, making a life-preserver in such a manner that it may, when out of use for this special purpose, be applied to other useful purposes, either with or without change or modification; but we *claim* the structure set forth, the same consisting of two buoyant parts, so constructed that, when separate, they shall each form a settee or sofa, and when united, a life-boat, as set forth.

No. 13,994.—Adolphe Pecoule.—*Combined Log and Sounding-Line.*—Patented December 25, 1855. (Plates, p. 134.)

The pulley *i* is fixed at the vertex of the buoy; the line *l l* passes between said pulley and spring *m*; the length of line between the buoy and the weight is to be increased or diminished according to the depth of water which it is desired to sound. While the buoy remains upright, as it will be caused to do by the friction of the line against spring *m*, so long as the weight hangs on the line, the spring allows the line to slip between itself and the pulley, but as soon as the weight touches the bottom, it no longer keeps the buoy upright. (See dotted lines in fig. 1.)

The depth of water which it is desired to sound having been determined, a pin is inserted between the strands of the line, thus stopping the weight from sinking further. From this pin backwards is fastened to the line a floater *h*, which receives the point *g* of two lines connecting to the corners *a c* of the buoy. When, after the operation of measuring or sounding, the log is hauled on board, the point *g* leaves the floater, the weight *e* rises up towards the buoy, and this latter assumes a horizontal position (see fig. 2) so as to offer the least resistance to the water.

The inventor says: I *claim* the sounding-log, constructed substantially as described; that is to say, being composed of a buoy *a b c d*, having applied to it a weight *e*, attached to a line passing between a pulley *i* and a spring *m*, or its equivalent, at the bottom.

And this I claim, whether used with or without a connection *g h*, to connect the line with the top part of it; the whole constituting an instrument by which the speed of a vessel may be measured, or by which soundings may be taken, without stopping or heaving-to, as fully set forth.

No. 12,298.—John U. Wallis.—*Improvement in Paddle-Wheels.*—Patented January 23, 1855. (Plates, p. 134.)

The inventor says: I do not claim the employment of oblique paddle-floats, nor arranging the oblique paddle-floats in pairs in the form of the letter V, otherwise than as described.

But I *claim:* 1st. The attachment of the oblique paddle-floats, each by one edge only, to opposite sides of a wheel A, or its equivalent, substantially as described.

2d. I claim attaching the paddle-floats to the wheel A, or its equivalent, by hinge joints, for the purpose of enabling them to be adjusted at various degrees of obliquity by screws *a a*, or their equivalents, and to adapt their position to the direction of the revolution of the wheel, as set forth. (See engraving.)

No. 12,460.—Peter Lear.—*Improved Method of Arranging and Operating Submerged Horizontal Paddle-Wheels.*—Patented February 27, 1855. (Plates, p. 134.)

In paddle-wheels of this description the water is thrown off centrifugally from the case in which the wheels revolve, and a partial vacuum is thus produced within the wheel-case, which is constantly supplied by water entering the case with the buckets. To relieve the wheel and to supply the centre of the wheel with air or water, in such manner that the buckets themselves may not be retarded by the effort to draw it in from the circumference, the inventor opens a passage into or near the centre of the wheel-case for the admission of either air or water, to supply the place of that which is thrown off centrifugally.

The inventor says: I do not claim pumping air into the wheel-house of a horizontal or other paddle-wheel; but I *claim* the pipe P, arranged in connexion with the wheel-chamber, in the manner described and for the purpose set forth.

No. 12,621.—Levi M. Dehart.—*Adjustable Paddle-Wheel.*—Patented April 3, 1855. (Plates, p. 134.)

It will be understood from the engraving how the diameter of this paddle-wheel can be increased or diminished, by means of the pinions D and toothed arms E, carrying the paddles H.

The engraving exhibits only two arms of this wheel, the opposite two arms being exactly alike; O is the centre of the wheel.

The inventor says: I am aware that reefing-buckets on paddle-wheels have been used, and that an expanding propeller has also been essayed, in which the wings have been drawn towards the centre, or run out by means of racks and pinions. These I do not claim; but I *claim*, in combination with the hollow arms permanently fixed to the hub, the arms carrying the sections of the buckets, when said arms are so arranged as to be slid within the hollow arms by a rack and pinion, or its equivalent, substantially in the manner and for the purpose set forth.

No. 13,058.—Augustus M. Glover.—*Improvements in the Buckets of Paddle-Wheels.*—Patented June 12, 1855. (Plates, p. 134.)

Each of the paddles is made concave in front, while the back is a plain surface. The advantages of the concave face of concentrating to

a focus the force upon the water, when the wheel is used for propelling forward, is combined with the preservation of the plane upon the back of the paddle necessary to prevent the slip arising from paddles formed with a concave face and a convex back.

C are two of the opposite arms of a paddle-wheel; D the paddle.

Claim.—The giving such form, viz: a plain concave, to the paddle, that all the advantage of the concave is secured without loss of hold upon the water, and slip in backing vessels propelled by wheels, substantially in the manner set forth.

No. 13,190.—JOHN UPHAM WALLIS.—*Improvement in Paddle-Wheels.*—Patented July 3, 1855. (Plates, p. 134.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Attaching the innermost or central portion of the buckets rigidly to a single wheel or central rim *a*, and staying the outer portions thereof to the said rim by stays *b b*, substantially as described, whereby the construction of the wheel is simplified, and great strength is obtained.

No. 13,940.—FREDERICK W. CAPEN.—*Improvement in Paddle-Wheels.*—Patented December 18, 1855. (Plates, p. 134.)

The nature of this invention consists in a skeleton paddle or alleviator E, placed in front of and combined with each or any paddle D of the wheel A B, on the shaft C, the object of this alleviator being to relieve the said paddle from a sudden blow or concussion on its entering the water. This alleviator E, constructed of a rectangular frame *a*, and one or more series of bars *b b b*, *c c c*, interwoven with one another, or interlaced so as to have meshes, orifices, or spaces between them, will break up or divide into numerous streams the mass of water against which it may impinge, and immediately before the same may be struck by the paddle to which such alleviator may be applied.

I *claim* the combination of one or more alleviators or skeleton paddles, constructed essentially as described, with each or any main paddle or float of a paddle-wheel, or propeller, the same being for the purposes as specified.

No. 13,988.—BENJAMIN HILL.—*Improvement in Paddle-Wheels.*—Patented December 25, 1855. (Plates, p. 134.)

Two or more discs or rings D D^1 are keyed on to the paddle-shaft S. These rings have as many radial arms A as it is intended to have paddles or valves, which valves V are hinged to said arms at *h h*. The valves open so that when perpendicular to the plane of the disc to which they are attached their outer edges will rest against the bars P attached to the arms of the other disc. In this position the valves will present their surfaces to the water. When the shaft revolves, the edge

of one valve after the other will catch the water, and consequently will be opened until it strikes and rests against the opposite bar P, as above described.

There are to be two sets of valves, hinged so as to open in opposite directions for forward or backward motion of the vessel.

Claim.—The radially hinged valves, used as substitutes for paddles, said valves being attached to discs or rings, and supported thereby substantially as described.

No. 12,190.—CHARLES DE BERGUE.—*Improved Propeller.*—Patented January 9, 1855. (Plates, p. 134.)

No description required.

Claim.—An apparatus or blade so oscillating or rocking in water or other fluid, on a centre or axis worked to and fro, that each of its opposite sides shall alternately present a moving inclined face or surface to the fluid on which it acts, so as to force, displace, or propel the same, or a body floating thereon, such apparatus or blade working or rocking within a case or chamber, through which the fluid acted upon is thereby caused to pass, or conversely, in which the fluid in passing may act on the blade as described.

No. 12,446 —FRANKLIN PEALE.—*Improvement in Propellers.*—Patented February 27, 1855. (Plates, p. 135.)

The shaft B, which is terminated by arms K, works through the hollow shaft C; the shaft B is revolved by a crank E, and C by a crank H. The paddles A are connected to the shaft C by means of a universal joint D. By adjusting the cranks H and E, the paddles may be caused to vibrate through any number of degrees of a revolution or at any angle of inclination. Also, by setting the cranks J and G in any position in relation to each other, the angle of inclination of the paddles to the line of progression can be changed. (See dotted lines in fig. 3.)

Claim.—The arrangement of the paddles A, the arms K, and shafts B and C, arranged and operating in the manner and for the purpose substantially as described.

No. 12,752.—WILLIAM D. JONES, assignor to HENRY WHINFIELD.—*Improvement in Propellers.*—Patented April 17, 1855. (Plates, p. 135.)

A A are discs, B B their shafts, C C the paddles, D the connecting ball and socket joint, E cogs on discs A, F F driving pinions, G G hinges, H H connecting rings. I denotes the point where the discs are nearest together, there being no resistance from the paddles; K the position where the discs are farthest apart, there being the greatest power of propulsion. From position I, where the paddles are folded down flat on the face of the discs, and consequently pass through the water without offering resistance, they evolve gradually till reaching position K, of greatest resistance, where they stand unfolded at right-

angles to the faces of the discs; thereby being produced a continual and direct propulsion against the water at one point and no resistance at the other point.

Claim.—The arrangement and combination of the parts, forming a propellor, as fully set forth in the foregoing specification, for the purposes above mentioned.

No. 12,823.—Henry Link.—*Improved Propeller.*—Patented May 8, 1855. (Plates, p. 135.)

The semi-circular or semi-elliptical propeller E, vibrating on an eccentrical vertical shaft F, is arranged underneath the bottom A of a vessel, B representing the keel, which is provided with a slot C for the propeller to work through. The propeller, whose straight front part is placed towards the fore part of the vessel, and the curved circumference towards the stern, is vibrated each way about one sixth of the whole circle. Paddles I I, hinged on rods G G^1 and arms H H^1, may be so arranged, that when one (for instance I) is inactive, the other (I^1) will abut against the bent down ends of the arms, and propel.

Claim.—A semi-circular propeller, constructed and operated substantially as described, for the purposes set forth, whether the same is used with or without hinged paddles.

No. 12,955.—William Lansdell.—*Improvement in Buoyant Propellers.*—Patented May 29, 1855. (Plates, p. 135.)

The nature of this improvement consists in the construction of two segmentary cylinders composed of hollow, water-tight threads, A B C D, arranged in the form of a screw, for the purposes of supporting a super-tructure by their power of flotation, and of giving motion to the same by their revolutions in the water. These threads are separated by spiral water spaces through the whole lengths of the threads, and surround an open space in the centre, which is framed and connected with the bearings, as a hollow shaft, admitting the free passage of the water. *a* are the flanges referred to in the claims, and the increased pitch is seen on the other edge at *b*.

The inventor says: I *claim* the combination of the hollow threads, in the form described, with the central and lateral water spaces, forming the threads of a screw, and securing both flotation and propulsion.

Also, the use of the flange, arranged on the regular edge of the segments, having the true pitch of the regular screw.

Also, the peculiar wedge-like form of the ends of the segments, having the effect to diminish the resistance of the immersed section of the head, while it increases the propelling force at the stern.

I do not confine myself to the exact proportions of the pitch, or form of the ends of the screw or its threads, as represented.

No. 13,041.—Joseph H. Penny and Thomas B. Rogers.—*Improvement in Propellers.*—Patented June 12, 1855.—Patented in England, June 14, 1855. (Plates, p. 135.)

The nature of this improvement will be understood from the claim and engravings.

Fig. 1 is a plan; fig. 2, a side elevation.

The inventors say: We are aware that propellers, or paddle-wheels, have heretofore been made, having three throws or series of paddles, and also having the paddles enter and leave the water in a vertical position, and therefore we make no claim for such general device or arrangement.

But we *claim* the arrangement, as above described, of the connecting-rods *g* with the connecting-heads *b* and the paddles *a*, &c.; the connecting-rods passing through the connecting-heads, and the paddles being bolted to such rods, so that any one or more can be removed, if necessary, without interfering with the others, the whole being strong, and at the same time of light construction.

No. 13,078.—Henry Boynton.—*Reciprocating Railway Propeller.*—Patented June 19, 1855. (Plates, p. 136.)

This invention consists in applying any rectilinear reciprocating motive power to the propelling of vessels, it being by levers in simple mechanical connection with the piston, which oscillates them longitudinally to the vessel, and which are, by lengthened arms, connected with oar-trucks, driven upon railways lengthwise of and upon the side of the vessel.

i i and *h* are the railways; at the end of the stroke, the wheels nearest the end of the railways pass the rails j^1, and the other two wheels move upon the rails *j*, which are a little longer than j^1, and vibrate j^1 outward for the said wheels; so that the truck *g* (which carries the oars) moves up parallel to the main rails on to the pivot-rails *k*, the guide-wheels passing under the catch-levers *o*, and thereby operate to detach the catch-levers *l;* the bearing-wheels, as they pass the pivot-centre, act upon the upper part of the rails *k*, pressing them at once into horizontal line with the upper rails *h*, and are there fastened by the catch-levers *l*, which are held by springs *m* to bars *n*. E and D are the walking-beams. A more detailed description would occupy too much space.

The inventor says: I disclaim, as any part of my invention, the working beam-stopping apparatus, as now used upon the Cornish engines, commonly called the bumper.

I *claim*: 1st. The double-wheeled oar-truck, provided with wheels rotating in opposite directions on the same axis, and running between upper and under simultaneously acting railways, constructed and applied substantially in the manner and for the purpose described, by which a longitudinal propeller for water-craft is held or confined to its designed railways.

2d. I claim, in combination with two sets of railways, one for the

forward and the other for the back-stroke, the ascending and descending railways, so arranged that the fore-wheels of the truck run upon one track and the after-wheels upon another track, whereby the truck is free to ascend and descend at either end of the main railways, in such a manner that a line drawn through its axles will be always parallel, or nearly so, to the main horizontal rails, substantially in the manner and for the purpose described.

3d. I claim the lower rising vibrating rails, and the upper pivot-moving rails, constructed and applied substantially as set forth.

4th. The combination of levers in their adaptation to railway propellers, by which the upper pivot rails at either end of the railways being moved by the truck wheels, those at the opposite end are similarly moved at the same time; and the addition of safety levers, by which, if the pivot rails upon either side end are moved, all the others are similarly moved at the same time.

5th. The combination of levers, by which the catch-bars, or fastenings to the upper pivot rails, are governed and disengaged by the truck wheels, and by which, if either one is disengaged, the others are also.

At the same time, I claim the combination of the curved toe rocking-shaft with the oscillating riding-bar, sustaining a weight or spring, with any reciprocating arm attached to the engine, for the purpose of gradually and rapidly retarding the piston, and bringing it and the car truck to a state of rest, as described.

No. 13,336.—Augustin Duboce.—*Improvement in Propellers.*—Patented July 24, 1855. (Plates, p. 136.)

The propelling motion of the paddles *b* will be understood from the claim and engravings.

Claim.—Giving the blades the motion specified, by connecting them with the sides of the vessel by means of a ball and socket joint *e*, or any equivalent therefor, in combination with an arm *h* projecting from the arbor of the blade, the end of which arm is connected by a sliding and ball and socket joint *i*, or any equivalent therefor, with a wheel or crank arm *j* on the crank or driving-shaft *k*, substantially as and for the purpose specified.

No. 13,394.—Wm. J. McIntire.—*Improvement in Propelling Vessels by the Direct Action of Steam on the Water.*—Patented August 7, 1855. (Plates, p. 136.)

The object of this invention is to let the steam act directly on the water below its surface, for the purpose of propelling the vessel. The steam issuing through square pipe B is to be protected from instantaneous condensation by surrounding with or encasing it within one pipe C (or two pipes C D, as represented in the engravings) of larger diameter than B, so as to leave a hollow space between the outer surface of B and the inner surface of C. Simultaneously with the steam, hot non-condensible gases (the inventor proposes to use the heated products of combustion taken from the flues of the boiler at the place of final

discharge) are to be forced out through said hollow space, so as to envelop and protect the jet of steam.

Claim.—Protecting the steam from condensation by discharging at the same time with it some non-condensible gas or gases, or fluids, or both in combination, in such manner as to form an envelope for the steam, for the purposes as described.

No. 12,119.—William Ballard.—*Improvement in Constructing Vessels.*—Patented January 2, 1855. (Plates, p. 136.)

The principal object of this invention is to combine the advantages of the so-called bluff and the clipper-bow. The inventor gives to the bow, as well as to the stern, what he calls an OG form, as shown in the drawings. By these means, he asserts, deck-room is given equal to a bluff bow, at the same time securing an easier entrance into the water than with a clipper-bow.

This construction of the stern, he states, enables him to remove the propeller and rudder a good distance from the run of the vessel.

Claim.—The construction of the bows and the sterns of vessels, substantially as described.

No. 12,359.—V P. Corbett.—*Improvement in Constructing Ships and other Vessels.*—Patented February 6, 1855. (Plates, p. 137.)

Claim.—The arrangement shown and described of the India-rubber or elastic and water-proof pad *a*, covering, or lining, on the back of the inside lining and bracing planking, and between the said inside planking and the stiffer or more solid outer timbers or frame-work of the hull of the vessel; the same serving to form a stout elastic cushion or pad bearing for the inside planks to rest upon in their union to the outer frame-work of the ship, and constituting a planked elastic pad inside casing to the vessel, for operation in the manner, for the better accomplishment of the several purposes of protection, freedom from injury, and facility of repair, essentially as specified. (See engraving.)

No. 12,445.—Zadoc Pangborn.—*Improvement in the Construction of Vessels.*—Patented February 27, 1855. (Plates, p. 137.)

The bifurcated ribs *a a* form a lozenge-shaped space *b*, which, when properly sheathed, will form a buoyant air-vessel.

Claim.—The arrangement of tanks constructed as set forth, the same consisting in the extension and bifurcation of the ribs of vessels' hulls, so as to form an arched series of tanks, or receptacles for tanks, in the manner and for the purposes set forth.

No. 13,278.—Otis Tufts.—*Improvement in Constructing Iron Ships.*—Patented July 17, 1855; patented in England, April 2, 1845. (Plates, p. 137.)

The nature of this improvement will be understood from the claim and engraving.

Claim.—Constructing the hull, decks, and bulkheads of ships with a double shell of iron, interfastened, for greatest strength, with binders, substantially as described.

No. 13,231.—Stephen Saunders.—*Vibrating Stop-Water for Ships and*

tween decks, and ventilation and light can be admitted through the hollow tube *c* and opening *f* in the deck.

Claim.—The tubular metallic riding bitts, when entirely secured to a single deck of a vessel, and arranged substantially in the manner and for the purpose set forth.

Claim.—Constructing the hull, decks, and bulkheads of ships with a double shell of iron, interfastened, for greatest strength, with binders, substantially as described.

No. 13,231.—STEPHEN SAUNDERS.—*Vibrating Stop-Water for Ships and other Vessels.*—Patented July 10, 1855. (Plates, p. 137.)

The advantages of the vibrating stop-waters *a a* are as follows: When a vessel is running on a wind, all the water which the vessel makes above the stop-waters, which are on the lowest side of the vessel, will be arrested by said stop-waters; and when it becomes necessary to pump out the vessel, and she is brought up before the wind for that purpose, the said stop-waters on the side of the vessel that was depressed will swing inwards, and allow the water outside of them to readily flow inwards to the pump-well.

Claim.—The improvement produced by the combination of vibratory water-stops with the hulls of vessels, substantially as set forth.

No. 12,968.—WEBSTER SHIBLES, assignor to HIMSELF and EDWARD O'BRIEN.—*Improvement in Reefing Topsails.*—Patented May 29, 1855. (Plates, p. 137.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim so applying the upper topsail yard to the topmast and sail, that when the former is lowered it shall rotate and wind the sail about it.

I *claim* combining a windlass yard with the upper topsail yard, and applying the windlass ropes to the outer ends of the windlass yard, and to the topsail yard and topmast, substantially as specified; whereby when the upper topsail yard is lowered the sail will be furled, and when raised unfurled, as specified.

No. 12,316.—JNO. HOBBS.—*Improvement in Rain-Staff Screws for Ship-Carpenters.*—Patented January 30, 1855. (Plates, p. 137.)

Claim.—The arrangement of the screw-stems C D and E F passing through the rain-staff A B; the sharp-threaded screws D and F forced into the timber or side of the vessel by the lever *h* inserted in the aperture *k*; and the nuts *g g* moved by the lever *i* to force the rein-staff towards the vessel, together with the set-down L on each screw, for the purpose of inserting wedges between it and the edge of the plank, to bring the plank into place for spiking on the side of the vessel. (See engraving.)

No. 12,620.—THOS. BROWN.—*Improvement in Ships' Riding Bitts.*—Patented April 3, 1855. (Plates, p. 137.)

These bitts consist of tubes *c* provided with sufficiently broad flanges *d*, and bolted to the deck-beams *h*. These bitts save much space between decks, and ventilation and light can be admitted through the hollow tube *c* and opening *f* in the deck.

Claim.—The tubular metallic riding bitts, when entirely secured to a single deck of a vessel, and arranged substantially in the manner and for the purpose set forth.

No. 13,601.—JOHN S. ROBBINS.—*Improvement in Ships' Rudders.*—Patented September 25, 1855. (Plates, p. 137.)

The rudder A is hung from the stern-post B of a vessel, in a similar manner to the rudder commonly employed, but having little more than half the area. This rudder is operated by the usual steering-apparatus. The second rudder C is supported by brackets E and F. As the rudders depart from the midship position, (see dotted lines in figure 2,) one swings to one side and the other to the other; but, as they are always parallel to each, and both of the same area, they are always balanced and remain in any position as if they were locked, thereby relieving the helmsman, be the helm kept stationary or be it moving.

Claim.—Arranging the two rudders, and combining them by means of the arms *b b* and b^1 b^1, and connecting-rods *c c*, substantially as and for the purpose herein set forth.

No. 12,390.—FREDERICK HOWES.—*Improvement in Ships' Standing Rigging.*—Patented February 13, 1855. (Plates, p. 137.)

Claim.—Forming the shrouds and back-stays, or other standing rigging, in one continuous piece, and conducting the rope of which they are formed alternately through proper guides aloft and guides at the channels or chain-plates, as set forth. (See engraving.)

No. 13,518.—THOMAS BATTY.—*Improvement in Supporting Ships' Top-Masts.*—Patented September 4, 1855. (Plates, p. 137.)

The nature of this invention will be understood from the claim and engravings, where A represents the lower mast and B the topmast.

Claim.—The employment, for the purpose of supporting or assisting to support the topmast or topgallant-mast, and superincumbent spars and rigging, and for setting up the same when necessary, of the diagonal double screwed iron-stays *e*, constructed and applied as described, between the cap of the lower mast and the heel of the topmast.

No. 13,861.—THOMAS BATTY.—*Improvement in Suspending Ships' Yards.*—Patented December 4, 1855. (Plates, p. 137.)

By hanging the yard in the manner represented in the engravings, great freedom of movement is obtained, and the yard is thrown well out from the mast, so as to keep the sail clear, and yet well supported. A represents the lower mast; B, the topmast; C, the yard.

Claim.—The arrangement of the yard, the beam *i*, and the crane *e e*^{1}, substantially as and for the purposes set forth.

No. 12,718.—James Emerson.—*Improvement in Ship's Windlass.*—Patented April 17, 1855. (Plates, p. 138.)

By turning shaft E in the proper direction, shaft B will be rotated by means of gearing D C, and the part pinions G G^1 will alternately gear into the sectors I I, and one sector will be moved in the direction of the arrow, and then the other, and the pawls J of the sectors catch against the chains L and move them over the pulleys H. The movement of the chains is continuous, because the part pinions are rather more than half pinions, and one catches its sector before the other pinion leaves its sector. When the pinions leave the sectors, the sectors are thrown forward, (so as to be ready to be caught by the part pinions,) by means of levers K, the upper ends of which are operated by pins *h*^{1} catching into forks *h*; and the lower ends of the levers are thrown forward, and also the sectors, in consequence of pins *g* fitting in slots *f*. Both pulleys H H are worked precisely alike, so that two chains are drawn up. Using the small gearing N O, by reversing the motion of shaft E, the speed is increased.

Claim.—The combination of the geared sectors I I, with pawls J attached, the part pinions G G^1, levers K, and pulleys H; the above parts being constructed and arranged substantially as herein shown, and for the purpose as set forth.

No. 13,262.—John B. Holmes, assignor to John R. Pratt.—*Improvement in Ships' Capstans.*—Patented July 17, 1855. (Plates, p. 138.)

F is a round plate secured to spindle C, and supports two spur-wheels G G^1, which are in gear with the toothed rim H H of the barrel B, and also with pinion I, which is in one piece with bevel wheel K, and both of them revolve loosely on the fixed spindle C. N are the cranks. A is the bottom plate, firmly secured to the bottom.

The inventor says: I make no claim to employ compound gearing for working capstans, for I am aware that gear wheels have been applied and combined before for the purpose of overcoming a variable resistance in capstans; nor do I claim the shape, form, or construction of the different parts, when separately considered.

But I *claim* the arrangement of the stationary drum-head D, in relation to the stationary base and spindle C and movable body B, the same being moved by gearing and cranks, as set forth and described.

No. 13,393.—Peter H. Jackson.—*Improvement in Ships' Winches.*—Patented August 7, 1855. (Plates, p. 138.)

When handle *b* is depressed, ratchet-wheel 3 will also be moved with it, and pawl 4 will retain the motion thus given, and raising the handle, the point 10 of pawl *a* will ride over the ratchet-teeth 3, and then drop

thereinto ready for again being depressed, the point 11 acting as a counterpoise to keep point 10 in the teeth. But if the handspike and socket be turned over on to the other side of the ratchet-wheel, pawl *a* will fall over backwards, and point 11 will take the teeth 3 to rotate the same in the opposite direction, and point 10 will act as a counterpoise to keep 11 to the teeth. Pawl 4 has to be thrown under as before detailed, and ratchet-wheel 3 is ready to be rotated in the other direction.

The inventor says: I do not claim a pawl or pawls acting on their ratchet-wheels on either side of their centre carrying the same, neither do I claim applying a pawl hand-spike socket and retaining pawl to a ratchet-wheel, as this has been done, but only for rotating the said ratchet-wheel in one direction; and I am aware that pawls with counterpoise weights, to make them act upwards instead of downwards, are well known.

I am also well aware that winches and windlasses have been fitted by means of external ratchets and hooks, and internal ratchets and pawls applied at the outer end of the head, so that the same can be rotated in either direction. Therefore, I make no claim to rotating winches or windlasses in either direction, as this is well known and in common use.

It will be evident that my arrangement of ratchets and pawls has important advantages over such arrangements, because there is nothing to prevent a rope being easily wound around the winch or cast-off; whereas, in cases where the hand-spike is applied at the outer end of the winch or windlass-head, the same has often to be pulled out to allow the rope to be taken off, but in mine that is not the case; and, besides this, there is more strain on the shaft carrying the parts when the hand-spike is applied at the end thereof, than when it acts close up to the bit or timber carrying said shaft. I am not aware that a double-acting pawl has ever before been applied beneath a ratchet-wheel, and fitted with the counterpoise weight, to make the same act upwards, and also allow for turning said pawl under to change sides, when said pawl is combined with a double-acting pawl, set on, and moving with, a hand-spike and socket, (or lever,) and applied to the upper part of said ratchet-wheel in such a manner as to rotate the same in either direction, thereby producing a double-acting purchase with only one ratchet wheel, and obtaining the advantage specified.

I *claim* the reversible or double-acting pawl 4, below the ratchet-wheel, in combination with the double-acting pawl *a*, to which power is applied to rotate said ratchet-wheel in either direction, in the manner as specified.

No. 13,506.—James Emerson.—*Improvement in Ships' Windlasses.*—Patented August 28, 1855. (Plates, p. 138.)

If the chains are to be drawn up slowly, shaft I is turned so that wheel L will turn with shaft I, and turn the large wheel C on shaft B. If the chains are to be hoisted with a quicker motion, shaft I is turned in the reverse direction, so that wheel M will turn with shaft I, and turn the smaller wheel D on shaft B.

I *claim* the gearing C D L M and the ratchet N and O on the shaft I, when arranged substantially as shown, for the purpose of operating the shaft B of the windlass, with a quick or slower or vibrating motion, and with a corresponding degree of power; one set of gear-wheels C L being independent of the other set D M, and allowing the windlass, in case of the breaking of one, to be operated by the other.

No. 13,612.—Jno. B. Holmes, assignor to Jno. R. Pratt and Jno. B. Holmes.—*Improvement in Ships' Windlasses.*—Patented September 25, 1855. (Plates, p. 138.)

The nature of this improvement will be understood from the claim and engraving.

The inventor says: I make no claim to the application of wheels, or gearing of any description, to ships' windlasses, for the purpose of occasionally increasing their power, as such has been done before, and in particular has been described by Hindmarch and others.

Nor do I make any claim to the stationary or revolving shaft or spindle or spindles of the chain-barrels A A^1; nor do I claim any of the parts constituting my windlass, when detached or separated.

But I *claim* the arrangement of the shaft E with its gearing-wheels F and G and the clutch-coupling H, in relation to the drums of the windlass and their gearing, as set forth, whereby the one or both drums may be moved with a quick or slow motion, or the one drum may be moved with the quick and the other with the slow motion, at the same time.

No. 12,140.—Henry J. Rogers.—*Improvement in Signal-Flags.*—Patented January 2, 1855. (Plates, p. 138.)

This improvement consists in placing diagonally the distinguishing marks of the flags, the symbols forming a distinct mark in a calm similar to those exhibited by the flags in a stiff breeze, as apparent from the figures.

Claim.—The square signal-flag with diagonal symbols, so that the same flags will answer for signals in a high wind and in a calm, as set forth.

No. 12,250.—Abijah R. Tewkesbury. —*Improved Steering-Apparatus.*—Patented January 16, 1855. (Plates, p. 138.)

By rotating the steering-wheel I, the four gears *g g* g^1 g^1 are set in motion; and as the pinions *i* of two of them work in the stationary curved racks D of the case C, they will produce a rotative movement of rudder-head A.

In case the rudder should be lifted by a heavy sea, the pinions will be free to rise in the racks, and no damage will ensue.

Claim.—Arranging the rudder-head within a concentric or surrounding frame or case C fastened to the deck, and applying on the top of the rudder-head and within the case, as described, a driving shaft-gearing and one or more curved racks of internal cogs; the whole to be operated by a hand-wheel applied to turn the shaft, substantially as specified; the said arrangement of parts rendering their combination not only exceedingly efficient and compact as a steering apparatus, but one wherein the lifting or raising of the rudder by a wave or sea is not liable to injuriously derange the machinery.

No. 12,488.—Jesse Reed.—*Improvement in Steering Apparatus.*—Patented March 6, 1855. (Plates, p. 139.)

A is the rudder-head; D D are pedestals arranged on stanchions E E, projecting upwards from deck F. The pedestals are connected to the stanchions by means of studs *b* and slots *a*, thus allowing of a self-adjustment to the fore-and-aft movement of the rudder when struck by a heavy sea, and also allowing the pedestals to rise up on said studs, so as to yield upward when struck in that direction. Thus the force of the sea is expended on the rudder, by allowing the rudder to yield to it. M M are two guard-rails lying parallel to and in contact one with each half of the divided nut. These bars are also supported in the pedestals so as to move with all the other moving parts when yielding to the spring of the rudder. Wedges *n* serve to press these bars hard up against nut I. Thus the screw-shaft is relieved from the workings of the rudder in a heavy sea, and is prevented from being bent out of its true line, which would strip its own or the thread of the nut or bolt.

Claim.—Combining with the divided nut the adjustable guide and guard-rails, substantially in the manner and for the purpose set forth.

Also, the supporting of the pedestals upon the stanchions by means of long pins or studs passing through oblong slots in the pedestals, and into said stanchions, for the purpose of allowing the pedestals and several parts connected therewith to move fore or aft, up or down, to accommodate themselves to any rising or falling, or springing or bending of the rudder-post, substantially as described.

No. 12,909.—J. W. Hoagland.—*Tree-Nail Machine.*—Patented May 22, 1855. (Plates, p. 139.)

The piece X of which the tree-nail is to be made is entered between the first pair of feed-rollers L. The piece is shaped by the cutters, and thus received by the second pair of feeding-rollers, the pressure of which latter rollers is governed (for the purpose of accommodating the varying size of the tree-nail) by oval buttons *b* on rods R, which latter are moved and governed by levers D bolted and projecting from circular plate B. The buttons are hinged upon a cross-piece *c* on the stanchions E. When the gauge or pattern causes a motion of the arms D of the plate, it moves also the levers R, and, turning the buttons, forces apart the boxes S of the feed-roller shafts, and the spiral springs force them together again. In each box C is a stationary pin protruding

through slots *a* in the plate. The follower H is supported on ways *z*. The chain band W is connected to the follower, so that when the follower is thrust back by the tree-nail striking against it, it will turn the wheel J and pinion K, and move rack T, which carries the gauge or pattern U. When the tree-nail drops, the weight will draw the follower back again towards the head of the machine. Upon one of arms D is screwed a perpendicular stem Y with a slot at its fastening, so that it can be graduated. The bottom of the stem rests, by means of a friction roller, upon the pattern U, which, in moving back and forth, raises or depresses the levers D of the circular plate; and this motion, by means of slots *a*, converges or diverges the cutters, and thus gives the tree-nail the desired shape.

Claim.—1st. The use and employment of the circular plate B, with its diagonal slots *a*, to concentrate or expand the cutters, and thus regulate the size of the tree nail in the manner above described.

2d. The use and employment of the follower H, with its apparatus of band and wheel to govern the gauge U, so that the tree-nails may be made uniform in size, arranged and constructed substantially as above described.

3d. The use of the levers R and their apparatus of ovals *b* to separate the feed-rollers or allow them to approach each other for the purpose of holding the tree-nail firmly, while it is being enlarged or diminished, in the manner above shown.

4th. The use of the pattern-gauge U and the stem Y to govern the circular plate.

No. 13,463.—Joseph Hyde.—*Improved Apparatus for Vessels to indicate their locality when they sink, and to supply a means of raising them.*—Patented August 21, 1855. (Plates, p. 139.)

The cord *g* being connected by one end with the buoy *b*, and by the other with the spool *f*, which makes part of the buoy, and wound upon the body of the spool, which is free to turn on the arbor of the buoy, as the vessel sinks, the spool will turn to give out the cord, that the buoy may remain on the surface of the water, notwithstanding it continues to be connected with the vessel. The sockets *h* are formed with recesses *l l* for the insertion of a metallic grapple *m* provided with two catches *o*, which have their fulcrum at *p*, and which work in mortises in the grapple, and are pressed outward by a suitable spring. The chain or cable *q* is attached to the grapple-loop *n*.

a represents part of the vessel.

The inventor says: I am aware that on some occasions, in throwing guns, anchors, and other heavy articles overboard to lighten ships at sea, cords with floats have been previously attached, to indicate their locality when sunken; but I am not aware that buoys specially provided have ever been arranged and connected with a vessel or anything within it so as to remain so connected, and give out the connecting cord to remain on the surface of the water as the vessel sinks, to indicate its locality, and afford the means of forming the necessary connection for raising the vessel, &c., to the surface; and therefore I do not

claim, broadly, the use of floats to indicate the locality of sunken vessels.

I do not wish to be understood as limiting myself to the special construction of the buoys, nor to the special manner of arranging the cord which forms the connection between the buoy and the socket or the hose, nor to the special mode of attaching the socket to the vessel or safe, nor to the mode of making the flexible bags or camels and hose, nor to the special construction of the grapple, as all these may be varied without changing the character of my invention.

I *claim* the mode of operation for indicating the locality of sunken vessels by means of a buoy or buoys, connected and combined with the vessel by means of a cord or cords, or the equivalent therefor, attached to the buoy, and a windlass or equivalent thereof, and connected with the vessel, or some valuable within the same.

I also claim the mode of operation for connecting cables or chains with sunken vessels or articles therein by means of the socket, or any equivalent therefor, operated by the buoy-cord, substantially in the manner described.

No. 12,436.—Henry V. Corbett.—*Improved Mode of Raising Sunken Vessels.*—Patented February 27, 1855. (Plates, p. 139.)

A hook *a* is attached to the bottom of the buoy B of sufficient strength to hold the buoy to the vessel, and on the opposite side there is attached another hook *b*, to which is fastened the weight W by a hole *h*, to the top of which weight is attached a hawser. The weight carries the buoy down, it being guided by the guy-lines attached at *g g*; when arrived at the bottom the buoy is to fasten itself to the guards or other part of the sunken vessel, which is to be facilitated by gently raising the weight. The weight is then drawn up.

The inventor says: I do not claim the mode of raising sunken vessels by the use of casks filled with water, which is to be pumped out after the casks are attached to the vessels.

Nor do I claim the mode of so doing by means of expansive buoys, which obtain their bouyant power by inflation after they are sunk and attached to the vessel.

But I *claim* the mode of raising sunken vessels by means of casks or buoys, previously filled with air and sunk by a weight, which is readily detached and raised to the surface after the buoy is secured to the vessel, substantially as set forth.

No. 12,458.—Alexander Kirkwood.—*Method of Pumping Water out of Vessels.*—Patented February 27, 1855. (Plates, p. 140.)

The box A B C (open at the bottom) is fitted to the bottom of the vessel, and its inside communicates with the water in the vessel by an opening *a a*; from F upwards extends the pumping cylinder G; the part C of the box communicates with the water outside the vessel by means of a hole through the bottom of the vessel. The action of the pump will draw the water in at *a* through valve-opening D, and force it

out through valve-opening E, space C, and out of the hole in the bottom of the vessel. Figure 1 is a side view, and figure 2 a bottom view of the pump.

Claim.—The attachment of the described pump, or of any ordinary force-pump, to the bottom of a vessel, so as to force water out at her bottom, thereby avoiding the labor and expense of raising the water above the level of the water the vessel floats in.

No. 12,506.—Elmer Foster.—*Improvement in Hoop-Jacks for Sailing-Vessels.*—Patented March 13, 1855. (Plates, p. 140.)

1 is the circular space occupied by the mast; A the space for the lower throat-halyard block; 5 the rollers forward and aft of the mast, to prevent the jack from binding, and to play or run on the mast; 6 the line to which the hoops are to be seized, as they are in length on the mast-rope of the sail, that the forward part of the hoops may be lifted or hoisted with the after part horizontally and at the same moment. This hoop-line is connected with the band by a clevis hung on the forward bolt 3, to which it is properly rigged; 7 is the brace-line and hook connected to the after screw-bolt 3, which prevents the halyards from binding against the edges of the block, by keeping the block perpendicular while being hoisted; 8 is the clevis, to put the weight near the end of the bolts to prevent them from t ending.

Claim.—The arrangement of the hoop-jack, with the lower halyard-block, the brace-line, clevis and gaft-hook, clevis and hoop-line extending down to the foot of the mast and connected to each sail-loop, as set forth.

No. 13,006.—William R. Jackson. *Improvement in Floating Cabins for Steam and other Vessels.*—Patented June 5, 1855. (Plates, p. 140.)

By removing the chain connection between the hooks *a* and the rods *f* passing up through the deck-timbers the cabin will be detached from the deck, and by means of raising the beams A (as indicated by dotted lines) can be launched. The cabin is made sufficiently strong and water-proof, to serve as a life-boat.

I *claim* the construction of a deck or saloon cabin of a steam or other vessel, substantially as described, so that it shall admit of being separated from the hull, and form in itself an escape or life-boat, as set forth.

No. 13,030.—Elisha Fitzgerald.—*Improvement in Buoys for Raising Sunken Vessels.*—Patented June 12, 1855. (Plates, p. 140.)

The nature of this improvement will be understood from the claim and engravings.

I *claim* the attachment to the air-bag A of an escape-valve (figure 4) B *c*, to prevent its bursting when, in consequence of the rising of the sunken sh p, the pressure of the water around the bag is partially relieved, in the manner substantially as described

VIII.—MATHEMATICAL INSTRUMENTS, ETC.

No. 13,800.—Nathaniel S. Saxton.—*Improvement in Machines for Adding Numbers.*—Patented November 13, 1855. (Plates, p. 141.)

The numbers from 0 till 1750 are marked in a spiral line on the face-plate, as indicated by the dotted spiral line in fig. 1. The marginal index on the rear side of the instrument consists of the numbers from 0 till 100, on a circle as indicated in fig. 2. To add, for instance, 32+20+9, the finger is to be placed on the prominence at 32 with O in the opening for reading, and the notched wheel B is to be rotated in the direction 30, 20, &c., until the finger fetches up at letter O. 32 is thus added, and takes the place of O in the opening; then the finger is to be placed on the prominence at 20, rotated as before, and the sum of 32+20, *i. e.* 52, appears in the opening just on the left of the gnomon G. Hence, to add any number requires merely the rotation of the notched wheel in a direction retrogressive to the numbers of the marginal index from the number to be added to O. After each addition, the sum of all the numbers added stands in the opening just on the left of the gnomon. The movement of the gnomon is greater than to coincide with the numbers less than 1000, so that when the sum is 900, a part of 1000 appears; but these parts of numbers are not to be noticed in reading.

The inventor says: The retrograde motion of wheel No. 1 may, in some cases, be performed by a weight or spring; but that part is not claimed to be patented.

I *claim* in machines for adding numbers the spiral scale of numbers, combined with the traversing gnomon, substantially in the manner and for the purpose set forth.

No. 13,623.—E. K. Reynolds.—*Clock-Escapement.*—Patented October 2, 1855. (Plates, p. 141.)

The nature of this improvement will be understood from the claim and engravings. D is the balance and A the escapement-wheel, and B the crutch.

Claim.—Constructing the staff *d* of the balance with a spiral groove *e*, and so arranging the balance that the point of the lever *c* will work in the said groove, and give the requisite motion to the balance, substantially as described.

No. 13,341.—Jno. Williams.—*Improvement in Calendar-Clocks.*—Patented July 24, 1855. (Plates, p. 141.)

A receives a continuous rotary motion, completing its revolution once in a day; wheel B carries the hand indicating the day of the month, and has thirty-one teeth on its periphery, and is moved one tooth every day by pin *a* on disc C secured to wheel A, and is prevented from

moving more than one tooth by spring-roller pawl *p* engaging with its teeth. The above movement completes the revolution of wheel B in each month of thirty-one days; but at the termination of the shorter months the said wheel has not completed its revolution by so many teeth as the number of days of the month is less than thirty-one. In order to bring the hand to the first day of the month (on the dial) after the lapse of a short month, the following means are employed: 1, 2, 3 are three sliding teeth attached to the front face of wheel B, and three pins a^1 a^2 a^3 are secured on disc C. The teeth 1, 2, 3 are attached to arms b^1 b^2 b^3, which are pivoted to wheel B in such a manner that the teeth can severally be thrown outwards so as to gear with a^1 a^2 or a^3. For this latter purpose there are arranged four pins *k*; one of which, during February, is caused by the movement of D on the arbor of B to come in contact with, throw out, and hold the sliding-tooth 2 to its operative position, so that at the termination of the month, when it arrives opposite the disc D, it will be acted upon by one of the pins a^1 a^2 a^3 of said disc. The next backward movement of wheel D, which takes place some time in March, causes the pin *k* to pass tooth 2, and allow it to be thrown back by its spring c^2, where it remains inoperative till February of the next year. Near three of these pins *k* are three pins *l*, but near the fourth there is none. One of the pins *l*, during the February of every year except leap year, comes into operation on the sliding-tooth 3 simultaneously with the action of its contiguous tooth *k* upon the sliding-tooth 2; but during leap year the tooth 3 remains inoperative, owing to the absence, near that pin *k*, which acts during leap year, of a pin *l* to throw it outwards.

The inventor says: I *claim* completing the revolution of the wheel B, at the end of the shorter months, by means of sliding-teeth 1, 2, 3, which are suitably attached to the said wheel, and severally or collectively, as required, brought into such positions as to enable them to be acted upon by the teeth on the daily revolving wheel A by means of the "*four year wheel*" D, which is on the same arbor as, but independent of, the wheel B, the said wheel D acting upon the said sliding-teeth by means of its forty-eight projecting and receding divisions, and by pins or teeth arranged upon it, as described, and being for that purpose moved one forty-eighth part of a revolution, independently of the wheel B, for every revolution of the said wheel B substantially as set forth.

But I do not claim the method of giving motion to the wheel D, as that has been before employed for a similar purpose.

No. 13,993.—Henry M. Parkhurst.—*Improvement in Proportional Dividers.*—Patented December 25, 1855. (Plates, p. 141.)

In this proportional divider the secondary legs C C^1 can, when the primary legs A A^1 are closed, be turned through a space of about 180°, and their points will remain accurately together; and if the secondary legs be placed together at any angle with the primary legs, their points will always maintain the same proportional distance, whatever may be the opening of the primary legs. The ratio will always be that of *c d*, *c f*; *c f* being the effective length of the primary legs, and *c d* the distance from the primary joint of the point in the primary by-cut, by a perpendicular from the point of the secondary leg, as illustrated. The pointer E indicates the distance on the scale F that the secondary legs are moved, and thus they can be set to give the desired proportional length.

Claim.—Providing an ordinary pair of dividers with the secondary legs, which have their joints equi-distant from the primary joint, and at right-angles thereto, substantially as and for the purpose set forth.

No. 12,855.—Charles T. Chester.—*Improvement in Connecting Clamps for the Plates of Galvanic Batteries.*—Patented May 15, 1855. (Plates, p. 141.)

Figure 1 represents a top view, and figure 2 a perspective view. The clamp C^1 C^2 is used to insert a duplicate plate in the battery fluid, while the other is removed. Thus C^1 is placed upon the insulating rod A, (as shown in dotted lines in figure 1,) and held in that position by screw *e*, while the auxiliary zinc-plate Z^2 is screwed into clamp C^2 so as to dip into the same acid into which Z dips. Z is then removed or again replaced, and the battery current will not have been disturbed.

Claim.—The arrangement herein described for fastening and connecting the battery-plates, viz: Clamps B, of brass or such other metal as will alike answer the purpose of the arrangement, attached to the insulating bar A of wood, commonly used in Smee's battery, in such manner that the battery-plates Z P clamped to them shall be separate from the wooden bar, and the solution be prevented from finding its way by capillary attraction to the wood, and which shall by their form allow of an easy removal and replacement of each separate plate, without the disturbance of any other part of the battery arrangement, as herein above set forth.

No. 13,560.—Amos Abbott.—*Improvement in Horometers.*—Patented September 11, 1855. (Plates, p. 141.)

The arc of the circle A B C D is divided into degrees and half degrees, numbering from the point C, which represents the north pole. On one side of zero is written "south declination," on the other "north declination," corresponding to the declination. The polar distance also is marked on the same arc with 90° at the point C. From the centre O a right line is drawn to the point B. It represents the equator, and it is divided into a scale of a hundred equal parts. Parallel to this line are drawn right lines, as many as may be necessary, from the division of degrees on the arc, cutting the line O C at right-angles, and extending to the line A D. These lines are projections of altitude, and are numbered on the line O C, and also on A D. Across these lines of altitude, on each side of the line O C, are drawn a horizontal projection of lines of longitude as far as is necessary. These lines can be projected by measuring off the distance from the line O C of the several points of the line on the lines of altitude, and then drawing a line through the several points. The distance of any point of the line of longitude

from line O C may be found by the following formula, radius being one: line of longitude × cosine latitude = distance from line O C on the given latitude. The arm O K turns on the centre O, and extends to the arc of the circle, on the end of which is a vernier: this arm has a straight edge on a line with the centre, around which it turns. Accompanying the instrument is a horse-shoe magnet E F G, with a scale of cosines or coaltitudes on one side for measuring angular distances compensating for refraction, and on the other side a scale of equal parts H J.

For example, to find the time of day by the altitude of the sun is a case where three sides of a triangle, viz: polar distance, coaltitude of the sun, and the coaltitude of the place of observation, are given to find the angle at the pole, which angle, turned into time, gives the time from apparent noon. The way to find this by means of the instrument is to set the zero of arm O K at the polar distance for the given time, and slide the scale of coaltitudes along the straight edge of the arm, and at right-angles to it, till the coaltitude of the sun on the scale meets the latitude of the place of observation. The degree of longitude crossing the latitude at that point will be the angle required; and where the straight edge of the arm crosses the latitude of the place, will be the time of the rising and setting of the sun, for it represents the line of illumination when the sun is at the given polar distance.

I do not claim the invention of any part of the apparatus connected with the instrument for the purpose of taking altitudes of objects, or of solving of problems in plane trigonometry; nor the tables on the back of the instrument; nor the projection of any of the lines as such.

But I *claim* an instrument upon which are delineated projections of latitude and longitude within an arc of a circle, combined with the arm O K and scale F G, or their equivalent, substantially in the manner described, for the purpose of solving useful problems in spherical trigonometry, as above mentioned, without the usual mathematical calculations.

I also claim the employment, in mathematical instruments, of magnetism, to keep a slide at right-angles, or any given angle to a straight edge, and at the same time allowing it to slide freely upon the straight edge, substantially as set forth.

No. 13,584.—John Stinson.—*Improved Instrument for Determining Latitude and Longitude.*—Patented September 18, 1855. (Plates, p. 166.)

For observing a longitude, (observation supposed to be taken from the stars,) the handle B is taken from the hook P, and the face of the circle is pointed to the polar star until the sight is taken at the angle of the cross-arm G and the angle at the hub for the purpose of getting the meridian; then the circle is turned until the arm G draws a parallel from the pole star to the star in Ursa Minor which is nearest the pole star; and when that is obtained, the thumb-screw S is fastened to maintain that bearing. Figure 4 shows the manner of elevating the instrument. To get the latitude the tube R is directed to the polar star. To

get the latitude and longitude by the sun, the altitude of the sun is obtained by turning the circle until the sun shines through the tube R. This is known by the ray falling upon the hand or any plate held at the periphery of the circle.

E is a surveyor's compass.

Claim.—The use of the circle C, with its shaft or handle, provided with the cross-piece G and the cross-piece H, or their equivalent; the whole being suspended from, at, or near the centre of the circle, by means of the plumb-wire and rod I; which rod is jointed so as to move freely in the plane passing through the axis of the circle, the whole being for the purpose above described.

No. 12,384.—Hampton W. Evans.—*Improvement in Spirit-Levels.* Patented February 13, 1855. (Plates, p. 166.)

This level can be used for levelling, plumbing, grading, and battering—L P G and B. By turning letter L towards the spring-catch H it will be set for a level, and the screw *g* at L is used to adjust the level; by turning the screw once round, the crescent-shaped catch E (with the points turned up to fit in a V-shaped groove *c* on the under side of the revolving plate) is loosened, and is held in its place by a rug *f*, into which the screw forces and holds the catch-block permanently. When P is turned next to the spring-catch, it is then set for a plumb-rule, and is adjusted by the screw *g* at P, in the same manner as already described and set forth, etc.

The inventor says: I do not claim the disc-plate, or conic centre, upon which it revolves, as new; but, in connexion therewith, I *claim* the crescent-shaped sliding or adjustable stops and spring-catch, in combination with the grooved disc and set-screws, or their mechanical equivalents, the whole being arranged and constructed in the manner and for the purpose described.

No. 13,162.—Robert D. Dwyer.—*Improvement in Attachments for Lightning-Rods.*—Patented July 3, 1855. (Plates, p. 166.)

The lightning-rod is passed through the holes *g g* and notch *d*, when the respective parts of the rod-holder (*e i f* and A) will be securely fastened together, and the rod be securely fastened to them.

Claim.—Constructing a lightning-rod holder of but two parts, of such a form that the lightning-rod will connect them to each other, at the same time that it combines itself securely with them, substantially as represented and set forth.

No. 13,833.—Louis Young.—*Improvement in Revolving Measuring-Wheels.*—Patented November 20, 1855. (Plates, p. 166.)

To use this revolving measure, the wheel *a* has to be turned so that the pointer *g*, attached to the casing A, corresponds with the division marked zero on said wheel; then the cover *w* has to be opened, and

the wheel B to be turned until the division marked zero thereon corresponds with the lower edge of opening C, in the side of casing A. Then the instrument is to be placed upon the substance to be measured, so that division zero of wheel *a* comes to the edge of the substance; and the instrument is then rolled over the same, when the measure can be read off the wheel B, through opening C. The count-wheel B is turned one tooth in each revolution of wheel *a*, by means of pawl *m*, cross-head *d*, and connecting-rod *n*, one end of which latter is pivoted eccentrically to the outer end of shaft *h*.

The inventor says: I do not claim the manner of transmitting the motion from the measuring-wheel *a* to the counting-wheel B, but I *claim* the arrangement of the box containing the count-wheel B, in connexion with the stock carrying the measuring-wheel *a*, in such a manner that said box is made to serve as a convenient handle for working the instrument.

No. 13,603.—Robert B. Tolles.—*Improvement in Optical Instruments.*—Patented September 25, 1855. (Plates, p. 166.)

The piece of glass B, (of refractive index 1.50,) of one inch in length and of slightly conical form, has convex ends, the convexity of the smaller end corresponding to a radius of 0.44 inch, and of the larger end to a radius of 0.55 inch. By placing this solid, transparent piece at a proper distance within the focus of any object-glass, it will act as a negative eye-piece, the two refracting surfaces acting as two equivalent separate lenses with a focus formed between.

The inventor says: I do not claim the invention of a solid optical piece consisting of two exterior refracting surfaces, when such surfaces operate as a single lens of greater or less thickness.

But I *claim* the construction of a solid optical piece, the exterior refracting surfaces of which shall produce the effect of two equivalent lenses, said surfaces being at such a distance from each other as shall form a focus or image within the solid transparent substance, thereby suppressing two refracting surfaces, substantially as set forth.

No. 13,451.—John C. Briggs.—*Improvement in the Application of the Conical Pendulum to Time-keepers.*—Patented August 21, 1855. (Plates, p. 166.)

This pendulum oscillates in a circle or ellipse, its motion being kept up by the spindle B, coming up from below within the circumference described by the pendulum ball A suspended from standard C.

Claim.—The application to clocks, time-pieces, or other machinery, as a regulator, of a rotary or conical pendulum, the rod of which is flexible, and attached at its upper end to a fixed point above, and without the described cone, and extending only below the point of support, the pendulum to be kept in motion by a spindle coming up from below, substantially as described.

No. 12,196.—Aaron D. Crane.—*Improvement in Torsion Pendulums for Time-Pieces.*—Patented January 9, 1855. (Plates, p. 166.)

The nature of this improvement is apparent from the engravings.

Claim.—The method of compensating the torsion pendulum, by so constructing it, substantially as herein set forth, as that its weights may swing from the centre of their motion in the ratio of the increase of their speed, thus making all its vibrations isochronal.

No. 13,615.—Bernard Goetz.—*Improvement in Corrugated Reflectors.*—Patented October 2, 1855. (Plates, p. 143.)

The silver-plated corrugated plate A B is set in a casing O W of wood or other material, and covered in front by a sheet of glass S, plain or fluted. This reflector is placed on the outside of a window (of a room darkened by the contiguity of buildings or other cause), at an angle of 45° or other suitable angle, so as to throw the rays of light from above into the room.

The inventor says: I do not desire to claim reflectors generally to thrown light into darkened rooms, or such as have been used for lamps.

But I *claim* a reflector A B having the peculiar form of grooved or fluted undulating surface above described, and the converging grooves *a b c d*, &c., a^1 b^1 c^1 d^1, &c., and crossed transversely by the other series of parallel grooves *t u v w*, &c., t^1 u^1 v^1 w^1, &c., on plate I I, in the manner and for the purposes substantially as described.

No. 12,929.—Leroy S. White and Lewis White.—*Improvement in Telegraphic Key Apparatus.*—Patented May 22, 1855, (Plates, p. 143.)

A, wooden frame; *c c* c^1 c^1 metallic posts, positive and negative wires being connected with the posts c^1 c^1; D and E wooden bars, the latter being embraced by a metallic saddle F, which extends between each two posts; G metallic bar connecting the saddles, it being attached to one and insulated from the other, which is electrically connected with rods L L, the saddle-bars being respectively electrically connected with the two positive and negative wires of the battery; *x* insulator between G and one of bars F; H vertically sliding keys; a^1 metallic key-bar supported by spring b^1, the hole in bar G, through which the key-bar slides, being sufficiently large not to permit the key-rod to come in contact with the bar; K friction slider sliding on the key-bar with sufficient friction to cause the key, not only when moving downwards, to press and keep it against bar G, but also, when moving upwards, to raise it from bar G and carry and keep it in contact with bar D, the slider being made vertically of a width less than the distance between G and D, while its length is such as to entirely straddle the hole in G and rest on said bar G, when it (the slider) is forced downwards. By this friction slider the electric connection between the key and bar G will be alternately closed and broken. The lower end of

the key-bar is provided with strips of ivory, the lowest strip having a notch into which spring O falls when the key-bar has arrived at its highest position. Spring O extends from metallic rod L, which latter is at one end supported by an insulating post M, while its other end has a metallic connection N with saddle-bars F. The edge of spring O works against the side of the lower part of key-bar a^1; and while it is in contact with one of the ivory strips, the electric current will be broken, but when in contact with the metal, it will be closed. The relative lengths of the ivory strips and the metal between them serve to produce a character indicative of a letter of the alphabet, as in other telegraphic registers.

The inventors say: We are aware that it is not new to close and break an electric circuit by means of a moving piece of metal, having strips of ivory or other electro non-conducting material inserted within it, and made to operate against a metallic spring connected with one pole of an electric battery, while the said moving piece of metal is connected with the other pole thereof; therefore, we do not claim such to be our invention, but we do *claim*, in combination with a sliding-key circuit breaker of such description, a friction slider, a metallic bar G, and an insulated stop-bar D, or the equivalent thereof, the whole being made to operate together, substantially as specified.

No. 13,389.—JOHN N. GAMEWELL.—*Improvement in Apparatus for Discharging Atmospheric Electricity from Telegraph Wires.*—Patented August 7, 1855; patented in England, September 15, 1854. (Plates, p. 143.)

The train of wires D passing over ivory studs *c d* forms part of the main circuit. This wire is composed of long pieces *e f* of inferior conductor (for instance iron) represented in strong broken lines, and of short pieces *f h* (represented in strong full lines) of superior conductor (for instance copper). The short pieces terminate in points *h*; *i* is the usual main wire entering the office; the other end connects with one end of a thin sheet of platina, from whose other end a fine platina wire leads to the magnet. The points *h* are in close proximity (but without touching) to the points *l* of a series of superior conducting wires soldered to a copper trough E, to the bottom of which trough copper wires *m* are attached which enter the ground. On opposite sides and at a short distance from the platina plate *j* are placed two copper plates *n n*, insulated by brackets *o*, which carry them and the platina plate. These copper plates are studded all over their inner faces with points *p* of superior conducting metal, which are in close proximity to the platina plates, and they are connected with the trough by copper wires *q*, which are of such form as to yield when the boards A B are adjusted by the screws C.

The principle upon which this apparatus is constructed is, that atmospheric electricity will leap from one conductor to another, but that a galvanic current such as used in the working of the telegraph will not pass through the smallest space without a continuous conductor.

The points *l* and *p*, the trough E, plates *n*, and wires *q* and *m*, serve to discharge the atmospheric electricity. The points *h* and *l* are to be set in the closest proximity without touching during a highly electric state of the atmosphere.

The inventor says: I do not claim the use of discharging points connected with the ground to carry off atmospheric electricity.

I *claim* the method of obstructing the passage of atmospheric electricity along the line from one discharging point to another, or their equivalents provided for a similar purpose, by reducing the capacity of the conductor forming said line at and immediately after its junction with said discharging points *h h*, whether that reduction consists in the employment of one inferior conducting material or in reducing the dimensions of the conductor, as set forth, or any other equivalent method of reducing the conducting capacity of those parts of the line, thereby forcing the discharge of the atmospheric electricity from the points *h h*, as described.

No. 13,519.—ALEXANDER BOYD.—*Improvement in Telegraphic Tide-Gauges.*—Patented September 4, 1855. (Plates, p. 142.)

As the tide rises, the float C (not shown in the engravings) attached to the lower end of cord *e* is raised, and weight H rotates shaft G and moves the endless cord *v* around the pulleys *p p p*; the piece *s* moves with the cord and removes one of the slides *k* (turning on pivots *l*) from its glass *j* in consequence of its striking projection *m* on the lower end of slide *k*. A colored light is thereby shown, which is intended to indicate a certain depth of water—for instance, one foot. As the float rises the next slide will be opened, indicating a depth of two feet, and so on. As the tide falls the piece *s* moves back and obscures the lights one after the other.

The inventor says: I do not claim the employment of a float and weight for indicating the height of water in channels and passages, irrespective of the mechanism shown for transmitting motion to the slides by which the lights are obscured and exposed, for they have been previously used.

But I *claim* showing and obscuring a series of lights *j* successively, so that the height of the water may be indicated by the number of lights visible by means of the slides *h*, provided with projections *m m* and the rod *s* attached to a rope or chain *r*, said rod *s* operating the slides, the rope or chain V working over pulleys *b*, and moved and operated by the shaft G, which receives its motion by means of the float *c* and weight H.

No. 13,655.—WASHINGTON ABRAM PEASLEE.—*Improvement in Telegraphs.*—Patented October 9, 1855. (Plates, p. 143.)

The engraving represents the batteries, ground connexions, main wires, helices, vibrating armature lever, etc., ready for operation, with the circuit broken at the point H^1 of the break-circuit key 8^1; it being understood that the battery Z^1, having its platina pole connected with the ground by the wire j^1 to the ground plate x^1, must have a ground

connexion for its zinc pole also, to complete its circuit and bring it into action. But this is not the case, as represented in the diagram; the wire H, leading from the zinc pole of the battery Z^1, not being connected with the point H^1 of the break-circuit key 8^1, consequently the battery Z^1 is inactive.

The battery Z being connected to the ground-plate *x* by the wire *j*, leading from the ground-plate *x* to the zinc pole of the battery Z, which is connected with the break-circuit key 8 by the wire H^2, leading from the platina pole of the battery Z to the break-circuit key 8, the main wire *d* being in connexion with the break-circuit key 8, and the metal standard q^1 and standard *q* being connected with the helices C^1 by the wire d^4, and the helices C^1 being connected to the metal standard q^1 by the wire b^1, and the standard *q* being connected with the metal standard p^1 by the wire a^1 a^1, and the standard p^1 being connected with the helices B^1 by the wire *b*, and the helices B^1 being connected with the metal standard *p* by the wire d^2, and the standard *p* being connected with the break-circuit key 8^1 by the main wire d^1; the point H^1 of the break-circuit key 8^1 being the terminus of the unbroken connexions leading from the platina pole of the battery Z, and having no ground connexion at the point H^1, consequently the battery Z is inactive also. The point H^1, being the representative of the platina pole of the battery Z, being brought in connexion with the wire H leading to the zinc pole of the battery Z^1, and the platina pole of the battery Z^1 being connected with the ground-plate x^1 by the wire j^1, the circuit is complete, having the zinc pole of the battery Z connected with the ground-plate *x*, and the platina pole of the battery Z^1 connected with the ground-plate x^1. The circuit being now complete, the current passes from the zinc pole of the battery Z, which is connected with the ground-plate *x*, to the platina pole of the battery Z^1, that is connected with the ground-plate x^1, charging and forming magnets at the same time of the helices B^1 and C^1.

The helices B^1 and C^1, being placed near enough to the metal arms B^2 B^3 of the vibrating armature lever, to attract the metal arms B^2 B^3 with equal force, the armature lever is drawn from its perpendicular position ("where it rests, touching the non-conducting points o^1 o^4") against the metal-points o^2 o^3; the metal-points o^2 o^3 being connected by the wires c^4 c^5 with the main circuit d d^1 at the metal standards p^1 q^1.

Ground connexions are formed between the helices B^1 and C^1 through the wires c^4 and c^5, leading from the metal standards p^1 q^1 to the metal points o^2 o^3, the metal points o^2 o^3 *being in contact* with the metal linings *f f* of the armature lever, and the metal linings *f f* in connexion with the metal axles *i* i^1, and the metal axles *i* i^1 in connexion with the metal-standards *k k*, and the standards *k k* being in connexion with the ground-plates w^1 *w* by the wires *l l*, two *separate and distinct circuits* are completed; the batteries Z and Z^1 being separated by the ground connexions, and these ground connexions being complete at *x* and w^1, and at *w* and x^1. The current from the battery Z then passes from the zinc pole that is connected with the ground-plate *x* to the ground-plate w^1, which is now the terminus of the platina pole of the battery Z, which remains active in consequence of the zinc and platina poles having their respective ground connexions at the ground-plates *x* and w^1. The current from the battery Z also passes from its zinc pole that is connected with the ground-plate *w*, which is now the terminus of the zinc pole of the battery Z^1, to its platina pole that is connected with the ground-plate x^1; the battery Z^1 also remains active, in consequence of the zinc and platina plates having their respective connexions with the ground at the ground-plates *w* and x^1; the helices B^1 being in the circuit actuated by the battery Z^1, and the helices C^1 being in the circuit actuated by the battery Z. The helices B^1 and C^1 having been previously sufficiently near the metal arms B^2 B^3 of the armature lever, so as to require the power of both helices, B^1 and C^1, to draw the armature lever from its perpendicular position against the metal points o^2 o^3; the power of the helices B^1 not being sufficient in itself for such purpose *without the aid* of the helices C^1, and the power of the helices C^1 being insufficient for such purposes *without the aid* of the helices B^1; but the helices B^1 and C^1 retaining the armature lever in its position against the points o^2 o^3 until the circuit of the battery Z^1 is broken again by separating the point H^1 of the break-circuit key 8^1 from the wire H leading to battery Z^1; as soon as this is done, it destroys the attractive power of the helices B^1; and the helices C^1 not being able to retain the armature lever in its position against the points o^2 o^3 by their power of attraction alone, the weight of the armature lever at the arm B^3, being equivalent to a spring in this case, causes it to leave the metal points o^2 o^3, and resume its perpendicular position against the non-conducting points o^1 o^4; thereby breaking the ground connexions with the ground plates *w* and w^1, and thereby enabling the helices B^1 and C^1 to assist each other as soon as the point H^1 comes in contact with the wire H, making the connexions between the batteries Z and Z^1 as heretofore described.

S is a coil-spring connected with the armature lever, and so adjusted as to draw back the armature lever against the points o^1 o^4 with a force greater than the attraction of either electro-magnet, but less than the sum of their attractions.

Claim.—The mode described of dividing a long line of telegraph into two sections, and transmitting signals from either section to the other, viz: by means of two receiving electro-magnets at an intermediate station, the helices of which are interposed in the line of main wires, one after the other; said magnets acting in conjunction upon an armature lever, or its equivalent, which, by the motion produced by the attraction of the magnets, makes contact of a ground wire or wires with the main line between the two helices; and the said receiving electro-magnets and armature lever being combined with a spring, or other equivalent force, adjusted so as to draw back the armature lever with a force greater than the attraction of either electro-magnet, but less than the sum of their attractions, or any combination of apparatus operating in substantially the same manner.

No. 12,129.—Chas. W. Hawkes and George P. Reed.—*Improvement in Compensation-Balances for Time-keepers.*—Patented January 2, 1855. (Plates, p. 143.)

Set-screw *j* sets up against one side of brass arm *d*, and spring *l*, being attached to the other side of the arm with the outer end of it bearing against the ear *k*, will hold the brass arm firmly against the set-screw. This balance is adjusted by turning the set-screws *j j*, which increases or diminishes the leverage, thereby giving a greater or less throw to the weighted end of the lever. This balance exposed to heat will expand; the arms *b b* increasing in length and the rim in diameter, carrying the whole weight of the rim farther from the centre: but arms *d d*, being of brass, will expand less than the steel arms *b b*, carrying the short end of the lever, to which it is attached by pin *e*, out farther from the centre, and in proportion to the length of leverage will throw the weighted end of the lever in towards the centre, thereby counteracting the natural tendency of the whole weight of the balance to recede from the centre, by which a uniform motion is maintained through all the different changes of temperature.

Claim.—The compensating lever, or its equivalent, in combination with the radial arms *b* and *d*, substantially in the manner and for the purpose herein described.

No. 13,977.—George Byington.—*Improvement in Time-Indicators.*—Patented December 25, 1855. (Plates, p. 143.)

The nature of this improvement consists in the addition of the spring 3, whereby the instrument is made to work more easily than by the old construction. The rollers *r* being formed with grooves *g*, and the wire 3 being interwoven with them and sunk into said grooves, as represented in the figures, prevents the rollers being withdrawn from their places, while the pressure caused by the tendency of the spring to assume a straight form produces an amount of friction on the journals of the rollers sufficient to cause them to retain their position when moved.

Claim.—The wire or ribbon 3, arranged in the manner and for the purpose substantially as described.

IX.—CIVIL ENGINEERING.

No. 12,145.—Wm. E. Ward.—*Improvement in Sheet-iron Blinds.*—Patented January 2, 1855. (Plates, p. 144.)

The two edges of the side rails *a a* are bent semi-cylindrically, as shown in the fig. at *b b*, leaving a flat surface *c* between. The upper and lower rails *d d* are produced by bending a sheet of the form shown in fig. 3, midway, so that the half-tubes *e e* form a tube for the reception of the screw-bolts *l*, the flaring-ends *f f* resting on the cap-plates *q q*. The middle rail *g* is in a similar way obtained from a sheet of

the form represented in fig. 2; the tubes *h* receiving another pair of screw-bolts *l*. The distance of the flaring ends *f f* from each other, as well as the diagonal width *j j* of the square part of the middle rail, are to be equal to the width of the flat part *c* of the side rail, in order to effectually brace the whole in all directions. Small holes in the side rails receive the pivot-rods *m* of turning slats *n*. The open space in the outside face of the side rails is closed up by a strip of sheet-iron *s*, which can be provided with a rebate *t*. Hinges *p* are secured to the side rail.

Claim.—The manufacture of Venetian blinds of sheet-metal bent in the form and united in the manner substantially as herein specified.

No. 12,281.—Chas. Mettam.—*Improvement in Rolling Iron Shutters.*—Patented January 23, 1855. (Plates, p. 144.)

The nature of this improvement will be plainly understood from an inspection of the engraving.

The inventor says: I do not claim as new, or irrespective of the relative position of the protruding arch, and the description of shutter to which the described form of slat refers, giving a slat a curved or arched form to increase strength; as a different disposition of the protruding arch and combination of curves have before been used in blinds, otherwise arranged than to roll up.

Nor yet do I claim, as new in itself, causing the edges of the slats in rolling-shutters to have a broad, flat bearing, or lap, the one over or upon the other, to exclude dust, &c.; as the ordinary flat-slat rolling-shutters possess that feature.

But I *claim* the rolling metal shutter, operating as described, making the slats of the form substantially as specified; that is to say, with an exterior protruding arch *a* at their centre, combined with flat laps or bearings *b* at their edges, the slats being arranged in relation to each other and united together essentially as set forth, by which configuration the shutter may be rolled up in a less compass, the labor of rolling up reduced, and the many other advantages set forth obtained.

No. 12,292.—Henry Blakely.—*Improvement in Iron Window-Blinds.*—Patented January 23, 1855. (Plates, p. 144.)

These blinds can be made of very thin metal, as the pivots cannot be drawn out of their sockets by bending or trying to bend the blind.

Claim.—The described method of fastening the metal blinds or slats to the frame, by securing their ends, or the pivots on which they turn in the eyes, in such manner as will prevent the blinds from being taken out by any force applied to bend them short of the breaking strength of the several parts, the whole being constructed substantially in the manner and for the purposes set forth.

No. 12,695.—Charles Rose.—*Improved Venetian Window-Blinds.*—Patented April 10, 1855. (Plates, p. 144.)

To the back of brackets are attached plates *a*, the slots of which plates catch hooks on plate *b*, which is fastened to the window casing, thereby supporting said brackets. An upper head B is arranged on these brackets; *c c* are hooks on the ends of cords which pass up and over pulleys in the upper head, and thence down to some convenient place of access. Hooks *c c* take into eyes *d d*, on the lower head A, and thus suspend the lower head A to the upper one. Hooks *m m* in the brackets catching into plates *n* on the lower head and held against them by springs *s*, support the lower head when drawn up. By pulling cord *p*, the hooks *m m* can be withdrawn, the lower head lowered by the hooks and cords *c c*, and removed after taking hooks *c c* out of the eyes. The upper head can then also be lifted from the brackets.

Claim.—In combination with the lower head and blind, the additional or upper head, and the hooks and cords for readily connecting or disconnecting the two heads for the purpose of placing or removing the blind from the window, substantially as described and represented.

No. 12,872.—George W. Phipps.—*Improvement in Window-Shutters*—Patented May 15, 1855. (Plates, p. 145.)

The slats (see fig. 1) are bent on top and bottom in opposite directions, as seen at *a a*, for the purpose of sustaining each other. At the upper edge, and on the inside of each of the slats, is attached a ledge *b* for the purpose of catching and holding the upper edge of the slat below it, when being lifted in raising the shutter. The cord, being attached to the lower slat, lifts this slat first, and in its rising catches and takes up the next slat, and so on.

On the upper edge of the top slat is riveted a bar to support the same, and which is made to run in a separate groove over the other. When the shutter is down, this bar rests in its groove upon the top of the window-frame, and supports the weight of the shutter. On the bottom of the lower slat is another bar to rest on the sill of the window when down, to keep the shutter in its place.

In each of the sides of the frame there is placed a vertical bar, (see fig. 4,) which can be turned on pivots *s t* at its upper and lower ends, so as to press the shutter forward when closed against the front part of the groove and hold it in its place. The indenture *i* on its lower edge secures the bar on the lower slat, and holds down the shutter when closed.

The inventor says: I do not claim a lifting or sliding shutter made of slats or sheets; neither do I claim the peculiar shape of slats, as they have been before made in different shapes and forms, nor do I claim any particular mode of raising the same; but I do *claim* the peculiar form of the side grooves in the frame, tapering from the bottom to the top, increasing with the additional thickness given by the shutters in being lifted. (See fig. 3.)

Also, the supporting top bar and its grooves, and the vertical side bars, as described, and for the purposes described.

Also, the combination or arrangement of the upper bar, the vertical bars, and the slats, to produce the effect alleged, or any other substantially the same.

No. 13,140.—Alfred A. Starr.—*Improved Adjuster of Window-Blinds.*—Patented June 26, 1855. (Plates, p. 145.)

The pressure of the bolt D against the side strip of the shutter-frame serves to retain the slats at any desired angle.

Claim.—The application of the spring friction-bolt to one of the slats of the shutter or blinds, in such a manner that it shall turn with the slat, and allow of the slat being adjusted to any angle, and at the same time bear with considerable force against the inside edge of the side strip of the frame of the shutter or blind, substantially as and for the purposes set forth.

No. 13,141.—Lafayette Stevens and Solomon B. Ellithorp.—*Improvement in Window-Blinds, Doors, &c.*—Patented June 26, 1855. (Plates, p. 145.)

The tenons of the slats *a* pass through the fillets *b*, and are provided at their ends with a ferrule terminating in a fork *h*. Two rods *e e* serve to connect the fork ends, and the whole works in a groove *j* in the style A (which latter is not represented in figure 1). This blind can be opened and closed without having the usual rod in the centre: by merely turning one of the slats, they will all open and close.

Claim.—1st. The forked lever with the ferrule on the end, or the fork with a flat shaft at the end, made of either cast or wrought metal, for the purpose set forth.

2d. The application of the rods *e e*, made either of metal, wood, leather, or their equivalents, as described, and for the purpose set forth.

3d. The grooved style, with the fillet attached, for the purpose set forth and described.

No. 13,251.—Washington H. Bixler.—*Improvement in Window-Blinds.*—Patented July 17, 1855. (Plates, p. 145.)

The spring *i* is wound up when the blind is drawn downwards, and it has not sufficient strength to draw the blind upward, because the cord *j* is on the large part of the fusee *h*, and on the small end of the fusee *f*; but the spring is allowed to be sufficiently strong to just balance the blind, so that by a slight touch the blind may be moved upward by spring *i*. As the blind moves upward the spring diminishes in strength, which, however, is compensated for by cord *j* gradually passing to the smaller end of *h* and to the larger end of *f*, so that when the blind is fully raised, the weight of the blind and the power of the spring will be equal.

The inventor says: I do not claim the employment of a single fusee applied to a blind or shade, for they have been previously used.

But I *claim* the attachment of two fusees *h*, connected by a cord *j a*, spring *i* being attached to the one fusee *h*, and the cords *c c* to the fusee *f*, as shown, and for the purpose set forth.

No. 13,300.—Frank Chase.—*Improved Window-Blinds.*—Patented July 24, 1855. (Plates, p. 145.)

The sun is prevented from passing through these blinds, but light and air are freely admitted.

Claim.—Constructing blinds by nailing or securing oblique or diagonal slats to both sides of a frame, the slats on one side of the frame being opposite to or covering the spaces between the slats on the opposite side, as shown and described.

No. 13,398.—Chas. E. Parker and Jos. Sanger.—*Improved Mode of Adjusting Blinds to Windows, &c.*—Patented August 7, 1855. (Plates, p. 145.)

The inventors say: We do not claim fitting blinds in grooves in the casing, and having a recess or box formed over the casing to receive the blind, for this is not new, iron doors and shutters having been previously so arranged; but we *claim* attaching the ropes or chains *e e*, *g g*, to the two parts C C of the blind, so that a portion of the ropes or chains *e e* will pass on the outer side of the casing A, and within the apartment or house, and thereby allow the parts C C of the blind to be adjusted as desired, without raising or opening the sashes, as herein shown and described. (See engravings.)

No. 13,500.—David Rohan.—*Improvement in Shutters or Blinds for Stores.*—Patented August 28, 1855. (Plates, p. 146.)

Figure 1 is a horizontal cross-section, showing the shutters as open; figure 2, a similar horizontal cross-section, the shutters being shut: figure 3, the sliding shutters B B in a perspective view, exhibiting the inner side of the shutters and their mitred joints and hinges *p g*.

I *claim* hinging the shutters together by mitred joints, so that when closed the joint or hinges may be concealed.

I also claim, in connexion with the mitred shutters B C, the hinged piece G, which serves the double purpose of a post against which said shutters abut, and to which they may be locked when the front is closed; and also as a finish to one of the shutters when it is run back as represented.

No. 13,890.—Daniel E. True.—*Improved Blind-Fastener.*—Patented December 4, 1855. (Plates, p. 146.)

Supposing the blind to be closed, as shown in the figure, the two levers D will then be folded together, and a pin *i*, at the outer edge of the sill, will be in the recess between the two flanches *e e* at the outer end of the spring-catch *b*. By moving the handle F in the direction of the arrow, the spring-catch will be withdrawn, and the parts will come into the positions indicated by dotted lines, when the blind will be open.

The inventor says: I disclaim the mere combination of bent levers for opening and closing the blind from the inside, as such device is well known, though requiring distinct adjustment for fastening and unfastening the blind.

I *claim* the arrangement of the spring-bolt at the extremity of the outer lever D, and constructing said lever with the blind, as described, so as to be self-fastening, and withdrawn by the said lever movement, operating the blind as and for the purpose described.

No. 13,980.—Thomas Danforth.—*Improvement in Window-Shades.*—Patented December 25, 1855. (Plates, p. 146.)

As a window-screen is usually made of a rectangular frame covered with gauze, and without any means of being either expanded or contracted, it cannot be constructed of a length to correspond with the width of the window-frame between the bottoms or upright sides of its sash grooves; for were it so made, it could not be inserted conveniently in such grooves. It is always made somewhat shorter than said distance, and the edges of the screen can consequently not be in contact with the bottoms of the sash groove. To overcome this defect is the object of this improved expansive screen frame.

By rotating knob G the curtain-roller F will be rotated, and the curtain E will be drawn.

Claim.—Making the frame A so as to be capable of longitudinal contraction and expansion, as specified, in combination with applying the gauze shade or curtain thereto, and so as to wind upon a roller and be wound thereon, by devices substantially as stated.

No. 12,303.—J. J. W. Adams.—*Improved Implement for Boring Wells.*—Patented January 30, 1855. (Plates, p. 146.)

The inventor says: I do not claim the hollow auger G, for that has been previously used.

But I *claim* the employment or use of the spring *g* attached to the handle *f* of the swinging or supended auger G, arranged substantially as shown, viz: with a knob or projection *h* on its outer surface, which knob or projection catches into a cavity in the under surface of the bail F, for the purpose of holding the auger in its proper position while being operated. (See engraving.)

No. 12,663.—John Andrews.—*Improvement in Drills for Artesian Wells.*—Patented April 10, 1855. (Plates, p. 147.)

The cog-wheel F, and the weight C with which it is connected by means of arms E, rotate together with the drill. When the drill is

raised, the shaft K and the parts connected therewith remain stationary until the collar I strikes the pin *f;* at the same time the rising of collar I causes the shaft *m* and its pinion L to make a portion of a revolution each time the drill is raised. This is done by means of connection *o l p*, the operation of which is apparent from the illustration. Pinion L engages with wheel F; and thus this wheel, and with it the drill, are caused to rotate. The chain is composed of flat links with flaps *s*, so that it can only be bent around the windlass upon which it is to be wound, whilst it will be rigid in all other directions.

Claim.—The use of a stiff chain for the purpose of operating a rock-drill or other artesian borer, in the manner set forth.

2d. The device for rotating the drill, consisting essentially of the cog-wheel F and pinion L, with the parts which set them in motion, constructed and operating in the manner substantially as herein set forth.

No. 12.688.—JOHN F. MANAHAN.—*Improved Machinery for Boring Wells.*—Patented April 10, 1855. (Plates, p. 147.)

Bevel gearing P O being set in motion, the pipe *z* C is revolved, as wheel O is fast on said pipe. (Wheel O is made in two parts, and these are connected by bolts *s*, which, when tightened, press the hub part of the wheel around pipe *z* C, thereby fastening the wheel on the pipe.) The upper end of the tube terminates in a stand H, which carries the gearing I J T. Cog-wheel T gears into a cog-wheel *u*, which is fast on cross-bar K. The pipe *z* C revolving, the cog-wheel T is revolved round the stationary cog-wheel *u;* and thereby the gearing I J is set in motion, and with it the chain-wheel F, which is on the shaft of bevel-wheel I. The chain being in motion, the buckets E raise the dust, dirt, etc., from the boring-cylinder B. A pin *m* fastens the tube C to a cross-head *b*, which is fast on cylinder B. By these means the cylinder B is made to revolve with pipe C; to the lower end of pipe C is attached a cross-head *l*, from the two outer ends of which pass two rods *j* downwards; to the ends of these rods *j* is secured the cutter *k*. This cutter has on its circumference a projection which catches into a recess in cylinder B, so that cylinder, cutter, and pipe will turn firmly together without any twist. The lower end of pipe C terminates in a bracket G, which carries the shaft of the lower chain-wheel F.

The cutter *a* in cylinder B swings on pin *x*, and is adjusted to cut a desired diameter by arm *g*, one end of which connects to cutter *a*, and the other to an arm shown in dotted lines in figure 3, which is firmly attached to the lower end of upright shaft *e;* the upper end of shaft *e* carries an arm *d;* a pin *c*, which is to enter through a hole on the end of arm *d* into one of the holes *i* in the cross-head *b*, serves to adjust cutter *a* to the required diameter of the well.

As the auger penetrates downwards additional lengths of well-tubes have to be inserted, which can be done after taking to pieces wheel O and removing it and the cross-bar K. The pipe C can also be removed, when desired, by taking out pin *m*.

The inventor says: I do not claim an endless leathern band, carrying leathern buckets around two stationary revolving pulleys, as used in flouring mills, as such are well known.

But I *claim* as my invention the boring-cylinder B, having a cutter at its lower end and an adjustable cutter in its periphery for enlarging the hole, so that the auger cannot bind when in use, and so that the tube designed to line the well can follow the auger or cylinder B downwards, and allow this auger to be drawn up through the lining-tube by the shutting or moving of the enlarging cutter, all being arranged and operated in the manner and for the purposes set forth.

I also claim the metallic chain of buckets E in combination with the earth cutter B, operating or moving in such manner within it as to receive the earth as fast as it is cut from the ground and elevate it to the desired height, essentially in the manner and for the purposes set forth.

No. 12,706.—C. N. WHITE.—*Improved Implement for Boring the Earth.*—Patented April 10, 1855. (Plates, p. 147.)

Rod A passes through the hub D of the drill-holder C. On the end of rod A there is a weight B; rods *c*, being provided with eyes on their lower ends, are thereby fitted to staples *d* on said weight. The rods, passing through guides *c* on the weight, are held in an inclined position. The rod A and weight being forced downward, the drill F enters the earth. When the rod and weight are raised, two of the rods *c* strike against cross-bar G, (which is fast on the drill-holder C,) and thereby give the drill-holder and drill a turn; and as the rods *c* are allowed to move backward a certain distance in consequence of being connected to the staples by the eyes, they free themselves from rod G as the weight again descends.

Claim.—The combination of the frame C and weight B with the movable inclined rods *c* attached, the above parts being constructed, arranged, and operating in the manner and for the purpose as herein shown and described.

No. 12,523.—HENRY LAWRENCE.—*Improved Safety Ferry-Bridge.*—Patented March 14, 1855. (Plates, p. 147.)

A is the float hinged to the bridge in the usual manner; B the central, and C C are the side gates; D D are the weights and chains by which the central gate is suspended. The carriage G by the action of the weights D occupies the position shown in full lines in the engraving. When a boat comes up to the float, it moves the carriage in, thereby elevating the weights, lowering the central gate out of sight, (by means of bands K,) and throwing open side gates C (around pivot F by means of slotted arms J). The latter position is represented in dotted lines. Figure 1 represents only one half of a top view of the bridge, the other half being exactly alike.

Claim.—The employment of the reciprocating carriage G, the suspended central gate B, and the side gates C C; the whole being arranged essentially as shown, and operated by the boat and weights, substantially as and for the purposes set forth.

Also, making the side gates of a circular form instead of flat, so that in case drunken or thoughtless men lay hold of them, or get in a position to interfere with their being opened freely, they shall, as they open, have a tendency to throw them off, instead of forcing them up against the railings and crushing them, substantially as set forth.

No. 12,952.—John N. King.—*Improvement in Swing-Bridges.*—Patented May 29, 1855. (Plates, p. 147.)

The bridge swings on a central vertical pivot on the abutment; a spiral spring is fastened with one end to said pivot, and with the other to the centre sleeper, as near the turn-table as possible, to make the bridge swing or automatize, with such other appliances as may seem necessary.

The inventor says: I do not claim a swing bridge poised on a centre abutment or pier, so as to revolve on an axis and leave a water-way on both sides of the pier, as that has been done before.

But I *claim* the combination and arrangement of the springs with the bridge, so that the opening and closing of the bridge shall become automatic, and shall not require the attendance of hands to open or close it, as is usual.

No. 13,258.—John K. Gamble and William P. Gamble.—*Improvement in Safety Railroad Draw-Bridges.*—Patented July 17, 1855.—(Plates, p. 148.)

By turning crank *o* the cog-gearing will be set in operation, when the draw G (resting on friction rollers *n*) will commence to move horizontally and open gradually, elevating and passing under the connecting-bridge H. The teeth of rack *m* will take into cog-wheel *l* and turn the shaft *k*, and by means of the bands *i i* also turn the shaft *c* and the two arms *b* and *d* upon said shaft *c*. The arm *d* will push back cam *f* against spiral spring *g*, and withdraw bolt F from one of the two holes *s t* in the switch-bar E; the arm *b* will bear on the side of notch *a* in the switch-bar, and force the said bar aside so as to throw the switch-rail in connection with the branch-track D. As soon as this has taken place the arm *d* escapes cam *f*, and the bolt is again forced by the spring into the other hole in the switch-bar, and made to lock the switch. When the cars arrive at a time the draw is open, they will run on the track D instead of passing into the river.

Claim.—The contrivances described, or their equivalents, so arranged and combined as to constitute a safety railroad draw-bridge, substantially as set forth.

No. 13,461.—Horace L. Hervey and Robert E. Osborn.—*Improvement in Bridges.*—Patented August 21, 1855. (Plates, p. 148.)

The bed-plates B are provided with rollers, on which the suspension-blocks D can traverse. The cable E supports the suspension truss-frame by means of projections F on blocks G, which are fitted to move up and down upon posts O. The stringers J rest on sockets I projecting from posts O. The suspension-rods N are connected by nuts *g* with right and left handed screw-threads. K and L are the floor timbers. The abutment blocks D, being on rollers, move readily, and admit of the diminution of the camber of the upper chords S and W when the load is passing over the bridge. The chord E being an endless one, and always of the same length, the adjustment of the camber of the bridge is effected by making the blocks D traverse within the chord E, and the blocks *c* to traverse on the chords M, thereby allowing the chord E to become more or less arched, to adapt itself to the degree of camber given to the trussed arch.

By means of this arrangement the suspension cables support the suspension truss; and when the bridge is loaded, the weight tends to draw the suspension blocks towards each other, which tends to spring up the arch truss, and thus compels it to support the suspension truss and load. But if the load be placed on the arch truss or upper tier of floor-timbers, its tendency is to straighten the chords and stringers of the arch truss, and push the suspension-blocks apart and straighten the cables, and compel them and the suspension truss to support the arch truss. Thus if the load is applied in either place, the several parts of the bridge unite in sustaining and supporting it.

The engraving represents only one-half of the bridge, the other half being exactly alike.

Claim.—1st. The arrangement of the blocks D D and posts *o o*, in combination with the adjustable suspension truss, the arched truss, and the tension cord, so that the camber of the bridge may be increased or diminished by the adjustment of these blocks, in connection with the tension cord, so as to increase the strength of the bridge by lessening the strain on any one point by distributing it to many points, by means of the adjustable blocks, as described.

2d. Constructing and arranging the blocks which sustain the tension braces of the suspension truss, so that they will slide or traverse on the string-pieces, so as to equalize, distribute, and proportion the load more uniformly and over a larger portion of the bridge.

3d. Supporting the floor-timbers alternately by, or successively by, the arch and suspension trusses, as set forth.

No. 12,161.—Emanuel Harmon.—*Improvement in Fire-proof Iron Buildings.*—Patented January 2, 1855. (Plates, p. 148.)

a a is the skeleton iron wall, and *b* the exterior covering. The wall *a* is wholly enclosed in plaster-of-paris *c c*, or other non-conductor; the external plates *b* being attached in such a manner as to admit between the wires attaching said plates to the wall of a piece of felt *d*, a non-conductor. To hold the plates firmly, without resting upon the plaster-of-paris, small pieces of soapstone *e e*, non conductors, are imbedded in the plaster-of-paris, and interposed between the outer plates and the skeleton-frame. Thus the skeleton-frame is protected from the effects of solar heat, cold, and from fire.

Claim.—The inventor says: I do not claim the use of an air-space or of a non-conducting substance for the purpose of intercepting the communication of heat between two metallic surfaces, or the surfaces of the walls of an iron building.

But I do *claim* the insulation of the skeleton frame-work of iron buildings from the exterior and interior coverings of said frame-work, with their fastenings or attachments, by the interposition of a non-conducting substance, such as plaster-of-paris, soapstone, or felt, in combination with an air-space, or sheets of plaster-of-paris, felt, or other incombustible non-conducting substance, in the manner and for the purpose set forth.

In the second place, I claim the above insulation in combination with the entire filling up of the space between the said exterior and interior coverings or surfaces with any incombustible non-conducting substance, in the manner and for the purposes set forth.

No. 13,379.—D. D. BADGER.—*Improvement in Iron Houses.*—Patented August 7, 1855. (Plates, p. 148.)

Claim.—The method described of securing the bases of the columns to the breast-summers or lintels by bolting each on the inner side to a broad flanch *c*, and keying it on the outer side by a key *d*, whereby they are properly secured against any movement back or forth on the breast-summers or lintels, or against falling outwards; but are not prevented from falling inwards when they become insecure.

No. 12,633.—GEO. MARTZ.—*Improved Apparatus for Hoisting and Dumping Coal-Cars.*—Patented April 3, 1855. (Plates, p. 148.)

When the carriage B, with the coal-car C, has been lifted to the proper height for unloading, the guide-rollers M will follow the curved portion P of their track A^2 N, and thereby the car will be brought into the position represented in dotted lines.

Claim.—The combination of the coal-car C and its carriage B with the hoisting-carriage D, in such manner that whilst the hoisting-carriage D is guided vertically up the shaft by its ways A^1, the carriage of the coal-car C is guided by the independent ways A^2 and N, in such a manner as to tilt the car when it obtains the proper elevation, and place it in such a position that its contents will be self-discharged into the shute O, substantially as set forth.

No. 12,642.—FREDERICK A. PETERSON.—*Fire-proof Floor-Ceiling.*—Patented April 3, 1855. (Plates, p. 148.)

i are iron beams, supported in the usual manner by having their ends inserted in and resting on the walls. The tile-tubes *k*, with the bottom flat and the top arched, rest with the sides on the lower flanches of the beams, so that the tile-tubes, being supported by the iron beams without lateral thrust, afford a substantial support for concrete filling above to form a level surface for the floor.

The inventor says: I do not wish to be understood as limiting myself to the special form of the beams and tubes, and the kind of filling between them, so long as the same result is attained by merely formal variations.

I *claim* the method, substantially as described, of making fire-proof floors and ceilings by means of metallic flanched beams, in combination with tile-tubes interposed between and resting on the flanches of the beams, and filled in above, all substantially as and for the purpose specified.

No. 12,131.—JAMES B. HARRIS.—*Improvement in Railroad-Chair Machines.*—Patented January 2, 1855. (Plates, p. 149.)

The table or rest consists of two separate leaves *b c*, having between them an interval sufficient to receive the heads of the shearing and bending jaws. These leaves occupy a square space corresponding to that of the plate of which the chair is to be made. The leaves are united together by a rib *o*, which rib is pierced by two adjusting slots a^3 b^3, in order to admit of a vertical elevation of the table to suit the wear or the condition of the faces of the two crank-cutters. This arrangement maintains the centres of curvature of the chair-clips in coincidence with the centres of motion of the crank-cutters; by the vertical motion the shearing power is maintained, so that a clean cut and the curvature of the clip, without tearing or straining it, are to be effected, though the metal prove, as usual with rolled metal, to be of various shades of thickness and toughness.

Plate d^3, with screws f^3 e^3 fitting into slots a^3 b^3 and into holes h^3 g^3 of plate c^3, serves to fix table *b c* in the proper position.

k k^1 are crank-arms fixed to the front ends of shafts *l* l^1, and of sufficient length to permit the vibration of the wrists *m* clear of the edges of leaf *c*. From the wrists project the inverted jaws *n*, terminating each of them in a die N, whose two transverse edges M M stand when the crank is in its lowest position flush with the upper surface of the rest. These edges are left slightly salient by hollowing the face between them. This hollowed face is to counteract the tendency of the chair-plate to bend before the said face, so as to impart to the inner side of the clip a bellying form; and when the jaw is brought so as to press the clip tightly between the jaw-face and the mandrel, these salient edges of the face bring the margins of the clip flush with the middle, and thus are to enable the clip, when in use, to bear across its entire width upon the base of the rail.

Claim.—1st. The holding plate e^3 (fig. 2) and the leaf *o*, with the slots a^3 b^3, (fig. 3,) and the block d^3 with the screw f^3 e^3, in combination with the crank-cutters N, the whole being arranged as described, and for the purpose described.

2d. The cutter with salient cutting edges, thus making the cut (see N, figs. 5, 6, and 7) concave in its length, substantially in the manner and for the purpose described.

No. 13,313.—James Kelren, assignor to Himself and George Banks. —*Improvement in Machines for making Railway Chairs.*—Patented July 24, 1855. (Plates, p. 149.)

Each of the bending dies F carries one or more punches U U, for punching the holes in the chair through which the spikes are to be passed. Each of the punches slides vertically through the die, and when in its highest position is supported on a helical spring *k*. Above each of the punches is a driver or depresser V, which is fastened to the cross-head K, which latter is vertically reciprocated by means of a crank and pitman L, and carries upon an arm *m*, extended from it, a horizontal lever or lifter W. The longer arm of W is borne towards a stationary cam X, by means of spring *n*. The cam allows the lifter to pass under the head *l* of its punch, while the punch is being driven downwards, and enables it (the lifter) to elevate the punch out of the chair during a part of the ascent of the lifter. The cam also discharges the lifter from the hold on the punch after the latter has been sufficiently elevated. The object of the springs *k* is not to elevate the punches, but to maintain them elevated during the movement with the dies. As a spring could not be depended upon, the above described lifting contrivance is here employed.

The inventor says: I do not claim the combination of bending dies, a bed, and former.

But I *claim* combining with each of the punches and its driver a lifter, and mechanism for operating such lifter, as specified, such punch being applied to the bending die, and supported on a spring, as explained.

No. 12,623.—Samuel W. Frost.—*Improved Safety Port for Coal Holes.*—Patented April 3, 1855. (Plates, p. 149.)

The safety guard is composed of two quadrantal arcs C C, which project from the under side of the cover B, and extend into the opening of the vault-frame A. A cross-bar D, which is arranged near the lower corner of the arcs, prevents a person's foot from slipping into the coal vault. C C serve as guards when a person approaches the coal vault from either side, and the rear side is protected by the cover B. Pin E serves to fasten the cover when open.

Claim.—Combining with the door B and the frame A, or the vault opening, a safety guard applied thereto, substantially in the manner and for the purpose specified.

No. 12,637.—F. H. Moore.—*Improvement in Coal-Hole Covers.*—Patented April 3, 1855. (Plates, p. 149.)

The rods *b* are pierced with several holes, and can be secured at various heights by passing pin *a* through one of the ribs B on cylinder C, and through one of the holes in the rod *b*.

Claim.—The method of securing the coal-hole cover by means of the rods *b*, or their equivalents, whereby the cover may be raised more or less, as required, for purposes of ventilation, or for the introduction of coal; and all danger to passers-by is avoided, as set forth.

No. 12,388.—Alonzo Hitchcock.—*Improvement in Weather-Strips for Doors.*—Patented February 13, 1855. (Plates, p. 149.)

Fig. 1 represents a vertical, and fig. 2 a horizontal section through the door D. To the apex *a* of the V-shaped groove *s a s*^{1} in the lower edge of the door is hinged a weather-strip W, the inner end of which rests against the elevated surface E, and remains in contact with it during the opening or closing of the door. When the door is closed, the lower edge of the weather-strip is in contact with door-sill C; but when the door is being opened, the weather-strip following the line *y* of the surface E will sufficiently rise to clear the door-sill. The door being closed, the rain-water running down the outside of the door will suddenly break off at the edge *s*, and run down the inclination of the sill. The weather-strip makes it still more secure against wind and rain.

The inventor says: I do not claim the V-shaped groove, nor the hinged weather-strip, nor the listing, as described, as they have been used before.

But I *claim* the peculiar form of the elevated surface or plane E, in combination with the V-shaped groove, weather-strip, and listing, substantially as set forth.

No. 13,090.—Orris C. Hill.—*Improvement in Doors.*—Patented June 19, 1855. (Plates, p. 149.)

c is a strip which, (pressed outwards by springs in the groove into which the strip is inserted,) when the door is closed, fits tight against the bevel *d* of the casing.

Claim.—Inserting springs and strips *c* into grooves in the bevelled top, bottom, or outer edge of a door, when the said door is made to fit into a casing, which is correspondingly bevelled *d*, by which the joints of the door are made wind and water proof, substantially as set forth.

No. 13,121.—Martin Croke.—*Improvement in Weather-Strips for Doors.*—Patented June 26, 1855. (Plates, p. 149.)

The nature and object of this improvement will be understood from the claim and engraving.

Claim.—Placing or securing a strip or strips *g*, of India-rubber, within a bar C, which bar is fitted within a recess *b* in the lower end or edge of the door B, the bar C being rendered adjustable by the set-screws *d*, substantially as shown and for the purpose set forth.

No. 13,279.—Wm. E. Worthen.—*Improvement in Metallic Blinds for Doors and Windows.*—Patented July 17, 1855. (Plates, p. 150.)

The slats consist of tubes *a* filled with some non-conducting material *b*, and have pivots *f* passing through and sliding in slots *e* in the interior side-pieces *c*. The vibrating chains *h* are each attached to one end of arms *g*; the lifting cords *i* are attached to the lower slat; a chain *k* connects the ends of plates b^1, secured to the pivots *f*, which serves to support the slats and lessens the strain upon the vibrating chain; the locking bar *s* is pivoted to the ends of two small levers *t t*. This bar *s* can be moved close to the slat-arms (see fig. 1) bearing against the flat side of each. When held in this position by means of a catch, the slats will be effectually prevented from being turned or opened from the outside.

The inventor says: I state, that certain parts of my invention may be usefully applied out of the connection shown; and I also wish to be distinctly understood that I do not claim as of my invention a blind made up of slats capable both of rising and falling, and of vibrating, except when combined with pivots, &c., as set forth; and also that I lay no claims to raising and vibrating cords or chains, except when attached and located as claimed.

But I *claim:* 1st. A tubular metallic window-blind slat, containing in the cavity thereof a non-conductor of heat, constructed and applied substantially as specified.

2d. I claim pivots and grooves, or their equivalents, applied substantially as set forth, in combination with metallic slats, capable of vibration and of rising and falling, by which a firm secure shutter is constituted, while the ordinary uses of inside Venetian blinds are still retained.

3d. I claim a locking-bar, substantially such as specified, in combination with slats capable of vibration and motion, in a plane vertical, or nearly so.

4th. I claim arranging arms to which are attached vibrating chains; and also vibrating chains, as set forth, in a recess separated from the slats proper, substantially as set forth.

And, lastly, I claim a supporting chain, as described, in combination with slats capable of vibration and motion in the manner and for the purposes substantially as specified.

No. 12,201.—Dean S. Howard.—*Improvement in Dredging Machines.*—Patented January 9, 1855. (Plates, pp. 150 and 151.)

Fig. 1 of the engravings represents a side view of the boat, with three different positions of the dredging apparatus, one being represented in full and the other two in dotted lines; fig. 2 exhibits a plan of the boat and machinery, representing only about one-half of it, the other half being exactly similar; fig. 3 represents the cam or chain-wheel; fig. 4, the car; and figs. 5 are side, front, and bottom views of one of the buckets.

The nature of the various improvements can plainly be understood from the claims; a more detailed description would occupy too much space.

Claim.—1st. Constructing the bucket *h* with a truss-bar *q* across its bottom, which, in addition to stiffening the bottom of the bucket, serves as a guide to the latch *s*, and a fastening to the spring *t*.

2d. Fastening or attaching the latch to the bucket by a lip on the rear end of the latch entering an aperture of corresponding size in the bottom of the bucket, the latch being held in its place by a spring bearing on it at any point between the lip, which forms its hinge or fulcrum, and the catch.

3d. Fastening the buckets to the chains by a bolt passing through the links of the chain between the joints and through the ears D and hinges of the doors of the buckets at the upper end, and at the lower end by links or clay cutters *p*, as the case may require, one end of which is fastened to the buckets, one on either side, the other end being secured to the chain *g* by a bolt passing through the links between the joints thereof; whereby the chains are allowed to conform to the curve of the wheel C, whilst the buckets are suspended between them, without conforming to that curve, and whereby the buckets may be readily disengaged from the chains, when out of order, and replaced with others.

4th. Also the side or clay cutters, as and for the purposes herein described.

5th. The manner of raising the buckets and chains into their rest position for transportation from place to place, by the combination of the pulley-purchase 24 with the wheel 19 and axle 20, when attached to a car 17 that carries the upper flange-wheels E, over which the bucket-chains *g* work, operated as herein described.

6th. The self-acting pawl 27 and catch 25, in combination as described; by which the pinion 22 is thrown out of gear, when the machinery from any cause is turned back.

7th. The manner herein described of feeding by the feeding-ways *l*.

8th. The manner of feeding or winding the vessel ahead by an eccentric 8 on the main or any other revolving shaft, operating the levers 9 11 and pawls 14, in combination with the windlass 7. Also the combination of the pawl 14 with the vibrating arms 15, as herein described, whether in connexion with the other parts of this feed apparatus or not.

9th. The construction and arrangement of the anchors 31 and 32, as herein described, in combination with the winding-head 40 on the counter-shaft *f*, whereby the vessel may be worked ahead, whether the elevating machinery is in operation or not, or during the time that the feeding-ways *l* are being drawn back preparatory to taking a fresh cut.

10th. The manner herein described of constructing the cam or chain-wheels C *e e*, the face plates *n* on the periphery of the wheel being of steel, and the cams *m* removable, so that they may be turned or removed at pleasure.

No. 12,720.—Chas. H. Fonde.—*Improvement in Dredging-Machines.*—Patented April 17, 1855. (Plates, p. 151.)

The radius-bar A, which carries the pinion-shaft C, is connected with and works upon the main shaft D. When the excavating-wheel is raised, the radius-bar will draw the sliding-carriage B (on which the

pinion-shaft C is mounted) upon the slides E, thus always keeping the pinion in gear with the cogged circumference of the wheel. The operation of the latch F and sluice-ways G G is apparent from the figures.

The inventor says: I do not here claim the excavating-wheel, with buckets across the periphery, nor the tilting-tipper for discharging the same, nor the manner of applying power to the same, nor the raising and lowering of said wheel; but what I *claim* is: the device for keeping the wheel in gear while raising and lowering, and the combination of the radius-bar and the sliding-carriage which carries the shafts of the pinions, and also moves the mitre-wheels which slide on the feathered shafts; as this device and this combination of well-known mechanical devices is my own invention, and has enabled me to keep the excavating-wheel always in gear with the engine, and has never been so applied before. I claim, as my invention, the self-acting latch F, in its particular form and mode of adjustment, it being so shaped and adjusted as to hold on to the lid of the bucket until it is struck by the tipper, and so balanced that by its own gravity it will fall over and latch again before the bucket enters the water; this particular form and adjustment, with the pin marked H, does away with the necessity of springs, and is the result of careful and expensive experiments. I also claim that particular combination of chutes, or sluice-ways G G, which form an apex under the discharging-tipper, and pass athwartships on an incline towards the scows, which particular combination has enabled me to discharge an excavating-wheel laterally on either or both sides.

No. 12,527.—George W. Wheatly.—*Improvement in Eaves-Gutters of Houses.*—Patented March 13, 1855. (Plates, p. 151.)

The sheets of metal A are fastened together, and one edge is turned up until the upright part B will be perpendicular when placed upon the roof. The upper edge of B is then formed into a moulding C, and the strops D are soldered to it; the strops being of sufficient length to extend to the sheeting above the gutter, to which it is nailed.

I *claim* the application of a bead or moulding, together with the strops, to gutters of the description above, giving strength to the gutter without the aid of a plank or other substance.

No. 12,514.—Robert C. Mauck.—*Improved Ditching-Machine.*—Patented March 13, 1855. (Plates, p. 151.)

By turning the shaft *k* the swinging-frame F will be moved further out or in, (by the action of cog-wheel *h* and toothed segment *g*,) so that the frame E will be more or less inclined, raising the heels *f* of the cheeks *e* from the ground, and causing the edge *n* of the cutter B (which is confined between the said cheek-plates *e*) to rest on the ground. Thus the movement of the frame F regulates the inclination of the cutter, which latter is to be suited to the nature of the soil.

Claim.—The described mode of regulating the operation of the cutter or plough by means of the swinging frame F, connected with the body of the machine, substantially as specified, in connexion with the cheek-plates, operating as and for the purposes set forth.

No. 12,651.—C. Williams.—*Improved Excavating-Machine.*—Patented April 3, 1855. (Plates, p. 151.)

Claim.—Having the frame or shaft D of the scoop or shovel E formed of two bars *e e*, and having said bars working between friction rollers *d*, in guide-plates *c c*, at opposite sides of the pole A. The frame, or shaft, and shovel being operated by the means shown, or their equivalents.

No. 12,919.—Jason C. Osgood.—*Improvement in Submarine Excavating-Machines.*—Patented May 22, 1855. (Plates, p. 152.)

This improvement consists, first, in combining with submarine excavating-machinery C well-hole deposits B, which are built within the vessel supporting the excavating-machinery; and also railway tracks *c c*, upon which run dumping cars *d* for the purpose of conveying the earth from the excavators D to the well-hole deposits, for the purpose of enabling the dredging-boat (furnished with a screw or paddle-wheel propeller) to be self-tending, and to dispense with the mud-boat tenders.

Secondly, in combining with the dredge-boat submarine drags J, said drags being permanently affixed by hook and eye, or swivel-joint, at one end to the side of the boat, and at the drag-end having a hoisting apparatus connected to it for the purpose of hoisting the drag-end quickly up to the boat when necessary to suspend temporarily the use of the drag. When the well-holes are filled, the cables are slipped and the boat runs out into deep water, and (by opening the well-hole doors *a*) drops its load.

The inventor says: I wish to be understood not to claim as new the excavating-machinery, the well-hole deposits, the railway track, and dumping-cars, or the drags, when taken separately.

But I do *claim*, 1st. The combination of the excavating-machinery, the railway track and car, and the well-hole deposits of the float or vessel, when combined in the manner substantially and for the purposes of a self-tending submarine excavating-boat, as herein described and set forth.

2d. The combination of the drags with the vessel or float constructed as herein described, said combination being substantially in the manner and for the purposes as herein set forth.

No. 13,234.—Samuel W. Soule.—*Improvement in Excavators.*—Patented July 10, 1855. (Plates, p. 152.)

The stationary pins *c* on the cart-box E serve to guide the bucket-frame F, by means of its slots *b*, into the various positions necessary for loading and unloading the buckets G G, which positions are represented in the engraving, one in full and the other three in dotted lines.

Claim.—The frame F placed on the crank D of the axle or shaft C, said frame being furnished with buckets G G, one at each end, and enclosed by a box E provided with transverse pins or rods *c*, substantially as shown for the purposes set forth.

No. 13,282.—Edwin Williams.—*Improvement in Excavating Machines.*—Patented July 17, 1855. (Plates, p. 152.)

The boom *i* is held to its pinion *k*, by means of a stirrup *n*. The operation of this machine will be understood from the claim and engraving.

The inventor says: I do not claim simply an excavating shovel having an extended handle capable of longitudinal and vibratory motion, such having been heretofore employed.

But I *claim* an excavating shovel or scoop, provided with one or more cables, as described, or their equivalents, and having its rear portion or handle hinged to one extremity of a boom, which has longitudinal and vibratory motion about an elevated pinion, or its equivalent, the unattached extremity of said boom being made to counterbalance the scoop, in the acts of dumping, &c., as explained.

No. 13,680.—Benj. Hancock.—*Improvement in Excavators.*—Patented October 16, 1855. (Plates, p. 152.)

The rear support *c* of the frame, to which the scoop *m* is attached, is made adjustable by means of bolts *z z* and slot *i*, as will be understood from the engraving. The shaft *o* of the scoop is pivoted at *m* to the slotted suspension-rod *q*. Lever *r* is pivoted to shaft *o*, its forward end being bent into a segment of a circle, the centre of which is at *p*; the rear end being held up by spring *s*, and the segment being toothed to engage on pin *t*. Handle *n* is also pivoted at *p*, and carries a sliding rim *u* to hold shaft *o* down to handle *n*, when in use.

Claim.—1st. The dumping scoop, constructed, arranged, and operated substantially as described, and for the purpose specified.

2d. In combination with the above, the movable and adjustable frame, as described, for the purposes set forth.

No. 12,921.—J. B. Reyman.—*Improvement in Fences.*—Patented May 22, 1855. (Plates, p. 152.)

A is one of the posts supporting the wire *s*, which passes through holes in said posts; D D are slender strips of wood forming the upper rail, one of them immediately above and the other immediately below the wire. The pickets are fastened to the upper rail, from side to side alternately, by the wire *s* passing over each, and from side to side of the rail. The lower ends of the pickets are fastened to the lower rail Y.

To move the protruding braces and sills K M to permit a plough to pass close to the fence, the fence is to be lifted sufficiently to disengage

the foot of standard H from the notch in the sill, which allows the brace to be closed flat against the surface of the standard, the sill at the same time passing to the other side of the fence.

Claim.—The mode of fastening pickets to the rails, in making fences, by means of wire *s* combined and interwoven with the rails in the manner substantially as described. Also, fastening the brace K at its upper end to the standard H, so as to admit of a hinge-motion, in the manner and for the purpose substantially as set forth.

No. 13,844.—H. H. Dennis.—*Improvement in Fences.*—Patented November 27, 1855. (Plates, p. 153.)

This improvement consists in connecting the rails B with the posts A by obliquely grooving the under face of the rail near its end at *g*, so as to fit upon a convex bottomed mortise in the post, (see *e e*,) and be secured therein with any desired inclination to the post by a wedge *w* between the upper surface of the rail and the top *d* of the mortise, also convex. P are the palings.

Figure 1 represents a section on a larger scale than the rest of the figures.

Claim.—The described mode of connecting the rail and post by mortise with convex top and bottom and groove *g*, constructed, arranged, and operating substantially as and for the purpose specified.

No. 12,701.—John Sweeney and Thomas Sweeney.—*Improvement in Adjustable Friction-Rollers.*—Patented April 10, 1855. (Plates, p. 153.)

A stationary cylindrical box *b* is closed by two circular plates *c c*, which have suitable central openings for the journal *i* to pass through. Within said box there are two circular plates *d d* with similar central openings. Plates *d d* are firmly connected together by pins *e*. The journals of the friction-rollers *g* run in boxes *f*, which slide in ways *k* on plates *d*, and are continually pressed towards the journal *i* by springs *h*. The inner circumference of box *b* touches the circumferences of the rollers *g*. The journal *i* being revolved, the rollers *g* will revolve round their axes; and as they are in contact with the inside of box *b*, they (together with their plates *d d*) will at the same time slowly revolve within said box around journal *i*, instead of rubbing against the box. Lest there should be friction between the outer face of plate *d* and the inner face of plate *c*, there are flanges *o o* within the upper half of the box preventing plates *d* from approaching plates *c*.

Claim.—The use of sliding boxes to carry the journals of the friction-rollers, in combination with the springs for the purpose of pressing them all continually against the surface of the journal or gudgeon of the shaft which works in the rollers, so as to make them all revolve as the journal revolves, not only on their own axes, but around the journal, in the manner herein before described.

No. 12,652.—Enos Woodruff.—*Mechanism by which approaching Vehicles Open and Close Gates.*—Patented April 3, 1855. (Plates, p. 153.)

The weights E are wound up by turning the gate round backwards. The gate is held shut by the latches F and the catch G; a similar catch upon each post H holds the gate when open. These catches, as shown in figure 2, are double, having one side X higher than the other, to stop the gate when closing, and at the same time to allow the latch to pass over freely when the gate is turned backward to wind it up. The two latches are caused to lift simultaneously by the cross-ties I. The pressure of a wheel upon crank-levers M L moves lever K around its fulcrum, thereby causing the upright rod *o* to lift latch F out of catch G, the weights causing the gate to rotate till stopped and held open by the catches on posts H. The wheel passing over crank-lever S lifts the latches and allows the weights to close the gate. (The crank-levers M L are too far apart to be moved simultaneously by the tread of an animal, but they are near enough to allow a carriage-wheel to press upon both of them at the same time; the motion of M pushes rod N, thereby withdrawing block P from under the end of crank-lever L, which can then be depressed by the wheel.)

I claim, 1st. Applying weights in the manner specified, or any similar manner, to operating the gate.

2d. The application to such gates of the manner herein described of causing both latches to lift at the same time.

3d. The application of catches, with one side higher than the other, to a rotating gate.

4th. The manner above described of preventing the tread of an animal from opening the gate, or any mode analogous thereto.

No. 12,790.—Cornelius L. Harsen and Moses R. Brailey.—*Farm-Gates.*—Patented May 1, 1855. (Plates, p. 153.)

The planks and stiles are riveted together, so as to allow a free vertical movement to the stile *a*. Attached to the stile *a* is the bent lever L, which is connected to the upper part of stile a^1 by a rod R, rendering the distance between the two points of attachment invariable, and converting the lever L into a lever of the first order, with its fulcrum at *i*. When the lever is moved in the direction of the arrow the stile *a* will be raised, lifting the catch *k* from its notch; and the elevation of the gate admits of its passing over snow-drifts and other obstructions.

Claim.—The construction of farm-gates with their several parts loosely connected, combined with the bent lever L and diagonal rod R, arranged and operating so as to elevate the gate in opening for the passage of obstructions, substantially as herein set forth.

No. 12,914.—Henry B. Lum.—*Improvement in Farm-Gates.*—Patented May 22, 1855. (Plates, p. 153.)

This gate can be opened and closed by a person in a carriage or on horseback. The operation of this gate will easily be understood from the claim and engravings.

Claim.—Having the lower ends of the gate A secured by pivots or rods *c c* to a sill-piece C, and having a series of strips *d* placed on sleepers or secured in any proper manner on the ground at one side of the gate, spaces being left between said strips to allow the bars or rods *b* to pass therein; the gate having a weight or counterpoise E, one or more, attached to it by a cord or chain *f*, which passes over a pulley *e* attached to the post D, one or two posts being employed; the gate being operated by the levers G G, with the cords or chains *g g h* attached thereto. The above parts being arranged substantially as herein shown and for the purpose as set forth.

No. 12,930.—Caleb Winegar.—*Method of Closing and Opening Gates, &c.*—Patented May 22, 1855. (Plates, p. 153.)

The crank V (revolved by weight rope and gearing H I K N) is of sufficient length to open the gate during one half and shut it during the other half of one revolution. The gate, which is represented half open in the figure, has a latch D, which falls in catches C or C^1 when closed or open. The pulling of cord Q or Y will release the latch from the catch by means of the elbows and rods F S E, and the gate will then be opened or closed by the action of the weight, crank, and pitman P.

Claim.—The opening and shutting of gates or doors by the means before described; that is, by means of a retentive or reserved power, so that a gate or door may be opened or closed a succession of times, let it be obtained by winding up a spring or weight, or whether gear is used, or cord and pulleys.

Also the application of the wires and the said right angular irons or elbows to the opening and of shutting gates, &c., in the manner before described; not intending, in these claims, to limit to the precise arrangement of parts herein described, but to vary the same at pleasure, while the same ends are attained by means substantially the same.

No. 13,109.—William Thompson.—*Self-operating Circular Gate.*—Patented June 19, 1855. (Plates, p. 153.)

The inventor says: I am aware that many modifications of the described gates may be made; I therefore do not confine myself to the precise form shown.

I *claim* constructing the gate B of circular form, and having said gate rest upon a vibrating rail C, which is connected to a platform D, or arranged in any proper way, so that said rail may be inclined either by the weight of the person, vehicle, or animal, which is to pass through it, or by any other device, and cause the gate to roll down the depressed end of the rail, and consequently leave a free or open space between the posts, said gate closing or returning to its original position between the posts, when the rail is relieved of the weight or pressure which first actuated it.

No. 13,445.—Caleb Winegar.—*Improved Device for Opening and Closing Gates.*—Patented August 14, 1855. (Plates, p. 154.)

A cog-wheel N is placed upon shaft *y*, in the place of the driving-crank in the original patented machine referred to in the following claim. Pinion U on shaft 2 meshes into cog-wheel N. The fan T turns loosely on the shaft 2, and is driven by ratchet-wheel V, which is fast on the shaft; the spring catch W plays into V, and thus the fan is driven; so that when the gate stops suddenly, the fan runs on with its own momentum and does not add to the jar or shock.

The inventor says: I *claim* the fan-wheel T, and shaft 2, and cog-wheel N, the ratchet-wheel V, and spring catch W, as applied to said invention.

All else I disclaim in this patent as having been patented to me in said original machine, (date of patent, May 29, 1855,) and held by me under said patent; not intending in these claims to limit myself to the precise arrangements of the parts described, but to vary the same at pleasure, while I attain the same ends by means substantially the same.

No. 13,658.—Smith A. Skinner.—*Improved Farm Gate.*—Patented October 9, 1855. (Plates, p. 154.)

The latch-bar L slides horizontally between two scrolls *g* and *h*. *h* moves the latch-bar towards pulley *c*, and *g* elevates the latch-bar during such movement, in order that the latch-bar may be brought directly into the path of cam-notch M, when the gate is raised to its highest position, or the gate is closed, so as to maintain the gate in its elevated position. The gate can be lowered and then elevated by pulling first the one and then the other of the cords G H.

The inventor says: I do not claim elevating a gate by means of a windlass and draft and connecting-chains; nor making the gate to close into a recess below its sill; nor balancing a gate by means of counter-balance weights, cords, and pulleys.

I *claim* the manner of making the gate, viz: of a series of bars or chains D D, and upright chains connected and arranged as specified, and so as to fold into and unfold out of a recess *a* below the sill A, as explained.

I also claim the combination and the arrangement of the latch-bar L and the scrolls *g h*, the same being constructed and applied to the windlass, and made to operate substantially as specified.

No. 13,673.—John K. Weber.—*Improved Method of Operating Farm Gates.*—Patented October 9, 1855. (Plates, p. 154.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—The arrangement of the levers $a\ a^1\ b\ b^1$, cords $a^2\ a^3\ b^2\ b^3$, in combination with the spring bolt, for opening and closing a gate, which opens and shuts both ways, the whole operated and operating substantially in the manner set forth.

No. 13,624.—Henry Sizer and Elisha Stone.—*Apparatus for Opening and Closing Hatchways.*—Patented October 2, 1855. (Plates, p. 154.)

Supposing the scuttle-doors L to be closed, and the hook and rope drawn up near to cylinder B, the rope F is to be pulled downwards, which will also carry the rack and chain downwards, so that the teeth of said rack K come in contact with the teeth of the gears M N, which turns them, and consequently the segment M by which the doors are opened; the rope and hook (attached to cylinder B) are farther lowered by pulling rope F farther downwards, so as to attach it to the load, which can then be raised by pulling rope F the opposite way.

Claim—1st. The chain-wheel H, the chain I, the rack K, the doors L, with segments of gears M or whole gears attached to them, and the gears N, or the equivalent of any of these, for the purpose of opening and closing hatchways or scuttle-doors, essentially as set forth.

2d. The parts mentioned, either or all of them, in combination with the cylinder B, the rope-wheel E, and the gears C and D, for the purpose of opening and closing the doors of scuttles and hatchways, essentially as set forth.

No. 12,136.—Jean Francois Le Moulnier.—*Improvement in Constructing Pavements, &c.*—Patented January 2, 1855. (Plates, p. 154.)

The object of this improvement is to pave with blocks of stone fitted to and interlocking each other, so that the joints shall be close; all this without the labor of dressing the blocks.

A preparation of asphaltum, or its equivalent, is cast around the separate rough blocks of stone, placed in suitable moulds to give the block coated with asphaltum the desired shape, as, for instance, tongued and grooved as shown in the figure.

The block of stone is heated before the asphaltum is cast around it, by means of which the compound is made to adhere thoroughly to the surface of the stone.

Claim.—Effecting the thorough union of the asphalte compound, or any equivalent therefor, and stone, by heating the blocks of stone previously, substantially as specified.

No. 12,172.—Chapman Warner.—*Improvement in Cast-iron Pavements.*—Patented January 2, 1855. (Plates, p. 155.)

Longitudinal bars *a* are laid down parallel to each other and at equal distances. They are represented in a top view in fig. 1, in a perspective view in fig. 4, in an elevation in fig. 2, and in a cross section in fig. 3. The indentations *b* serve to present a somewhat roughened surface. The keys or cross-bars *i*, (fig. 1, top view; fig. 3, front view; fig. 2, sections,) which are wider at the bottom, and have the proper

profile, so as to fit exactly the tapering body, the rib *e*, and the square head of the bars *a*, are driven between these bars till they abut against the small projections *d f*, when they are secured by little cross-pins which are to be driven through the holes *h* in the bars *a*. The last row of keys is inserted at an angle, and driven in its place as represented in *i y*, fig. 1.

Claim.—The above described bars connected, sustained, and bound together by the keys or cross-pieces, substantially in the manner and for the purpose set forth.

No. 12,755.—GEORGE NEILSON, assignor to GEORGE NEILSON and NEHEMIAH HUNT.—*Improvement in Cast-iron Pavements*.—Patented April 17, 1855. (Plates, p. 155.)

The inventor says: I do not claim a pavement-block of a hexagonal form, nor with a perimeter formed by six hexagons disposed around a common or central hexagon, as shown in fig. 4.

But I do *claim* making a paving-block with a perimeter of thirty faces, arranged as shown in fig. 1, and formed by sixteen hexagons or hexagonal prisms disposed with respect to one another, as therein represented; the same enabling such a block, where it abuts against a contiguous block when laid in a pavement, to be supported by a semi-hexagonal projection and recess, as described.

No. 12,130.—ALEXANDER HOLMSTROM.—*Improved Apparatus for Atmospheric Pile-Driving*.—Patented January 2, 1855. (Plates, p. 155.)

A is the hollow pile, and B the air-lock, its base being bolted upon the head of the pile, thereby forming the cap, equivalent to the usual mode. Supposing the hollow pile to have been sent down by the vacuum and to have become arrested by an obstruction, the force of the compressed air is now to be employed to empty the water and leave the obstructing object bare for removing it. Cover b^1 is taken away from man-hole *b*, and a length of pipe sufficient to reach near the bottom is bolted upon flange i^1 of discharge-pipe *i*. Cover b^2 is then raised to close hole *b* from within. Now the air-pumps force air in through hole *h*, and man-hole *c* being open, the pressure extends through both air-lock and pile, keeping up cover b^2. The pressure upon the water's surface forces it out through discharge-pipe *i*, after which the workmen can descend. Now the operation on the bottom commences. The shaft of windlass C is kept in continual rotation from without, and the windlass is thrown in or out of gear from within. The matter hoisted into the air-lock is removed therefrom without disturbing the workmen. Cover c^2 is shut up against *c*, cock *d* opened, and the compressed air rushing out, an equilibrium is produced causing cover b^2 to fall open, the pressure being still maintained within A by the force-pumps continuing to work. The matter being removed from the air-lock, cover b^2 is once more closed against *b*, air-cock *k* opened, and the pressure in air-lock and pile equalized, allowing cover c^2 to fall open, and restoring again the communication between air-lock and pile.

As soon as the men desire to come out they open air-cock E, whereby the pressure is taken off and the cover c^2 allowed to open.

Pipe *g* leads to the exhausted receiver or to the air-pumps.

Claim.—1st. Constructing the "air-lock" in such manner that the pressure of the air, either within the lock or within the hollow pile, may be governed by the workmen inside, whereby they are thus enabled wholly to control the means of escape for themselves.

2d. Combining with the air-lock a hoisting-apparatus, to which the moving power is given from the outside of the lock; but the application of that power to the windlass is made by the workmen within, whenever the same may be required, whereby those men are not only relieved from any extra exertion, but the ability is also maintained of applying greater force than could be done were the motive power given from within: the whole being constructed and operating substantially as set forth herein.

No. 12,789.—JAMES FLEMING.—*Improved Machine for Sawing off Piles under water*.—Patented May 1, 1855. (Plates, p. 155.)

The machine is suspended by the ring *k*, and is brought towards the pile with the jaws B opened till the pile is embraced within said jaws. The whole machine is then lowered approximately to the depth required by the sawing. The jaws B are then closed around the pile by turning the capstan-wheel *f*, which moves the pinion *c*, and brings together the opposite extremities of the tongs by means of the curved rack *d*; the pawl *h* is then thrown into the ratchet *g*, and secures the hold of the jaws. The shaft E is then secured in its position, and an exact adjustment of the saw to the proper depth is made by means of the turn-buckle *p* operating upon the screw-rod *q*, which raises or lowers the arm F^1, carrying the lower end of shaft G, to which the saw is fixed. The upper end of the saw-shaft slides freely through the box *l* in the upper arm F; which arm F cannot move, as set-screws *o* confine the bosses of an arm L between the bosses *m m* of arm F. The pulleys J, K, I, transmit motion to the saw H. The feeding up of the saw to the pile is effected by means of pinions d^1 d^1 in the ends of the arms L L^1 and the curved racks *t* t^1. The lower arm L, acting by means of feather *n* in the spline n^1, moves up or down together with arm F^1. But both arms L and L^1 cannot swing round the fixed shaft E, and they form the fixed points of resistance from which the arms F F^1, carrying the saw-shaft, are moved; the pinions d^1 d^1 consequently acting upon the curved racks *t* t^1 fixed to the ends of the arms F F^1, communicate a horizontal motion to these latter arms, which carry the saw towards the pile, the feeding being regulated by the hand feed-wheel *z*.

Claim.—The combination of a circular-saw and its shaft carried in movable arms upon and around a stationary shaft, which sustains the driving-pulleys, and which is fixed to an adjustable tongs or clamp,

substantially as above described, for the purpose of cutting or sawing off piles under water.

Also, the method of fastening to the pile to be sawed by means of a clamp or adjustable tongs with suitable jaws and teeth, as above described.

Also, the method of feeding a circular-saw from points of resistance fixed upon a stationary shaft by means of arms, curved racks, and pinions, as above set forth.

No. 12,300.—JOHN M. BULL.—*Improvement in Hand-Rails for Stairs.* Patented January 23, 1855. (Plates, p. 155.)

The inventor states that railing is stronger and easier made by composing its curved parts of single blocks 1, 2, 3, &c., and connecting them by a curved bolt-rod A and nuts B, than when it has to be cut out of the solid block.

Claim.—Joining a series of blocks of wood or other material together at such angles as will form any circle or curve that may be required, and secure the same together by means of a rod provided with a screw and nut at each end, or any other mechanical equivalent, all as represented, and for the purpose substantially as specified.

No. 13,956.—GEORGE B. PULLINGER.—*Improvement in Automatic Gate for Railroad-Crossings.*—Patented December 18, 1855. (Plates, p. 156.)

The automatic gates, or barrier-bar A, consist of rods extending the full width of the crossings, one on either side of the railroad track; at right angles with this, rods are bent; the side-bars A^1 pivoted at their centres to uprights B. Said side-bars have weights attached to their ends sufficient to keep them always in a raised position when not operated upon by vehicles or other objects. One of the side-bars of each of the gates is provided with upright connecting-rods C D, jointed to it near its fulcrum. The connecting-rod C^1, on the inside of the bolt, is attached to an inclined bar, secured to the end of the raising and falling flap E, extending the full width of the passage; said flap turning on a bar upon uprights fixed in the ground. The other connecting-rods D, outside the bolt on which the side bar moves, are jointed in a similar manner to other movable flaps F, arranged between flaps E and the railroad track. The up-and-down movements of flaps E and F are independent of each other; the slots in the inside connecting-rods C^1 allowing the bolts passing through them to rise freely without affecting the flaps E when the flaps F are depressed, and with them the barrier-bars, and yet enabling the said barrier-bars to be depressed when the said flaps E should be depressed. On the ends of the flaps E, opposite to those where the connecting-rods C and D are attached, are secured studs G; immediately under these studs are arranged upright-bars H, joined to a permanent structure. The railroad-track can be crossed when bar H is drawn from beneath projection G, or forced back by spring I; then only (when flap E has a free downward movement) the barrier-bar A can be depressed and the crossing opened. The mechanism to operate bar H, by the approach of a train, is composed as follows: When the inclined bars N N, projecting above the track at a distance from the crossing of say 300 yards, are depressed by the rim of the wheels of the locomotive, the rock-shaft P is turned by the arms O, so that through radial arms *q* and rods R R^1 the lever M will be pushed back against spring M^1 and permit lever K a free vibration on its centre; spring I is then allowed to move bar H beneath projection G, and thus prevent the opening of the gate. After the train has passed the crossing, the tread of the wheels depresses another inclined bar V, situated at a distance from the crossing sufficient to allow the longest train to pass it before reaching said bar V, the depression of which causes rock-shaft V to turn; and by means of rods 1 and 2, jointed to said rock-shaft Y by double radial arms Z, lever 3, fixed on the axis of lever K, will make a vibration and thereby replace said lever K in the notch of lever M, by aid of spring M^1, and bar H is removed from beneath stud G. After the train has passed the crossing, nothing will prevent the opening of the barrier-bars or gates. Figures 2 and 3 represent only about one-half of the longitudinal sections, the other half being exactly alike; *x x* indicates the centre line of the crossing. The construction of the flaps E F and appurtenances being similar on both sides of the track, fig. 1 represents it only on one side of the track.

Claim.—The combination of the mechanism attached to the railroad-track, and operated upon by the locomotive or cars for detaching from and bringing in contact the notched end of lever M with the end of the vibrating-lever K, with the upright spring-levers H, studs or projections G, on the ends of the flaps E; and the means of operating the flaps E F and gates or barrier-bars so as to enable the said gates or barrier-bars to be depressed by the weight of the horse, or other object, when no danger is to be apprehended from the near approach of the locomotive or cars; but prevent the said gates or barrier-bars being depressed to allow the passage on the track of any object, after the locomotive or cars having reached a point on the track sufficiently near the crossing to render the passage of such object unsafe, and yet allow the said object to depress the gate or barrier-bar, through the agency of the inner flaps F, to get out from between the same, in case the locomotive or cars should have reached the point where it operates on the inclined bars N, to prevent the depression of the outer flaps E, and consequently of the gates or barrier-bars through this agency, until after the passage, by the crossing of the said locomotive and cars, in the manner and for the purposes described.

No. 13,235.—SOPHIA B. SPAFFORD, administratrix, and GEORGE ALEXANDER, administrator of the estate of SIMEON L. SPAFFORD, deceased.—*Improvement in Railroad Draw-Bridge Signals.*—Patented July 10, 1855. (Plates, p. 156.)

The signal-boards A are painted red on one face and white on the other. The lanterns are so placed that when the white face of the boards is exposed to view, the white lantern is seen below the boards

(see figure 1); and when the red face of the boards is exposed, the red lantern is seen above the boards (see figure 2). The boards are connected with the frame B by a revolving-joint, and attached to the sliding frame C, which is moved vertically in grooves in frame B by the jointed-levers K; one lever being attached to each signal-board. The sliding-frame is attached to lever G by connecting-rod F. The signal is applied to a draw-bridge, or any revolving or reciprocating structure; the stop-lock H passing down from the lower side of the signal-lever G into a notch in the sub-structure. To move the stop-lock down into its notch, the horizontal sliding-plate L M must be drawn into position L^1 M^1, so as not to interfere with the downward-motion of H. Through one arm of the latch-lever I passes the end of a horizontal-lever, connected with the latches by rods; and the fulcrum of the horizontal-lever is fixed at such a point, that when the horizontal-arm of the latch lever is drawn back, the draw-bridge is latched or fastened. To unlatch it the boards A must first be turned by raising lever G; which operation also elevates stop-lock H so as to permit plate L M, attached to the latch-lever, to slide into position L^1 M^1. Latch lever I can then be moved aside. In raising the stop-lock, the rod F at the same time raises the sliding-frame. Thus the signal-boards are made to describe a semi-circle, thereby exposing the red face of the signal-boards and the red lanterns above them.

Claim.—1st. The combination of the sliding signal-frame C, the signal-boards A A A A, the signal-lanterns D, and the signal-lever G, arranged and operating in the manner and for the purpose substantially as described.

2d. The combination of the sliding signal-frame C, the signal-boards A A A A, the signal-lever G, and the stop-lock H, arranged and operating in the manner and for the purpose substantially as described.

3d. The combination of the latch-lever I, the signal-lever G, and the sliding-plate L M, arranged and operating in the manner and for the purpose substantially as described.

No. 13,378.—Jacob Busser.—*Improvement in Railroad Signals.*—Patented August 7, 1855. (Plates, p. 157.)

T is the railroad track. A train coming towards the draw will pass over and depress cam A, and thereby sound the alarm simultaneously on the bell H^2 at the draw and on the bell H on the road, so as to give the engineer on the locomotive warning that the draw is open. The act of closing the draw moves (by means of proper mechanism) the bells aside, so that no alarm will be given when the draw is closed. When the train runs from the draw the cam B will be depressed, the rod *r* passes through a slot in spring C, and pressing on rod E frees the catch at the end of rod E from the spring C. After the wheels have passed, the cam B and rod *r* rise to their former position, and the end of the spring is again in the catch ready for action.

The inventor says: I do not confine myself to the bells for producing the alarm, as the same may be effected by means of a gong or any other suitable device. Nor do I confine myself to placing the parts above and below the ground, as shown and described, as it may be better that the parts be all placed under ground, excepting the bells and hammer, or their equivalents; the bells, spring, cams, &c., have all been used in various ways for producing alarms; I therefore do not claim them separately.

I am aware that signals of various kinds have been so arranged and connected to a railroad track as to be operated by the passing locomotive. These I do not claim, independent of my special means of arranging and operating them.

I *claim* the combination of the cams A B, spring C, and the rod E, operating upon the bell or its equivalent H^2 and spring P, which are placed upon the draw of the bridge; so that a locomotive in approaching the draw will sound the alarm, whilst a locomotive coming from the draw will pass over the same cams without sounding the alarm, substantially as described.

No. 12,505.—C. M. Eakin.—*Improvement in Excluding Dirt from Grooved Railroad Rails.*—Patented March 13, 1855. (Plates, p. 157.)

This improvement refers to the grooved rails used for railroads passing through cities, and it consists in the application within the groove of India-rubber B that will yield to the flanges of the railroad wheels as they pass over it, but after the wheels leave it free will spring up again level with the face of the rail.

Claim.—The application of an elastic filling to the groove which is formed in the track to receive the flanges of the wheel, substantially as and for the purposes set forth.

No. 12,704.—Isaac R. Trimble.—*Improvement in Wooden Splice-piece for Railways.*—Patented April 10, 1855. Antedated October 10, 1854. (Plates, p. 157.)

No description required.

The inventor says: I *claim* the combination of a wooden splice-piece strong enough to resist the lateral and vertical disturbances to which the adjacent ends of rails are liable, in combination with any form of rail competent to its purpose, without other support throughout than its own stiffness, the said splice-piece and rail, in the combination now claimed, being fastened together and fastened down in the manner heretofore described.

I am aware of a patent granted to B. H. Latrobe for a combined rail of wood and iron, where the two are bolted together throughout, the wood and iron breaking joints; but the rail in this case is a rail which is incapable of being used by itself, its form being peculiar and relating to its combination, while the combination made by me is with the rail in common use, and is capable of being substituted on such rail without other preparation than drilling or punching the bolt-holes in place of any of the chains or fastenings now in use.

No. 13,051.—Hosea D. Searles.—*Improvement in Guard-Rails of Railroads, to be used with Pronged Cow-Catchers.*—Patented June 12, 1855. (Plates, p. 157.)

Guard-rails or ribs *d* are laid parallel with the usual rails *c*, projecting considerably above the latter, so that the prongs P of the cow-catcher shall run between them for the purpose of preventing accidents caused by obstructions lying on the rails too low to be turned aside by the cow-catcher.

The inventor says: I am aware that several patents have been granted for central guard-rails on railways, and that cars have been fitted with central wheels to run on such central rails.

I am also aware that cars have been fitted with instruments like plough-shares, to remove obstructions from the rails, in front of both the side and central wheels of the cars, of which Le Blanc's cars, patented in France, and Ashcroft's, patented in this country, are examples; but I am not aware that, prior to my invention, any one ever placed a series of guard-ribs, elevated considerably above the rails, the entire length of the track, and arranged the fingers of the cow-catcher to run between and outside of such ribs. Neither do I know that any other device, the equivalent of this, for taking up and preventing cars from running over limbs of trees or fence-rails laid across the track, has ever before been invented.

Therefore, I *claim* the combination of elevated guard-ribs with the track, when the same are so arranged that the prongs of the cow-catcher of the locomotive may run between them, substantially as set forth.

No. 12,352.—Alpheus Kimball.—*Improved Machine for Repairing Roads.*—Patented February 6, 1855. (Plates, p. 157.)

B B is the frame of the machine; one of the cross-timbers E of which supports a post F. To the bottom of this post is pivoted at *a* the sole and land side-piece *b*. The forward end of the sole, which carries the point G, is suspended from lever H by means of post I. The lever H has its fulcrum in post M, which extends from cross-piece L. By means of this lever H, the plough-point may be raised or lowered, and with it the mould-board O, which is attached rigidly to the sole *b*, and is pivoted at its rear end to the piece P, which piece is attached adjustably (by means of slot *n* and screw *m*) to the frame B. The mould-board is made of sufficient length to reach half-way across the road, and has secured to its bottom surface the serrated scraper Q. In hard soil the resistance upon the point of the plough would tend to swivel the whole machine out of the direct line of motion; to counteract this tendency, the hind axle D is pivoted to the frame B at *q*, and the axle may be secured in various oblique positions by passing pin *r* through either one of the holes *s* into a corresponding hole in the axle.

Claim.—The described machine for making roads, consisting essentially of the combination of the plough and scraper, constructed in the manner set forth, and suspended from the lever H.

2d. Pivoting the rear axle, and securing it to the frame-work in a position oblique to the direction of motion, for the purpose described.

No. 13,052.—Samuel Taylor.—*Improvement in Plank Roofs for Buildings.*—Patented June 12, 1855. (Plates, p. 157.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim making a roof by means of plain boards rectangular in section, or by curved tiles made to overlap each other so as to break joints, nor by means of slates reposing on or supported by rafters provided with grooves or channels under the contiguous slates.

But I *claim*, in making roofs with overlapping wooden boards, to make each of the boards of saddle-form, as described, in order that, when laid together in manner as described, their contiguous plane-surfaces may not only lie in close contact, whereby they will add greatly to the stability and efficiency of the roof, but be so inclined as to prevent water from remaining between them, and causing or promoting their decay; my intention not being a mere change of form, unattended with any advantage, but one productive of new and useful results, in making roofs of wooden boards.

I also claim the improvement of providing each of the grooves of the upper boards with an inserted metallic or water-tight lining or trough *x*, for the purpose of protecting the joint directly under the same, when the boards become cracked or split, as described.

No. 13,906.—Gottlieb Graessle.—*Improvement in Tile Roofing.*—Patented December 11, 1855. (Plates, p. 158.)

The object of this improvement is to make a tile roof more weather-proof than those customarily employed.

Claim.—The construction, substantially as described, of tile roofing, having each overlapping edge *a* resting by an angle only upon the flat sublying surface *b* between the ridges *c d* of the adjacent tile, and having two transverse ridges *e f* on the top of each tile, enclosed by similar ridges *g h* projecting from the superjacent under-surfaces of the tier next above, for the purposes explained.

No. 12,785.—David Russell.—*Improvement in Window-Sash Supporters.*—Patented May 1, 1855. (Plates, p. 158.)

The fasteners C, which are curved as shown in figure 4, press against the side instead of the bottom of the groove E, as is apparent from inspection of the figures. Thus the sash is kept constantly pressed back against the edge of the offsets *f*, thereby rendering the joint air-tight, or nearly so. This side pressure could not be obtained without making the stop-fastener in a curved form, for a straight fastener could not be operated diagonally through the side of the goove E, as the

thickness of an ordinary sash will not admit of such an arrangement. The fasteners are operated by pulling the rings *c*. The offsets *f* extend the whole height of the frame, the lower sash B being wider than the upper B¹.

The inventor says: I do not claim operating the stop-fasteners by means of spiral springs, as the same function might be performed either by elliptic springs or weights and pulleys.

But I do *claim:* 1st. The curved form of the stop-fasteners, constructed in the manner and for the purpose as herein described.

2d. The offset *f* in combination with the fasteners, for the accomplishment of the object as herein described.

No. 12,828.—Lyman E. Payne.—*Improvement in Window-Sashes.*—Patented May 8, 1855. (Plates, p. 158.)

When these sashes are closed they will be fitted tight between the casing, because the edges of the strips *d d*¹ and the shoulders of the rebates *c c*¹ will bind together; and at the same time the sashes may be easily opened, because then the inclined surfaces of the strips and shoulders recede from each other.

Figure 1 represents only one half of the front view of the window, the other half being exactly alike.

Claim.—Arranging or adjusting the sashes within the frame or casing, as herein shown and described, viz: having strips *d d*¹ attached to the inner sides of the frame or casing, the outer edges of the strips being inclined or bevelled, as shown, and fitted within rebates *c c*¹ in the inner surfaces of the stiles *a* of the sashes, the shoulders of said rebates being inclined or bevelled so as to correspond inversely with the edges of the strips *d d*¹, for the purpose as herein set forth.

No. 12,833.—Charles R. Rode.—*Improvement in Sash-Supporters.*—Patented May 8, 1855. (Plates, p. 158.)

No description is required.

Claim.—The construction of the fastening, as herein shown and described, viz: having a longitudinal shaft or rod C inserted in the lower cross-piece of the sash B. A pawl *a* being attached to each end of the shaft or rod, said pawls catching into racks *b*, attached to the back sides of the grooves in which the sash is fitted, the shaft or rod being provided with a thumb-piece D, which projects through a mortise or slot *c* in the cross-piece of the sash, and directly over a plate E attached to said cross-piece, as herein shown and described. (See illustration.)

No. 12,854.—Handel S. Chaplin.—*Improvement in Window-Sash Fixtures.*—Patented May 15, 1855. (Plates, p. 158.)

A spring-locking bearer D is arranged (above the upper sash when it is depressed) in the jamb *a* of the window-frame. A similar spring-bearer E is arranged below the upper sash when it is elevated to its highest position. From these two springs two bent retractive arms F

G extend, one above and the other below and behind the rocker-shaft H, which has two cams I and K opposite to each other. By turning the knob L of the rocker-shaft in one direction, one of the cams will draw back its spring-bearer; by turning the knob in the opposite direction, the other cam will cause the other spring-bearer to retract.

The inventor says: I do not claim the application of a friction-spring or bolt to a window-frame and sash, and for the purpose of either holding by friction the said sash at any elevation within the limits of its motion, or of locking said sash so that it may not be either raised or lowered from the outside of the window.

But I do *claim* the arrangement of two spring-friction bolts, their retractive arms, cams, and one rocker-shaft, together, and with respect to two window-sashes, and so as to operate in manner substantially as specified.

No. 13,032.—William S. Ford.—*Improvement in Window-Sashes.*—Patented June 12, 1855. (Plates, p. 159.)

The sash B is just like the upper sash of ordinary windows. The French window-sashes C are hinged to strips *g*, which work in dovetails between stop-beads *h* and the parting bead *b*. Cords and weights *i j* serve to raise or lower the French sashes. The back-stiles of the sashes C are provided with lips *l*, which, when the sashes are closed, fit in recesses *m*, in the back sides of the strips *g*, and form a weather-proof joint.

The drawings exhibit only one half of the window, *x x* being the centre line.

Claim.—Constructing folding, hinged, or French windows as shown, or in an equivalent way, so that the hinged sashes *c c* may be raised and lowered the same as the ordinary sliding-sashes, and also be allowed to swing as French sashes, whereby said sashes are kept closed without the application of any special fastening, and also rendered perfectly weather-proof, as described.

No. 13,124.—Daniel N. Dunzack.—*Improved Mode of Hanging Window-Sashes.*—Patented June 26, 1855. (Plates, p. 159.)

In this method of hanging sashes there is only one weight B used within each box *a*.

The engraving represents only one half of the window, the other half being exactly alike.

Claim.—Attaching the cords *c* to the lower ends of both sashes C D, and having said cords pass through pulley *b* attached to the weights B, the cord at each side of the frame or casing being attached to both sashes, said cords passing over pulleys *d d* at the centre of the frame or casing, substantially as shown and described.

No. 13,435.—L. E. Payne.—*Improved Mode of Hanging Window-Sashes.*—Patented August 14, 1855. (Plates, p. 159.)

The cords *a a* are at one end secured to the upper sash B¹; the other ends pass down by the sides of the lower sash B, and underneath the same and through an eye *b* in the under edge of B, and are united by twisting or any other fastening. When one sash is raised, the other will descend. But if it is desired to raise the lower sash only, the ends of the cord underneath sash B are held by one hand down upon the sill of the casing A, and the lower sash may be raised without moving the upper one, and it may then be retained in a raised position by fastening the cords underneath the sash B in any proper manner.

The inventor says: I do not claim attaching the cords *a a* to each sash, so that one sash will balance the other, for that has been previously done; but I *claim* applying the cords *a a* to the sashes B B¹, as herein shown, viz: the cords passing around the lower sash, so that the cords may work around the lower sash B, or said sash B may be raised or lowered without moving the cords, as described, for the purpose set forth.

No. 13,764.—J. W. Ross.—*Improved Mode of Hanging Window-Sashes.*—Patented November 6, 1855. (Plates, p. 159.)

When the two pulleys *b b¹* are connected to the pulley E, one sash will be lowered while the other is raised; because the straps C F pass around their respective pulleys in opposite directions, and consequently one sash will balance the other. When it is desired to raise the lower sash, and keep the upper one in proper position, the pulley E is disconnected from the pulleys *b b¹* by operating the spring-lever I and shoving shaft B² back, free from the projections *d* on the side of pulley *b¹*. One of the projections will then catch against stop *g*, and the stop will prevent pulley E from turning, and consequently retain the upper sash B in proper position. The sash B¹ may then be raised without moving the upper sash; the elastic band D taking up the slack of strap C.

Strap C is fastened to the lower edge of sash B¹, and strap F to that of the sash B.

Claim.—Attaching the straps C F to the sashes B B¹, said straps passing in reverse direction around pulleys *b* E on a shaft B², in the stile *a* of the casing A, the pulley E being attached permanently to the shaft B², and the pulley *b* placed loosely upon it, and the pulleys *b* E being connected and disconnected when desired, as shown, the pulley *b* having a pulley *b¹* attached to it, to which pulley an elastic band D is attached, said band being also attached to the sash B¹, the above parts being otherwise arranged substantially as shown, and for the purpose set forth.

No. 13,774.—Michael Bomberger.—*Improvement in Hanging Window-Sashes.*—Patented November 13, 1855. (Plates, p. 159.)

Fig. 2 represents an inside view of the "rope hider" A, which consists of a piece of wood grooved and fitted in the window over the rope and pulley, in such manner as to allow the rope to run within the groove, while the sash moves along the back of the grooved piece.

Claim.—The application to window-frames, in which ropes and pulleys are used to support the sash, of the piece described, called the "rope hider," using, for the purpose of concealing from view the ropes and pulleys, a strip of wood or piece of any other material which will produce the intended effect.

No. 13,863.—E. W. Bullard.—*Improved Mode of Hanging Window-Sashes.*—Patented December 4, 1855. (Plates, p. 159.)

The sash may be raised by taking hold of the sash with one hand and the crank *n* of the pinion *l;* and when the sash is in the desired position, it may be confined therein by turning pinion *l* so as to raise its wedge *i* sufficiently to bind it there; and if said sash binds at times too much in moving, it may be relieved by lowering its wedge a little. It will be seen that the bevel of the sash and its wedge is so great, that if the sash be lifted, independently of its wedge, to a sufficient height, it may be removed without difficulty and without removing the confining strip of the window-frame.

Claim.—The improved mode described of hanging and fastening sashes, which consists in bevelling one side of the sashes, and combining therewith a corresponding wedge or bevelled strip, moved up and down as described, or in any other way, by which arrangement the modes set forth of fastening, loosening, and removing the sashes from the frame are secured.

No. 12,168.—Francis Rudolph.—*Improvements in Elevating-Scaffolds.*—Patented January 2, 1855. (Plates, p. 160.)

This scaffold (the construction of which is plainly shown in the engraving) can readily be elevated, according as the work is carried up, to any height desired, without increase of expense, and with little trouble.

Claim.—The arrangement and combination of the centre-pole A and the scaffold C, the former usually being placed *within*, and the latter *about* the structure to be built, each of which may be elevated as desired, and the whole being constructed substantially in the manner before described.

No. 13,086.—Abraham C. Funston.—*Improvement in Scaffolds.*—Patented June 19, 1855. (Plates, p. 160.)

To render the scaffold convenient for use on buildings having porticoes or steps, the back upright of one or all of the sections A A¹ A¹ is made in two parts as at G (figure 2); a slot is provided in the lower part, and the latter is coupled to the upper part by straps *c¹ c¹*, and firmly secured by set-screw H, so that, by simply loosening this set-screw, (which plays in the slot in the lower part,) it may be elevated and made to rest upon the steps.

Claim.—Making the back upright of one or all of the sections or frames forming this particular scaffold in two parts, and providing the lower part with a slot, and uniting it to the upper part by a set-screw, which plays in the slot and allows of the lower part being raised, substantially as and for the purpose set forth.

No. 13,810.—Reuben W. Oliver, assignor to Himself and Horace Hoyt.—*Improved Road-Scraper.*—Patented November 13, 1855. (Plates, p. 160.)

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I do not claim making the height of the scraper adjustable upon a frame supported upon wheels, as this has already been done.

But I *claim* supporting the forward end of the scraper upon levers which rest upon the wheel B, or their equivalent, as a fulcrum, and extend back of the scraper for the purpose of operating conveniently the back end of the scraper, resting upon a fixed support, as set forth.

2d. I claim hanging the bottom of the scraper to the side, as set forth.

3d. I claim securing the return of bottom E to the position for loading, by the chains P, or their equivalent, attached to the said bottom E and to the levers F, as herein set forth, or any other manner substantially the same.

No. 12,994.—P. J. Coogan.—*Improved Arrangement of Drains for Sewers.*—Patented June 5, 1855. (Plates, p. 160.)

The water, slops, &c., are thrown upon grate C, and fall upon the inclined bottom *a* of chamber B. The sediment is carried down on said inclined bottom. The water passes through the apertures *b* into compartment D; the sediment settles to the bottom of this compartment, and, when the water reaches the upper end of the curve of syphon I, the water will flow into compartment E; when the water reaches the upper end of the curve of syphon J, the water will flow from E into inclined passage K. Thus all heavy matter will be prevented from entering the passage K, because it will settle at the bottom of D before the water reaches the syphon I.

I *claim* the box or receiver A, provided with syphons I J, and otherwise arranged as shown, for the purpose as set forth.

No. 12,351.—Robert A. Smith and John Hartman, Jr.—*Improved Street-Sweeping Machine.*—Patented February 6, 1855. (Plates, p. 161.)

Upon the axle of the driving-wheels W is a loose cog-wheel D, having hinged to one of its arms *x* a stud *u*, held in position by spring *v*, so that when said stud projects from the wheel D it will enter between two of the spokes of the wheel W and rotate wheel D on axle *w* simultaneously with W. When the stud is folded upon the arm *x*,

(see dotted lines, fig. 2,) the rotation of D will cease, and with it the motion of the endless chain of brushes.

The inventors say: We make no claim to the employment of the endless chain of brushes or the movable inclined plane, neither do we claim of itself the detachable dirt-receiver or the receiver when arranged and operated as in the patented machine of J. Whitworth.

But we *claim* the described arrangement of detachable receiver R beneath the forward portion of the frame, suspended by chains *m* and *n*, attached to hooks *q* on the receiver, from the pulleys f^1 and windlasses $p\ p^1$, so that an empty receiver may be substituted for a filled one with great facility, and the filled receiver removed by a tender, as set forth.

We also claim constructing the rear portion of the inclined plane with wheels or rollers *h* and tail-piece of loose sections *l*, as set forth, so that the rear of the machine may rest on the ground and conform to the inequalities of its surface.

We further claim the employment of the hinged-stud *u* in connection with the driving-wheel W and loose wheel D, for operating the endless chain of brushes, as set forth.

No. 13,830.—M. W. St. John and Isaac Brown.—*Improved Street-Sweeping Machine.*—Patented November 20, 1855. (Plates, p. 161.)

The swivel-wheel J, which supports the back part of the machine, is connected by means of bar N to the back end of draught-pole L, for the purpose of allowing the machine to turn readily. As the machine is drawn along, the shaft E will rotate when lever I is moved, so as to throw the clutches G G in gear with the pinions F F; and the endless apron X is operated by the belt *r* and the bar T, and brooms W are moved back and forth by the pitmans P P, the brooms being elevated during their backward movement (see position of broom W represented by dotted lines in fig. 1) in consequence of bar T being attached to the pitmans a certain distance from their points of attachment to the shaft Q. The brooms as they move towards the apron X sweep the dirt from the ground upon it, and the apron conveys the dirt to one side of the machine and deposites it in winrows in the street.

Claim.—1st. The reciprocating brooms or brushes W attached to a bar T, which is connected with the pitmans P P, the parts being arranged as shown, or in an equivalent way.

2d. The endless apron X placed underneath the machine for the purpose of receiving the dirt from the brooms or brushes W, and conveying it from underneath the machine and depositing it in winrows in the street, as described.

3d. The combination of the endless apron X and reciprocating brooms or brushes W, arranged as shown and described.

4th. Connecting the swivel-wheel J with the back end of the draught-pole L by a bar N, substantially as shown, for the purpose specified.

5th. Placing the driving-wheels C C and pinions F F loosely on their respective shafts, and operating the ratchets G G by means of the flanched sliding-plate H, substantially as shown, for the purpose of

throwing the working parts of the machine in and out of gear with the driving-wheels.

No. 12,496.—William W. Willis.—*Improved Mode of Extracting Stumps.*—Patented March 6, 1855. (Plates, p. 161.)

The nature of this improvement will be plainly understood from an inspection of the engravings.

The team is attached at C; and as the team draws either in the direction of the arrow or opposite to it, the draught-chain I is connected either to K or to J.

The inventor says: I do not propose to claim either the draught-hook, the shears, or the pulley, by itself; as neither can of itself, nor any two of them, perform the functions for which, after much thought and many experiments, I discovered that all three acting in connection were indispensable.

I *claim* the combination of the draught-hook R, shears H, and pulley N, substantially in the manner and for the purpose set forth.

No. 12,525.—Edward Vaughn.—*Improvement in Stump Machines.*—Patented March 14, 1855. (Plates, p. 162.)

Screw E passes through nut D, and nut D fits into a square mortise in the sweep C, and rests in a square recess *m* in hub B, which hub is bolted to the sweep and has an inverted groove *k* in its lower end, which rests on friction balls *l*. *p* are levers, *r* fulcra, and *q* hinges for elevating the frame and attaching the trucks H to sills *c*; dog *v* is thrown back by a cord at top of lever I, permitting axle *u* to pass down the posts *t* and rest on plates *s*. Spiral spring *z* throws the dog *v* over the axle *u*, and the machine is loaded. Bar K is screwed to hounds J by bolts *i* passing through slots a^1 in said hounds; the bolts have lugs c^1 at one end and rings d^1 at the other, and are fastened by turning said rings at right-angles and throwing them over pins e^1.

The inventor says: I *claim* the arch-beams *d d*, the brace-posts *b b*, in combination with the inclined braces c^2 c^2 and horizontal beams *a*, making a new and useful, firm and compact frame, as set forth.

Also, the combination of a half sphere and groove *l*, forming a new half-spherical washer *g*.

Also, the combination of the groove *k*, opening *j*, with a square recess *m*, for the purpose as set forth.

Also, for the purpose of attaching and detaching the trucks H H to and from sills *c*, by the combination of levers *p p*, fulcra *r r*, joints *q q*, posts *t t*, dogs *v*, and levers I, as set forth.

Also, the securing of the bar K to the hounds J J, as set forth.

I do not claim any one separate thing in the above-mentioned invention, but I *claim* the combination as set forth.

No. 13,088.—Stephen Gorton and Francis Morris.—*Improved Stump Machine.*—Patented June 19, 1855. (Plates, p. 163.)

This apparatus is rolled over a stump, so that shaft A will come to or over the stump. The chain F is then hooked around the root of the stump, and the power is applied either to the hook E or the rope around pulley D. As the power draws the small end of the shaft in one direction, the wheel B will roll in the other direction and wind up the chain, and thus lift the stump.

Claim.—The construction of the machine after the manner described, to wit: with a main shaft and wheels, as described, with the larger wheel B fastened on to the shaft, and the lesser wheel C constructed so as to turn on the shaft, or any other construction substantially the same.

No. 13,059.—Gottlieb Graessle.—*Improvement in Tile Machines.*—Patented June 12, 1855. (Plates, p. 163.)

There are three or more moulds, consisting of halves 1 and 4, 2 and 5, 3 and 6. These halves are attached to two endless chains Q and B, so that (as the chains revolve with equal velocities) each two will meet in the centre between the pressure-rollers *l* and *m*, and (the clay having been supplied to the mould before it arrived at the centre) the tile T will be formed.

The engraving represents the chains in strong broken lines.

Claim.—The combination of the two endless chains, corresponding moulds, and pressure-rollers, formed and constructed substantially as described.

No. 12,595.—Thaddeus Hyatt.—*Improvement in Illuminating Vault-Covers.*—Patented March 27, 1855. (Plates, p. 163.)

a is the glass, *b* is the hoop of lead, and *c* is the section of the plate into which the glass lenses are inserted.

The inventor says: I do not wish to be understood as making claim broadly to the securing of glass directly within a soft-metal sash, nor to the securing of glass within a metal case, to be in turn secured within a metal socket, as these have been known when applied as specified.

I *claim* the method of securing glasses in the apertures of metal plates or other surfaces by surrounding the glass with a hoop or belt of lead, gutta percha, or other equivalent yielding substance, and forcing the glass so surrounded into the apertures or recess, substantially as and for the purpose specified.

No. 13,352.—James Harrison, Jr.—*Improvement in Vault-Covers.*—Patented July 31, 1855. (Plates, p. 163.)

The vault-cover D can be raised into the position represented in the engraving in dotted lines, and articles can be thrown into the vault A underneath the cover.

Claim.—Attaching the cover D to the upper part of the opening or passage A of the vault, by means of the jointed arms or rods *d d f f*, arranged as shown, or in an equivalent way, for the purpose set forth.

No. 13,513.—Wm. P. Walter and Jacob Green.—*Improvement in Vault-Lights.*—Patented August 28, 1855. (Plates, p. 163.)

No description required.

The inventors say: We are aware that it is a very common device to avail oneself of the expansive and contracting properties of metal in fitting metal rings tightly around various articles; and we are also aware that it is not a new device to unite silicious compounds to metal by casting the former in a molten state about the latter, as for instance in the manufacture of porcelain or glass door-knobs with metal shanks. We therefore disclaim both of these as broad devices.

But we *claim* the described improvement in the construction of vault-lights, viz: casting the molten glass directly into the metal frame, while in a heated state, said metal frame being grooved internally, so that when it contracts on cooling, and contracting as it does more than the glass, this groove shall bind the glass lens tightly in its place, and so retain it.

No. 12,676.—Salathiel Ellis.—*Improvement in Framing for Building Concrete Walls.*—Patented April 10, 1855. (Plates, p. 163.)

The object of this improvement is to provide a sectional frame or box to embrace each side of the wall to be built, and so contrived that, as the wall progresses, the lower section may be disconnected and be made the upper part. The boards D, composing the two sides of the frame, are kept at proper distance by clamps *c*, through the upper and lower parts of which pass rods *e* with screws and nuts at their ends. The wall being built up to the top of the upper boards, the lower series of rods *e* are unscrewed and driven out through the wall. The clamps *c* can then be turned round the upper rods *e* so that the lower ends of the clamps come uppermost, still preserving the upper boards D in their position. The lowest board D is then taken away and made the upper board of the frame, and the building of the wall can be continued. The corner-clamps *a b* have a longitudinal slot between the two rods, so that they can be slid upwards as soon as the lower rod is removed.

Claim.—The construction of the clamps substantially as before described, so that they can be moved or turned up, as necessity requires, and the combination of these clamps with the rods and boards to form a self-supporting frame, for the uses and purposes above described.

No. 13,000.—Thomas Estlack.—*Improved Mode of Securing Washboards to Walls.*—Patented June 5, 1855. (Plates, p. 163.)

Claim.—Securing washboards E to the flooring A and to slides D, which work in guides C, attached to the walls B in the manner shown, or

in an equivalent way, so that the washboards will, in case of the shrinking or settling of the flooring, fall or settle with it; thereby causing the lower edges of the washboards and flooring to be at all times in contact, as set forth. (See engravings.)

No. 13,114.—Jesse Norris Bolles, assignor to H. J. Ockershausen.—*Improvement in Joints of Pipes for Artesian Wells.*—Patented June 19, 1855. (Plates, p. 163.)

An iron hoop I is heated, and, thus expanded, is placed upon the upper end of a pipe, when another tube of like size is lowered into the band, which, upon cooling, contracts to such a degree as to make a perfectly tight joint. As the ends of the tubes where the hoop goes on have previously been reduced, the exterior surface will be flush.

Claim.—The mode of rendering cylinders or tubes flush, or upon a line on their exterior surfaces, for artesian wells, or for other purposes as described, or any other mode, substantially the same, which will produce the same effect.

X.—LAND CONVEYANCE.

No. 12,238.—Alfred C. Garratt.—*Improvement in Plugs for Lubricating Axles.*—Patented January 16, 1855. (Plates, p. 164.)

The plug D is made with a chamber *b* within it and a passage *d*. The wheel-grease collects within the chamber, and can easily be removed with the same.

A represents the hub, and C the axle of the wheel.

Claim.—The chambered screw-plug open at its lower end, and having a passage made through its side, and applied for removing the accumulated wheel-grease, as described.

No. 12,347.—Geo. W. Geisendorff and Jacob C. Geisendorff.—*Improvement in Axle-Box Rollers.*—Patented February 6, 1855. (Plates, p. 164.)

A is the journal of the axle, which is lubricated by roller B; H pinion in the centre of the axle, which revolves the cog-wheel C, and thus the roller B. The object of this improvement is to lubricate when the lubricating material is not yet rendered fluid by the heating of the axle.

Claim.—The giving a positive motion or rotation to the lubricating roller by the axle of the car-wheel, in the manner set forth.

No. 13,327.—Alfred E. Smith.—*Improvement in Washers for Axles.*—Patented July 24, 1855. (Plates, p. 164.)

Rivets *b* of metal are inserted through the leather washer *a*, to prevent the rapid wearing away of the leather.

Claim.—Inserting blocks of metal or other equivalent hard substance

fast as occasion may require, until it, the shoe or rubber, is worn up or rendered unfit for further service, my improvement being one of great practical importance and utility.

No. 13,327.—Alfred E. Smith.—*Improvement in Washers for Axles.*—Patented July 24, 1855. (Plates, p. 164.)

Rivets *b* of metal are inserted through the leather washer *a*, to prevent the rapid wearing away of the leather.

Claim.—Inserting blocks of metal or other equivalent hard substance in packing washers made of leather or other equivalent flexible and yielding substance, substantially as and for the purpose specified.

No. 12,166.—Henry Miller.—*Improvement in Steam Railroad Car-Brakes.*—Patented January 2, 1855. (Plates, p. 164.)

The steam cylinder A and steam-pipe D of each car are so arranged that the condensed water is allowed to run freely and rapidly from the cylinder and pipe, so as to obviate any danger of freezing and choking the apparatus. The tubular flexible casing *f* protects the cylinder-piston and piston-rod from the dust, and the spiral spring *h* keeps the casing distended laterally, so that it cannot be injured by the piston-rod, and assists in carrying the piston back to the bottom of the cylinder after each action.

Claim.—1st. The arrangement of the cylinder, the pipe D, and the branch pipe *d* of each car, substantially as described, to wit: the pipe D inclining downwards from each end of the car, and the pipe *d* inclining downwards from the lowest point of the cylinder towards the point of junction with the said pipes, so that the condensed water may all run from the pipes and cylinder and escape therefrom, or be conveyed into a suitable receptacle provided with proper means of escape, as herein set forth.

2d. Encasing the piston-rod with a flexible tube, which is attached at one end to the rod, and at the other to the cylinder-head, and is kept extended so as not to be injured by the working of the rod, by means of a spiral spring surrounding the rod, which said spring assists in returning the piston and freeing the brakes after the steam or compressed air is shut off, substantially as described.

No. 12,245.—Lucius Paige.—*Improvement in Brake-Blocks for Railroad Cars.*—Patented January 16, 1855. (Plates, p. 164.)

The shoes J may be adjusted as they are worn by unscrewing and thereby loosening the face-plates *r* by which the shoes may be shoved near the wheels B, the face-plates being screwed tightly against the shoes when they are properly adjusted, and thereby firmly securing the shoes in the sockets *R*.

The inventor says: I do not claim the placing the shoes in sockets or boxes, wherein they remain permanently fixed until worn up so as to be useless.

But I *claim* the improvement of so constructing the shoe J and the socket or bearing thereof, and applying them essentially as described, that the shoe may extend entirely through and out of the socket in opposite directions, and be capable of being moved up to the wheel as fast as occasion may require, until it, the shoe or rubber, is worn up or rendered unfit for further service, my improvement being one of great practical importance and utility.

No. 12,263.—Wendell Wright.—*Improvement in Mode of Connecting Pipes for Steam-Brakes.*—Patented January 16, 1855. (Plates, p. 164.)

Claim.—Providing each end of the several lengths of pipes for conveying the steam or compressed air under the cars with a valve *k* and an elastic or movable tongue *l*, applied substantially as described, so as to allow the valve to be closed by the pressure of the steam or air when the end of the pipe is disconnected, but to be caused to open the valve by the entrance of the end of the pipe into the mouth-piece of the connecting-tube D. (See engraving.)

No. 12,539.—Jehial E. Blodgett.—*Improved Wagon-Brake.*—Patented March 21, 1855. (Plates, p. 164.)

The inventor says: I do not claim the originating of the idea of wagon-brakes, or their invention; claiming only certain improvements in the construction and application of wagon-brakes as described—rendering them perfectly effectual and applicable to all kinds of loading.

I *claim* the application of wagon-brakes to the forward wheels of wagons by using the hounds FF, sway-bar G, block-tongue E, or other appendages running back from, and firmly attached to, the front axle B, as the frame for the support and steadying of such brakes; also the construction of a brake so light and simple as to admit of being supported by such frame, such brake having a main bar H of sufficient length to receive both pads I J, said main bar turning upon its fastening at or near its centre, with the pad I for one wheel firmly attached to one end, and the pad J for the other wheel so attached to the other end of the main bar as to turn on such attachment or fastening, such turning pad to be of such form as to bear against its wheel on being turned partly round, and to bear harder on being turned further, and at the same time, by crowding back that end of the main bar to which it is attached, to throw the other end with its pad against the other wheel, as described. (See engraving.)

No. 12,552.—Gideon Hotchkiss.—*Improvement in Railroad-Car Brakes.*—Patented March 21, 1855. (Plates, p. 164.)

A bridge *q* is secured to the journal-boxes *j*; a lever *n* has its fulcrum in the piece *w*, which is firmly attached to the bridge *q*; to the short arm of lever *q* is connected the anchor L, which carries the brake L, and the power for working the brake is applied at the long end *z* of the said lever *n*.

Figure 2 represents only one half of the truck, the other half being exactly alike; *x x* is the centre line.

The inventor says: I do not claim the mere application of the brake to the top of the wheels, nor do I intend to confine my claim to the application of the brake, by the means described, to the top of the wheel only, because by a slight modification and change the principle and means claimed as original may be applied so as to press the brake to other parts of the wheel and accomplish the same object.

But I *claim* the method of operating a railroad-car brake by obtaining the leverage from the axles and boxes by means of the bridges, keys, and clutches, or their equivalent, substantially as set forth.

I have described my improvements as applied to trucks for wide-gauge roads, having axles with inside bearings; but it will be obvious that they are applicable to trucks having axles with outside bearings, and also to cars without trucks; and I therefore claim my improvement when applied to axles with outside or inside bearings, and also to cars without trucks.

No. 12,685.—William Loughridge.—*Improvement in Graduating the Tension of Car-Brakes.*—Patented April 10, 1855. (Plates, p. 165.)

The brake-chain C is attached at its front end to a barrel D, and passes under the cars around pulleys *c* (attached to the cars) and pulleys *b*, attached to the ends of levers B, and is fastened at its rear end to the hindmost lever, B. When the chain is pulled in front, it will lift the ends *b* of the brake-levers which are pivoted at *a*, and thereby press the brakes A against the wheels. Barrel D is hung at one end in a fixed bracket *d*, and at the other in the lower part of lever E, pivoted in *y*. The upper part of lever E connects, by an adjustable link *f*, with arm *g* on rock-shaft F, from which shaft extends also an arm *j*; which arm is so placed as to be struck by the revolution of a pin *h* attached to the loose part G of a clutch G G¹; G² is fast on driving-axle H. The barrel D carries at the end a disc I opposite a disc J on axle H, so that when both discs are brought in contact by the movement of lever E, the barrel winds up the chain in consequence of the friction between the discs. Spring *i*, acting upon lever E, keeps the discs clear of each other, and the brakes clear of the wheels (by the weight of the levers B). When the brakes are to be operated, the clutch G G¹ is thrown in gear by lever K, and G rotates with axle H; the pin *h* strikes and throws back arm *j*, and arm *g*, being thrown forward, acts upon lever E and engages the discs. At this juncture the upper end of lever E is caught by spring-catch *k*. The chain-barrel winds up the chain and actuates the brakes. The clutch being required to operate only during one revolution of the axle H, the lever K can be instantly released to uncouple the clutch by the action of spring *t*; though the clutch might remain in gear without injury, as when the pin *h* has thrown back arm *j* it will merely wipe it slightly in repassing. The chain being sufficiently wound up, the winding up must be stopped to prevent breaking. To this end the discs are disengaged by releasing lever E from catch *k*, to be thrown back by spring *i*. The force applied to the chain is retained by a pawl *l* acting on ratchet-wheel *m* on the chain barrel. By applying two ratchet-wheels with teeth in opposite directions, and two pawls, the brake can be operated forwards and backwards. Lever E is liberated from K as follows: Catch *k* works on a fulcrum *n*, its other end having an inclined projection *o*. The upper end of a chain C (which is wound up on barrel D simultaneously with chain C) is attached to a slider M. C¹ draws forward said slider, and its pin *p*, striking projection *o*, liberates lever E from catch *k*. M contains several holes. The insertion of pin *p* in these holes, farther forward or backward, causes it to act on the catch *k*, sooner or later, to disengage the discs, and thus applies the brakes with less or greater force. When the brakes are to be released, the foot-lever *u* is to be depressed, which throws out pawl *l* from the ratchet and liberates the chain-barrel.

The inventor says: I am aware that various arrangements of self-acting brakes have been proposed, in which the power obtained from the locomotive axle, by means of engaging and disengaging mechanism, has been applied throughout a train by the use of a chain, or its equivalent. Such a brake, therefore, I do not claim.

But I *claim* the combination and arrangement of the sliding-plate M, having a series of holes graduated for limiting its play by an adjustable pin; the supplementary chain C¹, wound upon the chain-barrel D, which receives the chain for actuating the brakes; the lever E, for bringing the said barrel into and out of action; the spring-catch *k*, for holding the said lever E in engagement until tripped by the pin of the aforesaid sliding-plate M, when the lever E is released, and the power is maintained without any further increase. The whole constituting an automatic disengaging apparatus capable of being graduated so as to apply and retain any degree of frictional pressure that may be previously desired, by the simple adjustment of the movable pin in the sliding-plate, substantially as herein described.

No. 13,038.—James J. McComb.—*Improvement in Arrangement of Bumpers for Self-acting Car-Brakes.*—Patented June 12, 1855. (Plates, p. 165.)

The bumper heads C, which apply the momentum of the car to the working of the brakes, are placed one on each side of the coupling, so that said heads shall come against the cars or the platforms P thereof, instead of abutting against each other.

The inventor says: I am aware that self-acting brakes of various forms have been essayed, which were intended to be brought into action by the momentum of the car; but in all those of which I have knowledge, the brake-beams or the bumpers, when used, abut one against the other, thus leaving but one-half of the usual coupling distance available for bringing up the several parts of the brake to a proper bearing and applying the brakes, which is found insufficient; and to couple the cars further apart, to give the necessary distance to properly operate the brakes, has its equally objectionable features.

These, therefore, I do not claim; but I *claim* allowing the brake-beams of each car to abut against the car or platform of the car next to it, by which means I make available the whole play or distance between

the cars in bringing up the brakes, and thus more effectually apply them than heretofore, substantially as described.

No. 13,108.—Peter Ten Eyck.—*Improved Self-acting Brake for Vehicles.*—Patented June 19, 1855. (Plates, p. 165.)

When the speed of the horses is checked, the shoes will fall by their own gravity and bind between the peripheries of the back wheels and the surface of the ground, and stop the vehicle.

The inventor says: I do not claim a brake formed by placing shoes between the wheels and the surface of the ground, irrespective of the peculiar arrangement, or connexion shown between the shoes and the draught-pole or shafts, for they have been previously used for railroad brakes.

But I *claim* the employment of the shoes F F, attached to the back axle of the vehicle by the jointed arms or levers B D, where said shoes are connected to a sliding draught-pole G, by rods *g g* and chain *h*, said pole G having a spring K attached to it. The above parts being arranged substantially as shown, and for the purposes as set forth.

No. 13,139.—Elisha E. Rice.—*Improvement in Railroad-Car Brake.*—Patented June 26, 1855. (Plates, p. 165.)

The shoes are attached to a guide-frame *b*, sliding within a hollow bracket E. Upon each shoe an India-rubber spring *d* is fixed, and upon each spring one end of a beam F rests. This beam is operated upon by the lever G, which is weighted at *i*. The pivot-holes *m* are slightly elongated vertically, so that, when the weighted-lever end has been raised to depress the shoes upon the rails, (this brake is intended to act against the rails instead of against the car-wheels,) and is allowed suddenly to fall again, it may drop some distance before its fulcrum comes to a bearing; in order that, in its descent, the weight may acquire sufficient momentum to produce a jerk that will start the shoe up, in case its guide-frame *b* happens to be bound between the brackets E. One shoe D is flanged, to guide it on the rail while pressed thereon; the other shoe D is plain, that it may be free to move laterally across the rail to accommodate itself to the path of the outer shoe.

Claim.—1st. The construction of the brake, with one flanched and one plain shoe, in the manner and for the purposes specified.

2d. The combination of the guide-bracket E extending from the frame of the truck nearly down to the rail, the shoe with its sliding-frame, the spring to allow the shoe to yield, and the beam for pressing down and raising up the shoe; the whole arranged as set forth, so that the spring and shoe are supported near the rail, and the shoe rigidly held from any lateral movement whatever, while it is free to rise and fall.

3d. The weighted drop-lever in combination with the shoes; the same being arranged and operating as set forth.

No. 13,440.—Gustavus Adolphus Somerby and Chas. Wm. Fogg.—*Improvement in Railroad-Car Brake.*—Patented August 14, 1855. (Plates, p. 166.)

The journals of the wheel-axles are supported in pendulous bars *b*. Each brake H is jointed to one end of lever I, while the other end is jointed to the truck frame. Rod *e*, projecting down from lever K of another brake L, extends through lever I and spring *d*, and is supported by the spring, while the latter rests on lever I. When the wheels are brought against the brakes by inclining the bars *b* a little from the vertical in a direction towards the brakes, the brakes H will be slightly raised by the friction, and also force into action the brakes L. When the bars are inclined, the weight of the carriage will act through the bars and force the wheels against the brakes. When it is desired to relieve the wheels from the action of the brakes, hand-lever *u*, attached to shaft Q, is moved so as to cause the forward-catch *o* of arm *l* on shaft *k* to be raised upward. As soon as this takes place, the forward draft upon the front draw-bar will so carry the tripping-catch *r* of said draw-bar into action with catch *o*, directly beneath it, as to move the lower arm of said catch forward, and thereby cause the cams *h* of the forward arms *i* (the latter projecting from shaft K) to press upon the friction-rollers *g* attached to the hanging bearings *b*, to cause the wheels to be moved away from the brakes.

The inventors say: We do not claim the application of the brake to the wheel, so that either may be moved toward the other while the carriage is in motion, and whether by the momentum of the carriage or by any other power.

But we *claim* applying the wheel-axle to the frame by means of pendulous bars *b b*, arranged substantially as described, in order that the gravity or weight of the carriage, when the latter is at rest, (as well as when it is in motion,) may be employed to press the wheels against the brakes by acting through such bars, when they are inclined from the vertical, and are left free to be moved toward the brakes.

We also claim so combining with either or both the lower brakes H H, operated by the wheels as described, one or more other brakes or brake mechanisms L L, that the latter may be put in action by the operation of the wheels on the former, as specified.

We also claim, in combination with wheels applied so as to be movable towards and away from their brakes H H, as specified, a mechanism substantially as described, whereby the power that produces draught of the carriage or puts it in motion, as described, shall move such wheels away from their brakes, so as to relieve the said brakes from being moved or pressed by their respective wheels.

No. 13,978.—Robert L. Currey.—*Improvement in Double-acting Steam-Brake.*—Patented December 25, 1855. (Plates, p. 166.)

C C are the pistons, which, as soon as steam is supplied between them, move from each other, and, by means of the piston-rods B B and connexions, (represented in the engravings,) actuate the breaks F G.

As soon as the steam supply is stopped and the steam exhausted, the spiral springs J placed within the cylinder will cause the brakes to recede from the wheels.

The inventor says: I do not claim to have invented a double-acting steam-cylinder, with steam and exhaust at its centre between the

The inventor says: I am aware that a patent was granted to Joseph D. Alvord on the 18th of September, 1849, for a "car-shackle, in which two horizontally placed hooks, one at each end of the car, are attached to the bunter, so formed and so attached that on bringing the cars together the hooks will fall into sockets into the respective opposite

As soon as the steam supply is stopped and the steam exhausted, the spiral springs J placed within the cylinder will cause the brakes to recede from the wheels.

The inventor says: I do not claim to have invented a double-acting steam-cylinder, with steam and exhaust at its centre between the pistons.

But I *claim* the employment of such a cylinder in combination with the brakes on both sides of the wheels, in the manner and under the arrangement set forth.

No. 12,490.—Edward Rice.—*Improvement in Railroad-Car Coupling.*—Patented March 6, 1855. (Plates, p. 166)

When the cars are brought together, the heads C of the coupling-bars pass into the yielding-mouths D, and within the catches G G, until they strike against the ends of the draught and bumper-bars A, when the catches G G, acted upon by springs K K, will cause said catches to embrace the heads C C between their shoulders and the ends of the bars A (see figures 3 and 4). The catches G G may be rigidly secured in the closed position (see figure 3) by fastening the lever E by a suitable catch. When said lever is not fastened in said position, the outward pressure, exerted upon said catches by the heads of the coupling-bars in passing between them, will cause the embracing-band H to slide backwards upon the inclined planes F F, and allow the catches to open. When it is desired to uncouple a car, the lever E is drawn backward into position figure 5, thereby drawing the mouth D within the catches G G, and forcing them outward, so that the head of the coupling-bar can be drawn freely out from between them; the free play of said head upon the coupling-bar preventing it from catching and holding upon the lower catch when the catches are forced outwards.

Claim.—The arrangement of the movable guiding-mouth D, the catches G G, the inclined-planes F F, the embracing-band H, and the lever E with each other, and with the draught-bar A, in such a manner that the coupling-bar B will be self-caught and retained when brought into contact with said parts, and by which it can also be readily liberated when the cars are in motion, substantially as set forth; also, in combination with the spring-catches G G and the movable-mouth D of the coupling-apparatus, the movable-heads C C of the coupling-bar, arranged substantially in the manner and for the purpose set forth.

No. 12,680.—James H. Jones.—*Improvement in Railroad-Car Coupling.*—Patented April 10, 1855. (Plates, p. 167.)

The two parts A A forming the coupling are exactly alike, and they are either permanently attached to their cars or they are connected with them by passing the bolts (by which the cars are drawn) through the holes E E represented in the figures. The springs D serve to guide the jaws C together and to hold them closed, when in position shown in figure 2.

The inventor says: I am aware that a patent was granted to Joseph D. Alvord on the 18th of September, 1849, for a "car-shackle, in which two horizontally placed hooks, one at each end of the car, are attached to the bunter, so formed and so attached that on bringing the cars together the hooks will fall into sockets into the respective opposite cars." This I do not claim, as my invention is an improvement upon Alvord's; nor do I claim a car-coupling wherein a link or its substitute is used at all; neither do I claim a car-coupling wherein a male and female catch are used, because they require to be changed at times, as two male or two female catches will not form the coupling; but I *claim* a car-coupling without a link, which may be a permanent fixture on the car, and each half so formed that the jaws or hooks will always couple or catch, *the one with the other*, when brought together, regardless of the particular ends of the cars which may be brought together, substantially as described.

No. 13,264.—Aaron G. Heckrotte.—*Improvement in Railroad-Car Coupling.*—Patented July 17, 1855. (Plates, p. 167.)

This is an improvement on W. C. Bussey's patent, July 17th, 1847. The box A is bolted at F to a draw-bar of ordinary construction, the front of the box being held up by a strap passing under it, leaving it free to be acted upon by the bumper-springs. On bar f (which extends from dog-bar D) is movable the slide *e*, secured to bar f^1, so that said bar may assume either of the positions shown in the engravings. The guard bar f, by having a cord attached leading to the platform of the car, and so arranged by passing over pulleys as to draw the bar towards the side of the box, serves as a means of uncoupling. When two cars are coupled, the guards ff^1 of the respective boxes A will be on opposite sides, and when in position of fig. 2, the bars f^1 will project sufficiently far, each to run under the platform of the other car; so that on the deviation of a car from the track, one of said bars will be drawn outward by a pin beneath the platform, and the tumbler B of one of the couplings released from the dog-bar. P is the coupling bar.

The inventor says: Disclaiming the coupling and uncoupling of cars by eccentric-tumbler, revolving-roller, turning-dog, and coupling-bar, as secured by the patent granted to W. C. Bussey, 17th July, 1847.

Claim.—The method described of releasing the tumbler by double-branched sliding-guards ff^1 combined with the dog-bar D, whereby the rigid attachment of the box is avoided, and the same rendered capable of attachment to the ordinary spring-bumpers, as set forth.

No 13,274.—Jno. Ryan.—*Improvement in Railroad-Car Coupling.*—Patented July 17, 1855. (Plates, p. 167.)

The extreme projecting end of the coupling bar E has a curved plane *k* upon one of its sides and a portion of its top part, and on the opposite side and under part a precisely similar curved plane; so that if the coupling-bar, when the cars are run together to be coupled, should not hang with its points underneath, these planes, or either of

them, striking the rounded or concave face of the buffer-mouth D¹, will turn them over or around into the right position for coupling. On the backs of the buffer-mouths, and underneath the projections *c* thereon, are grooves *o* deep enough at their centres to receive the points of the hooks *a b*, but which gradually run out at the sides until they entirely disappear. This is for the purpose of self-uncoupling, should one of the cars run off the track.

The inventor says: It is obvious that while the gist of my invention lies in the peculiar forms of the coupling-bar and heads, yet these forms may be varied and still produce the same effect; and I should claim the right of changing the forms of both or either so long as I do not depart from the general character of the invention. I do not claim a gravitating hook, nor do I claim a side-moving hook for self-uncoupling, independent of its particular connexion with the draw-heads.

But I *claim* the surfaces of the hook and inside and outside of the buffer-mouth, so arranged and constructed that the hook, presented in a vertical position, shall be caused to rotate to a horizontal position on entering, and resume its vertical position when driven in to hold the cars, and, by a deviation of the cars to one side, caused to rotate again to a horizontal position, so as to uncouple by said deviation and the leverage between the hook and heads, the buffer-mouth not allowing the hook to pass either way, except when horizontal.

No. 13,869.—Joseph T. England.—*Improvement in Railroad-Car Coupling.*—Patented December 4, 1855. (Plates, p. 167.)

B is the coupling-link which, when introduced into the buffer-head, (see position of B, represented by dotted lines,) will push the ball C away (see position of C, represented by dotted lines) so as to let pin D fall. (See dotted lines.)

Claim.—The described coupling, consisting of a ball so arranged in the buffer-head as to support, at its lowest position, the pin, and to be pushed away and allow the pin to fall on the introduction of the link, as set forth.

No. 12,644.—Alpheus D. Smith.—*Improvement in Railroad-Car Seats.*—Patented April 3, 1855. (Plates, p. 167.)

The engravings fully explain the nature of this improvement.

Claim.—The combination of the arms *c c*, which project from the back of a car-seat, with the movable bars *d d*, which are combined with the car-seat and its arms *k k*, or their equivalents, in such a manner that by the aid of the shoulders *g g* on the standards *p p*, the back of the seat may be supported in the proper position for day-riding, or be elevated into the proper position for night-riding, and supported in that position substantially as set forth.

No. 13,079.—Jno. H. Cocke.—*Improvement in Railroad-Car Seats.*—Patented June 19, 1855. (Plates, p. 167.)

The inventor says: I do not claim a back capable of turning from one side of a seat to the other; nor a back capable of being placed in an erect or inclined position.

But I *claim* a back possessing all these properties constructed with a rigid arm, the guide-pins of which turn in a curved slot provided with a catch, while the back hinges upon the support for its lower edge, substantially as set forth.

In combination with a reclining reversible back, I claim a concave seat, so that persons occupying the seat will not be liable to slide off, as they would if the seat were flat or convex.

No. 13,464.—Ebenezer Jeffers.—*Improvement in Railroad-Car Seats.*—Patented August 21, 1855. (Plates, p. 167.)

D is the turning and G the stationary post referred to in the claim; A, the seat.

The operation will be understood from the claim and engravings.

I am aware that a chair-seat has been so combined with its legs or supporting-frame as to be capable of being rotated horizontally. I am also aware that it is not uncommon to apply a table or other article to a stand by such devices as will admit of its being moved in either a horizontal or vertical direction. I therefore do not claim such.

But I *claim* arranging the pedal H, the bolt F, and their locking-recesses *a* together, and in the sector B, and in the turning and stationary posts, as described, and so that, by one single movement of the pedal, the sector and the turning post may be latched or unlatched simultaneously, so as to enable the chair to be operated.

No. 13,471.—Albert M. Smith.—*Improvement in Railroad-Car Seats.*—Patented August 21, 1855. (Plates, p. 168.)

To adjust the back for a night's rest, a cord is attached to the catches, to be operated from the centre. The slots J are rounded off; the catches when in will bear on the edge hard enough to keep the back in place when being changed, but so that, by pushing back hard on the top edge of the low back, (figure 1,) they are thrown back far enough to allow them to pass out and reverse the back. This leaves the back free to adjust itself to the position a person sits in by their pressing against it to rest; but to make it more complete, cords are attached at *d*, and pass over pulleys *n*, and out through the outside of the cushion at E, so that, by taking hold of it to reverse the back, it at the same time pulls the catches *i* in and disconnects them from the supporters B, and allows them to pass with the back turning on the upper catches remaining, *k* connected over to the ends of supporters as at *m*, which they rest against and support, leaving the back reversed, the hollow side in towards the seat.

The inventor says: I do not claim the form or shape of the back or seat part of the car-seat, as they are in common use.

But I *claim* the constructing and arranging of the car-seat so that the whole back, of sufficient width and shape best adapted to support the body of a person for day-riding, if changed either side of the seat, to ride either way, can be reversed; the outside turned inside thereby, and at the same time raised high enough to support the head and body equally well for night-riding, by means of and in combination with the different devices, or their equivalents, necessary for the purposes as described and set forth.

No. 12,371.—Geo. P. Ketcham.—*Improvement in Mechanism for Retaining Cars upon the Track.*—Patented February 6, 1855. (Plates, p. 168.)

When any one pair of wheels (for instance, the one represented in dotted lines in the engraving) is raised, the arms C are at once thrown downwards and will come in contact with the rails and serve as guides, either ends of the arms being in contact with the rails, according to which pair of wheels is raised.

I *claim* the employment of use of arms C applied to the axles *c d* of the trucks A A', the arms of each truck being supported by the rod D; the above parts being constructed and arranged in the manner and for the purpose as herein shown and described.

No. 12,400.—J. N. Williams.—*Improvement in Head-Supporters for Railroad-Cars.*—Patented February 13, 1855. (Plates, p. 168.)

The bar *a* having been turned down into a horizontal position, the head-supporters *c c* can be turned round, (they being hinged in *r* to bar *a*, and being sustained by means of the bar *a* resting against either end of slots *j*,) so as to support the heads of persons riding either on seats *d* or on seats *e*.

Claim.—The arrangement of head-supporters in railroad-cars in such a manner that each pair of supporters, by reversing their positions, can be adapted equally well to either one of the two seats nearest the said supporters, when the said seat has the rear side of its back turned towards the supporters, substantially as set forth.

Also, the combination of the head supporters *c c*, the plate *b*, the bar *a*, and the cord *f*, or their equivalents, in such a manner that the supporters can be placed in the proper position for supporting the heads of persons riding on either one of the two seats nearest to said supporters, or turned up and secured to the side of a car, substantially as set forth.

No. 12,684.—Robert F. R. Lewis.—*Spiral-Wheel for Replacing Railroad-Cars upon the Track.*—Patented April 10, 1855. (Plates, p. 168.)

Cylinders *d d d* are attached to the common wheels *c c*, their diameters gradually decreasing, so as to give clearance in the centre and on the outsides of the track. The cylinders are provided with screw-thread flanges *b b* of such dimensions as not to jam the rails, and not to prevent a free action when coming in contact with the rails, in case of deflection of the wheels from the track. In such case the screw-thread is to bind against either rail, and to readjust the wheels to the track.

Claim.—The application of one or more cast or wrought iron hollow cylinders, wormed, flanged, or screw-threaded on their exterior surfaces, in the manner of a plain screw to rails, trucks, or carriages, in place of or in combination with the common or ordinary flange-wheel, as herein described; and thereby prevent the same from running off or being thrown from the track whilst in forward motion.

No. 12,772.—William Apperly.—*Ticket Register for Railroad-Cars.*—Patented May 1, 1855. (Plates, p. 168.)

When a ticket is wanted, the slide *c d* is drawn out. The projection *d* of the slide pushes the ticket out underneath the small box E, and presents it as shown at B', fig. 3. The inclined way E' passing up through a slot in the side, in combination with box E, prevents a person from inserting any instrument and drawing out a ticket; it serves also to uplift the front end of the ticket. Before the ticket is out, the projection K' has turned the wheel H one tooth, and also the registering wheel M, through intermediate gearing I J K L. The index on the circumference of wheel M is visible through an opening in the front part of the ticket-box A. Spring D and follower press down the tickets B.

Claim.—1st. The within described improvement for distributing and registering railroad and other tickets, consisting in the combination and arrangement of the slide *c d*, spring D, and registering device H I J K L M, or its equivalent, substantially as set forth.

2d. Providing the extension E and inclined way E', substantially as and for the purposes set forth.

No. 13,080.—S. Park Coon.—*Improvement in Apparatus for Replacing Railroad Cars upon the Track.*—Patented June 19, 1855. (Plates, p. 169.)

When the locomotive or car has got off the track, one of the rails is pried up from the track and inverted, and the stocks B B fitted upon it. This detached rail A is then placed across the track-rails *h*, the rail A also projecting underneath the car; the car is then elevated by the ordinary jacks, and the boxes L are placed underneath it, the rollers K of the boxes being upon rail A. Rope M is then attached to the outermost box L and passed under pulley D and through holes *i* in the stocks, and then (by turning crank J) the rope is wound around the drum, on axis F, thereby drawing the boxes L and the car over the

rails *h*. When the car is directly over these rails, it is let down upon them.

Claim.—The construction of a windlass, pulley, chain, or rope, and foot-stocks, in such manner as to adapt and attach them to a section or length of railroad rail, substantially as set forth, to form an apparatus that can be used for replacing railroad cars upon the track, and when this duty is done, the parts of which can easily be separated for more convenient transportation, and packed in the tool-box of the tender or other appropriate receptacle.

No. 13,364.—Elam C. Salisbury.—*Improvement in Excluding Dust from Railway Cars.*—Patented July 31, 1855. (Plates, p. 169.)

The space below the car-bodies *a* is enclosed by sheet metal, plank, or canvas sides *b*, stretched and secured to proper frames attached to the cars. Between each two cars the sides *b* are connected by aprons *d*, and opposite the trucks the sides are cut out and the opening covered by a hinged flap *c*.

The inventor says: I do not wish to limit myself to any special mode of enclosing the sides of cars or connecting the sides at the junction of the several cars of a train, nor of enclosing the space between the platforms at the junction of the several cars, as these separately make no part of my invention, and they may be variously modified within the range of my invention.

But I *claim* the method, substantially as specified, of preventing the dust which is agitated and thrown upon the track by the passage of a train from rising up and entering the doors, windows, and other apertures of cars, by enclosing the sides of the train from the bottom of the cars to within a short distance of the track, and closing up the spaces between the platforms of the several cars, substantially as and for the purpose specified.

No. 13,417.—Fortune L. Bailey.—*Improvement in Apparatus for Replacing Cars.*—Patented August 14, 1855. (Plates, p. 169.)

The flange is small, if any, at the short side of the wheel, and gradually increases towards the upper or long side, and extends near or quite across the edge of the wheel at the long side, forming a sloped or scroll-flange, as at the line at C. This wheel is so constructed that the short side is much the heaviest, and when applied to an axle will balance with the short side down, and will remain in that position in readiness for action at any moment; the sloped or scroll-flange should be sufficiently sloping, as at C, so that were the car standing still, the weight of the car on the sloped flange would slide the car sideways a sufficient distance to place the car on the track.

The inventor says: I do not claim the use of cams for lifting the cars merely, for I am aware that has been done.

But I *claim* the arrangement of eccentric-wheels on either side of the rails, the outer ones being slightly smaller than the inner ones, so counterpoised that the smaller portion of said eccentrics shall remain downward when not in use for the purpose of lifting and directing the cars on to the track when they have been thrown off, by rolling upon said eccentric-wheels, substantially as described.

No. 13,528.—Richard Ray.—*Improved Mode of Operating and Dumping Earth-Cars.*—Patented September 4, 1855. (Plates, p. 169.)

The horse walks in one direction until one of the two cars, 1 and 2, is filled with earth drawn to and unloaded on the end of one track, while an empty car on the adjacent track is returned to the opposite end thereof. When the car has been unloaded, the horse returns, thereby returning the unloaded car and drawing up the other car, which has been loaded during the unloading of the first car. The post *o* is so situated between the two tracks that it shall clear the wheels of the cars, but shall trip the lever *m*, closing the bottom *a a* of the cars when said lever strikes the post. As the empty car returns, the two flaps *a*, of which the bottom is composed, strike against the projections 5 on the track, and the bottom is raised until the bolts *f* enter the spring-hasps *g*, when the bottom will be secured and the car will return ready for loading. Figure 2 represents a plan of the car-bottom on an enlarged scale.

I *claim* the method of operating alternate trucks upon a double railway track by the several devices as described.

I also claim the automatic delivery of the loaded cars, constructed as described by several devices thereon, in combination with a post *o* situated between the tracks.

I claim the device for closing the bottoms *a a* of the cars, as described.

No. 13,529.—Richard Ray.—*Improvement in Operating Dumping-Cars.*—Patented September 4, 1855. (Plates, p. 169.)

A portion of the double track *aa aa* is inclined at the delivery end to cause the return of the unloaded cars by their gravity. The arm *e* of the car (in coming up) is received between the guide bars *k* and *m*. As the car moves upward and the arm is drawn up, the inclination of bar *k* causes the body (which is properly hinged on its trucks) to rise, the bar *m* preventing it from being thrown over too high so as to tilt the body. The guide-bars *k m* are secured to the track by means of framing *f g h i*.

I *claim* the use of the guide-bars *k* and *m*, when in combination with car *d*, constructed with the arm *e*.

No. 13,676.—James M. Cook.—*Dust-Deflector for Windows of Railroad Cars.*—Patented October 16, 1855. (Plates, p. 169.)

The deflector A is fastened to an annulus B by a rod E passing diametrically through both, which rod serves as a handle to turn the

deflector at option. The ring C, provided with projections D for holding and guiding the deflector, is to be fastened above or aside of the car window, an opening leading through the side of and into the car corresponding to the size of the ring C. The deflector can always be turned so that the current of air, wherever it may come from, impinges against its outer surface and creates a current through the opening. While the deflector serves to generate the ventilating current leading outwards from the car, it also serves to exclude dust, &c., from entrance into the opening.

The inventor says: I do not claim the application of a curved deflector on the outside of the window opening of a railway carriage, nor making the same to extend under the window and up one side thereof.

But I *claim* the rotary deflector or ventilator, constructed and made to operate substantially in the manner and for the purpose specified.

No. 13,705.—Chas. Mahon.—*Improvement in Safety Attachment in front of Railroad-Cars.*—Patented October 23, 1855. (Plates, p. 169.)

The object of this improvement is to prevent persons or things from being run over by the wheels of city railroad-cars. A bar *a* is placed in front of each wheel and in the plane of its flange, the lower bent part of the rod fitting freely in the groove through which the flange passes. To the front end of said part of the rod are attached the horizontal and vertical wheels C C, which serve to guide the rod through the groove.

The inventor says: I am aware that rollers have been suggested or described as forming a part of a safety attachment to railroad-carriages in combination with a device which may, perhaps, be considered by the office as an equivalent of the bar, and in manner somewhat similar to my method.

But I *claim* the peculiar and novel combination and arrangement of the vertical and horizontal rollers with the bar, as described and represented.

No. 13,779.—V. P. Corbett.—*Improved Devices for partially Excluding dust from Railroad Cars.*—Patented November 13, 1855. (Plates, p. 169.)

A is the roof of a car. If the car travels in the direction of arrow *i*, a large quantity of air, dust, &c., is caught by the flaring mouth *b*, and caused to pass into the chamber through valve E, which opens to the pressure of the air. The air, dust, &c., coming in contact with the flaring portion C¹ of pipe C, are deflected downward by the same, as indicated by the arrows, and follow the current of air around pipe C, and escape through the small passage *f* under E¹, while the greater portion of the air remains in the chamber on account of the escape being so small, and is, by reason of the inlet or supply being so large, compressed and caused to change its course, and rush down through wire-guaze *a* into the car.

Claim.—1st. The employment of the valves EE¹ on the ends of the chambers D when said valves are so constructed as to leave small exhaust passages *f f*, when closed, between the bottom of the valves and the car, and so arranged that one of them, E for instance, shall be open, while the other E¹ is closed, as the car travels in one direction, and *vice versa* if travelling in an opposite direction, substantially as and for the purposes set forth..

2d. Having the mouth C¹ of the pipe C elevated above the highest point of the escape passages *f f*, in combination with the construction, arrangement, and operation of the valves E E¹ and chamber D, substantially as and for the purpose set forth.

No 12,154.—S. B. Batchelor.—*Improvement in Journal-boxes for Carriages.*—Patented January 2, 1855. (Plates, p. 169.)

This improvement consists in constructing a pipe-journal carriage-box, with a united stationary chamber or recess near the inner end of said box, embracing a single flanged shoulder band, permitting the box to rotate on the axle while the shoulder-band is made fast to the axle, so constructed as to prevent the axle from breaking when connected with the journal-box, with a plate of iron placed across the outer end of journal pipe A, with each end projecting being made fast thereto with a tightening screw, for the purpose of securing the journal-pipe in the hub of the wheel. The flanged shoulder-band being placed in the recess in ledge C, this is expanded by heat sufficient to receive the ring R; after cooling the pipe the bead of ring R will be embraced by the corresponding recess *r* cut in the ledge, thereby connecting the pipes A and B firmly together, and allowing the shoulder band to rotate inside of pipe A.

Claim.—The mode of constructing the stationary inseparably united recess in pipe A, in combination with the single adjustable axle shoulder-band D and sand-band C, with the cap E and screw F, as herein described, or in any other manner substantially the same, by which I am enabled to use any axle of the common manufacture, as herein set forth.

No. 12,218.—Samuel T. Sanford.—*Improved Carriage Cramp.*—Patented January 9, 1855. (Plates, p. 169.)

The engraving plainly illustrates the nature of this improvement.

Claim.—Constructing the cramps D with anti-friction rollers *b*, said rollers being provided with flanches C, and having such a position that the peripheries of the tires and sides of the felloes of the front wheel will, when the front wheels are cramped, bear against the rollers in the manner as herein shown and described.

No. 12,272.—George R. Comstock.—*Improvement in Carriages.*—Patented January 23, 1855. (Plates, p. 170.)

This arrangement of an elliptic spring is to relieve the jerking motion of the pole as the horses sway side-ways, and the combination of fills with a pole is to ensure the throwing down of the horse whenever the carriage is upset, so that the horses cannot run away.

Claim.—The employment of fills F in combination with a pole P, which pole has attached to it an elliptic spring *d*, capable of a motion around the pole, to which spring as well as to the fills the draught animals are to be attached by the harness, substantially as set forth; also, the arrangement of the fills by which the space between them can be enlarged or contracted to adapt it to one or two horses as may be required; the same to be effected by a right-angled elbow *b* on the rear end of each fill, having several bolt-holes through which it can be bolted to the frame-work of the carriage, the fill turning as on a pivot in a loop *a* attached to the outward extremity of the said frame-work, substantially as set forth; also, the combination of the united fills, pole, and elliptic spring with a carriage, for the purpose and in the manner substantially as set forth.

No. 12,273.—George R. Comstock.—*Improvement in Carriage-Seats.*—Patented January 23, 1855. (Plates, p. 170.)

The seat slides upon rods C C, and can be moved either forward or backward by means of rack-gear G *r* and lever L; thus the seat and load can always be brought directly over the axle of the wheels wherever the ground is rising, level, or descending.

Claim.—The method of adjusting the load, carried in two-wheeled vehicles, so as to keep the pressure upon the animal drawing the same equal, or nearly so, whether the carriage be moving upon level or uneven ground, by shifting the seat or upper body backward or forward, using an axis with toothed quadrants operating upon toothed racks attached underneath said seat or body, (or by the use of any mechanical equivalent,) said axis being manœuvred by a lever which passes up through the arm of the seat or upper body, substantially as set forth; the said mechanical apparatus being in combination with the carriage-body and seat.

No. 13,230.—John Skelley.—*Improvement in Carriage Wheels.*—Patented January 30, 1855. (Plates, p. 170.)

The object of this invention is to use light or small hubs, and still to obtain a stronger wheel than the ordinary ones now made.

Claim.—Constructing the wheel, as shown and described, viz: having a concentric ring or band D constructed of wood, as shown, and secured by metallic bands E E on its sides; said ring or band being at any proper point between the hub A and rim B of the wheel, and having the half spokes F secured between the rim and ring or band, the whole spokes passing through said ring or band, for the purpose as shown and described.

No. 12,430.—John T. Ogden, assignor to John T. Ogden and Thos. Goddard.—*Improvement in Carriage Windows.*—Patented February 20, 1855. (Plates, p. 170.)

Figures 1 and 2 represent inside views of the carriage. The window is held in any desired position by the catch *e*, (catching into one of the notches *l* on the under edge of the window frame B,) which is pivoted at *f*, and is forced up by the spring *g*; this catch, when the window is closed, passes up behind the sash and locks the latter (see figure 1) until the catch is released by depressing knob *h*, when the window is drawn back by the force of spring F (see position of C represented in dotted lines in figure 1). When and as long as the catch *e* is in any one of the notches *l*, or is in contact with the under edge of the sash B, the bolt *m* is projected into standard K, (see figure 2,) and the door is securely bolted. When the sash is in one of the two positions represented in figure 1 (closed or entirely open) the catch *e* rises sufficiently to release the bolt *m* and allow the door to be opened.

Claim.—The method, substantially as described, of withdrawing the sash through the rear stile of the door, and retaining the door bolted while the window is partially open, in the manner and for the purpose set forth.

No. 12,751.—William G. Foglesong, assignor to Wm. G. Foglesong and Benjamin D. Anderson.—*Improvement in Folding-tops for Carriages.*—Patented April 17, 1855. (Plates, p. 170.)

The catch-pin *d* of trigger *a*, engaging within a suitable socket in the stem *c*, holds the principal bow *b* and those (*g h*) behind it to their opened or spread position. Spring *j* causes the catch to engage automatically the instant the bow is brought forward. By pressing back the trigger and spring, the catch disengages and the bow collapses.

Claim.—The application of a catch *a*, as described, or its equivalent, in front of the hinge which unites the principal bow or slat iron to the stem, for the convenient stretching, &c., of a carriage or buggy-top, as explained.

No. 12,869.—A. H. Niles.—*Improvement in Joint-bodied Carriages.*—Patented May 15, 1855. (Plates, p. 170.)

The improvement consists in constructing a second joint C in the carriage-body in addition to the joint between A and B, which is the subject of J. C. Spencer's letters patent. The half elliptic spring D is fitted to the bottom of the carriage-body, and under the said joint C, for the purpose of adding to the ease of the carriage and of obviating the danger of its being broken by jolts, &c. The joint being in that part of the body which is most liable to break.

Claim.—The application to joint-bodied buggy-wagons and light carriages of the above described additional joint and spring, or any other substantially the same, or which will produce the intended effect.

No. 12,979.—E. D. Williams.—*Improvement in Vehicles.*—Patented May 29, 1855. (Plates, p. 171.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—The combination of the plate-springs D F and the spiral springs E G, connected or attached to the floor *c* of the body of the vehicle and the perch B, as shown, and using, in connexion with the said springs, the straps H J for the purpose of preventing sudden longitudinal and lateral vibrations, as shown and described.

No. 13,171.—Edward Hayes and Morgan Hayes.—*Improved Apparatus for Setting Bows for Carriage-tops.*—Patented July 3, 1855. (Plates, p. 171.)

The bows A are set in the following manner: They are first centered, and the centre marks placed on the points *m* of the curved strip *g*, the bows resting transversely upon the three strips *f f g*. The bows are placed the proper distance apart and secured down upon the strips by the clamps *n*. The two end bows are secured upon the pieces *h*, as shown in figure 1; and as these pieces are adjustable by means of slots and screws *i j*, it will be seen that the upper part of the carriage-top may be made longer or shorter as desired, because the top of the framing may be increased or diminished in length. The plates *p* are then adjusted so that the pivots or arms *t* will occupy the same position on the end pieces *a* that the arms do on the sides of the seat of the carriage. The joints B are then placed upon the arms *t* and secured thereon by thumb-nuts *u*, and the lower ends of the bows are then fitted to the joints. The bows are then properly set, and may be secured by a strip a^1. Figure 2 represents only one-half of a cross section, of which *x x* is the centre line.

Claim.—Setting or adjusting the bows A for carriage-tops, by means of a framing constructed substantially as herein shown, and provided with clamps *n*, adjustable pieces *h*, and adjustable arms or pivots *t*, as described.

No. 13,311.—Moses G. Hubbard.—*Improvement in Carriages.*—Patented July 24, 1855. (Plates, p. 171.)

The object of this improvement is to furnish a connexion between the forward axle *d* and other running gear of a carriage, that shall enable the carriage to turn short, while at the same time the draft is steadier than in the usual constructions, and the carriage can be backed without turning out of position. The two springs *a* (attached to the body behind and to the bolster in front) have the curved slotted piece *b* affixed to their front ends, through which the king-bolt passes. The springs are also jointed to the forward axle by means of bars *c*.

Claim.—The cross-bar for attaching the forward axle to the other parts of the running-gear, and bar for the king-bolt, combined and arranged substantially in the manner and for the purpose set forth.

No. 13,428.—B. W. Gay.—*Improved Extension Vehicle.*—Patented August 14, 1855. (Plates, p. 171.)

A front-rocker fastened to reaches B, the latter connected by a cross-piece C, through which the screws D work. The screw-rods have their bearings in the back bed-piece F. The front part of the body slides within and upon the back part. The back seat is made large enough to receive or encase the front one; so that when the screws are turned, the vehicle will be drawn together so as to present the appearance of a single-seated conveyance.

Claim.—1st. The screw-perch, constructed and operated in the manner and for the purposes set forth.

2d. The application, in combination with said screw-perch, of the rods, as described.

No. 13,487.—John L. Cisco.—*Improvement in Carriages.*—Patented August 28, 1855. (Plates, p. 171.)

The half-circle plate G is fastened to the front axle in M and F and also to the lower side of the bar D E at G^1; the bar D E has a slot at its rear end, through which a bolt passes upward from the perch C. The half-circle plate L is fastened to the front axle. To the fore end of bar D E, at D, the head-block is fastened, on which rest the elliptic springs S T, which latter, together with the rear springs S^1, support the body-frame *b b*. The dotted lines represent the position of parts when the carriage is turning, the above described parts being so arranged as to prevent the wheels from coming into contact with the body. The half-circle G serves as a brace to firmly connect the fulcrum G^1 of the bar D E with the front axle; the half-circle L serves as a guide-rest for motions of the fore end of bar D E.

Claim.—The application of the apparatus described, in turning carriages short, consisting of the half-circle bars or plates and sliding-bar attached to the running gear, as described, in connexion with the fifth wheels, by which, in turning short, the body is carried out of the way of the wheels, in manner substantially as described, or any other apparatus substantially the same, producing the same effect.

No. 13,604.—Alonzo Webster.—*Improved Hold-back for Carriages.*—Patented September 25, 1855. (Plates, p. 171.)

This hold-back is attached to the shaft A B of a carriage, A being the forward portion of the shaft. When the hold-back is hitched, the dovetail slide E, with the hold-back strap F attached to it, is shoved into the groove, and is there held from working forward by spring G; but when the horse is unhitched from the whiffle-tree, the spring will give under the forward pressure and let the horse free from the carriage.

Claim.—The dovetail groove D, the dovetail slide E, and the spring G; the whole being applied and made to operate substantially in the manner and for the purpose specified.

No. 13,699.—Edwin Wilson.—*Improved Extension Reach for Carriages.*—Patented October 16, 1855. (Plates, p. 171.)

B represents the back axle. The nature of the improvement will be understood from the claim and engravings.

Claim.—Connecting the reach C to the centre piece F of the hounds G by means of the cogged bars H D, slide E, and clasp I, constructed and arranged substantially as shown and described.

No. 13,797.—Ansel W. Porter.—*Improvement in mode of hanging Cariage Bodies.* Patented November 13, 1855. (Plates, p. 172.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—The free roller connexion between the carriage body and the longitudinal levers, as described, for permitting all shocks to be conveyed through the said levers to the springs without direct action on the body, as set forth.

No. 13,821.—Lyman Jacobs and C. E. Landon.—*Improved method of attaching Tops to Seats of Carriages.*—Patented November 20, 1855. (Plates, p. 172.)

The nature of this improvement consists in removing tops of carriages from their seats, without removing the rails, by means of grooves in the frames of the tops, together with the mode of fastening said tops to their seats. When the top is placed upon the seat, the back rail A enters the corresponding groove C C of top, and is therefore concealed. The back rail is fastened at the corners of the seat, supported by the standards B B, which, extending down the inside of the back to the bottom of the seat, turn sufficiently to admit of one or more screws, and they are secured by means of bevelled nut D. H H are irons near the front ends of the sides of the top, which may be fastened on the inside and at the bottom across which they run, then extending downwards at I I, each having a hole through which the bolts E screw into the beveled nuts D. The bolts F screw from the outside of the back through the standards into nuts G, which are fastened on the inside of back under the trimming.

Claim.—The described method of concealing the back rails of seats to carriages by means of grooves in the back of the tops. And further, in combination with the grooves, the mode of fastening tops to seats of carriages by means of beveled nuts and bolts, as represented at E E and D D, fig. 1, and F F and G G, fig. 2.

No. 12,504.—Ze. Butt.—*Improvement in Self-loading Carts.*—Patented March 13, 1855. (Plates, p. 172.)

To load this cart the notch *r* is released from its connexion with the shaft of the windlass K, and the body D of the cart drops to the ground in the position shown in figure 2. Now, as the cart moves forward

the front of the body enters the loosened earth, and, being arrested by the back of the cart, packs up the cart. To elevate the load the back of the cart is tilted downwards, which elevates the point and loosens it from the ground; the windlass K is then turned, and the body is elevated to its former position. To unload the cart it is tilted backwards the same as a common cart.

Claim.—The manner described, or any other essentially the same, of constructing, arranging, combining, and operating cart-bodies, so that they can be dropped to or upon the ground to receive the load, be loaded as the cart moves forward, and then elevated and dumped or unloaded, the same as an ordinary cart, substantially as and for the purpose described.

No. 12,562.—Jno. A. Sprague and Bernard O'Connor.—*Improved Self-loading Cart.*—Patented March 21, 1855. (Plates, p. 172.)

The scoop is of sufficient size to hold one cart-load, and is divided transversely; and the two parts are joined together by hinges, for the purpose of dropping the load through the bottom by its own weight when the hinges are opened. Chains for an extra team to assist in loading are attached to angles J, from which chains run back to the scoop, by which means the draught upon the scoop is brought near to a horizontal line.

The inventors say: We do not claim the combination of a large scoop or scraper, undivided, with the ordinary cart, by suspension, in such a manner that the scoop or scraper may be raised or lowered by a windlass or lever, for this has been done before; neither do we claim dividing the scoop transversely near the middle, as such a device has been known and applied in dredging-machines.

We *claim*, first, the combination of a large divided scoop, constructed as described, with an ordinary cart, in the manner and for the purpose substantially as specified and set forth.

2d. The angle-irons J, on the under side of the cart-shafts near the forward ends, for the purpose specified and described.

No. 12,804.—Jonathan Wilkinson.—*Improvement in Self-loading and Unloading Carts.*—Patented May 1, 1855. (Plates, p. 172.)

The levers H I J K being locked down in their detents, the scoops L, boxes and adjustable frame E, all elevated, and the dumping-gates *c* closed, and the front scoop L having arrived at the place where loading is to commence, the operator detaches lever H from its detent, so as to lower the rear end of the frame E, and then detaches lever I, and lets down the scoop L. After it has taken up its load, the lever is again pressed down and locked, which raises the front of the scoop considerably above the bottom of the box, so as to prevent the contents from falling out. The vehicle still advancing, the operator at the proper moment detaches lever J, letting down second scoop L to take up its load where the first one finished. Then it is raised and locked like the first scoop, and so on until all the scoops are loaded. The rear

end of the frame E is then elevated by depressing lever H, and the vehicle is ready to be removed. When the loads are to be deposited, the lever P is moved back, thereby moving back the spring-detents *f*, and releasing the arms *e* which project from the windlasses *d*, from which windlasses are suspended the dumping-gates *c*. Thus the gates will be dropped simultaneously, and the contents passing out will be spread nearly uniformly by the forward motion of the vehicle.

Claim.—In self-loading and unloading carts, the combination and arrangement in one vehicle of a series of two, three, or more comparatively small scoop-shovels or scrapers and their respective carrying-boxes, so that each of the series can be loaded in succession, independently of the others, while the vehicle is in motion; thus, owing to the shortness from front to rear of the scoops to be forced into the substance with which the cart is to be loaded, and the smallness of the quantity to be taken up by each, avoiding the necessity of employing a powerful team, or of hitching on an extra team while the vehicle is being loaded, as is usually the case in taking up a sufficient load for an ordinary team in a cart having but one large scoop; and so that when the vehicle is removed to the place where the load is to be deposited, all the boxes of the series can be dumped or unloaded simultaneously without stopping the team, and leave the contents spread out in a layer of uniform or nearly uniform depth; the whole being constructed and operated in the manner and for the purposes set forth in the foregoing specification, or in any other manner substantially equivalent thereto.

I also claim the manner of operating the scoops and boxes, by means of levers connected to them by two rods *a b*, or their equivalents, to each lever; the one *b* attached to the box, being connected with the lever nearer its fulcrum than the one *a* attached to the scoop, so that operating the lever will move the scoop through a greater space than it does the box; thus enabling the scoop to be depressed a sufficient distance to take up its portion of the load, and then elevated so as to constitute the front of the carrying-box, while, at the same time, the box is elevated by the rod attached to the lever nearest its fulcrum a sufficient distance to be clear of the surface over which the vehicle is to be conveyed, substantially as herein described and set forth.

Also the manner of attaching the scoop-boxes to the adjustable frame E, and the adjustable frame to the fixed frame A, by means of sliding-bars or rods F, or their mechanical equivalents, so constructed and arranged that the scoops and boxes are capable of a vertical but not of a horizontal motion, except as the whole vehicle is moved; thus enabling the scoops while being loaded to be held firmly at any desired depth against the substance to be taken up by them, substantially as herein specified.

No. 12,455.—NIRAM HAWLEY.—*Mandrel for Holding Carriage-Hubs. etc.*—Patented February 27, 1855.—(Plates, p. 172.)

Two cones (winged as seen in the engraving or plan) are adjusted to a shaft, one of them immovable, having a circular face C to render perfect the movement of the set, when the spokes are being driven into the hub; and the other cone is to slide upon the shaft, retaining it in the centre of the box when repairing the hub.

Claim.—The application of the cone-shaped cylinders, calculated for every size box or hub, and the face end of the cylinders to make the revolutions of the set invariable.

No. 12,871.—JOHN M. PERKINS.—*Improved Mode of Attaching Hubs to Axles.*—Patented May 15, 1855. (Plates, p. 173.)

To attach the hub to the axle, the cap F is placed against the back end of the hub A, the lips *d* being between the projections *b*. The cap is then turned from left to right, and the lips pass over the outer edges of the projections, and the pin H (which is attached to a spiral spring *c*) passes into hole *e*. When the hub is to be detached, the pin is forced back in the position shown in figure 1, and the cap turned back.

Claim.—Attaching hubs to axles by having segment projections *b* attached to the back end of the hub and lips *d* on the inner surface of cap F, which is placed loosely on the arm of the axle; said lips being fitted over the projections by turning the cap, and prevented from moving off of the projections upon the backward movement of the wheel by the pin H, as herein shown and described.

No. 12,946.—JOHN HENDERSON.—*Improvement in Hub and Axle Fastening.*—Patented May 29, 1855. (Plates, p. 173.)

C and D are the upper and lower part of the frustrum-box. The dividing line *a b* of the two parts has a portion *c* (of part C) removed. The cap E fits over the box, effectually excluding dust, &c. The space *c* permits the lower part of the frustrum-box to slide forward sufficiently to connect or disconnect with the axle without removing the other part from the cap.

Claim.—The peculiar form of the frustrum-box fastening, operating in the manner and for the purpose herein described.

No. 13,307.—CHAUNCEY H. GUARD, assignor to JOHN A. SCROGGS and CHAUNCEY H. GUARD.—*Machine for Boring and Mortising Hubs.*—Patented July 24, 1855. (Plates, p. 173.)

By depressing the handle of the left-hand lever *p*, (fig. 2,) both the levers *p* will be turned on their fulcra in the supports *q*, thereby bringing the screw-thread segments *o* into contact with the left-handed screw-threads g^1 on the bit-holder *m*, and withdrawing the segment *n* from the right-handed screw-threads h^1, and thus crossing the bits which are revolved by cog-gearing *k l*, to move inwards towards the hub A; after the preliminary holes are bored, the bits are withdrawn by elevating the handle of lever *p*, throwing *o* out of gear, and *n* into gear, with screw-threads h^1. The carriage B C is then moved endwise

(by screws *w* and *v*), until the hub is between the chisels *g h*. By depressing the lever E, which is affixed to the shaft of cog-wheel G, which latter meshes into the teeth of racks *a* and *c*, the chisels will be brought down upon the hub so as to form two mortises.

Claim.—The arrangement of the levers *p p*, and the segments *o o* and *n n*, with the right and left screws g^1 and h^1, on the periphery of the bit-holders *m m*, in such a manner that a proper position of the said levers and segments will cause the rotary motion of the said holders to move them longitudinally, either inwards or outwards, and which position may be instantly reversed at the pleasure of the person operating the machine, substantially as set forth.

Also, arranging the rack-bars *a c*, and the upper and lower chisels *g h*, in such a manner that the said chisels can be made to simultaneously strike upon opposite sides of the hub placed between them, substantially in the manner and for the purpose set forth.

I also *claim* arranging the rack-bars *a c*, supporting and guiding-bars H H, and the regulating-screw *e*, with each other, in such a manner that the chisels *g h* may be made to act in corresponding vertical or oblique directions in forming mortises, substantially in the manner and for the purpose set forth.

No. 13,919.—SHEPHERD W. REED.—*Improvement in Carriage-Hubs.*—Patented December 11, 1855. (Plates, p. 173.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I am aware that a loose disk-brace or flange has been used to support the spokes of a wheel, mounted on and supported between the two flanges of a hub, and having recesses to receive the forked tenon of a spoke, formed by a saw-cut, into which the disk is fitted; such a hub I do not claim, as that has been patented by J. B. Haydon.

But I *claim* the arrangement of the dodged mortises D, formed on both sides of the permanent projecting flange or brace C, by the triangularly shaped projections A, radiating from the tube B, for the reception of the spoke-tenon, whereby a double row of spokes may be inserted in the hub, and supported by the flange C, in combination with the nuts H, to tighten or lock the spokes, and by which a broken or worn out spoke may be removed, and a new one inserted in its place, without untiring the wheel, as described.

No. 13,962.—ELIPHALET S. SCRIPTURE.—*Improvement in Attaching Hubs to Axles.*—Patented December 18, 1855. (Plates, p. 173.)

The wearing-collar C will be kept perfectly lubricated at all times by the gasket G, and the gasket may be supplied with oil by opening the plate H. The hub may be detached from the axle by merely opening said plate H, the bolts J K not requiring to be drawn from the hub, as in the ordinary hub attachment.

Claim.—The plate H jointed or formed of two parts, and provided with flanches F, as shown, in combination with the shield-collar I and gasket G, arranged substantially as shown, and for the purpose specified.

No. 12,788.—THOMAS FIRTH.—*Improvement in Alloys for Journal-Boxes.*—Patented May 1, 1855.

This improvement is intended to produce a composition metal which shall not cut and melt in the journals of rolling-mills, boxes of car-axles, etc., and which shall be cheaper than the one in common use.

(No illustration.)

Claim.—A composition of matter of copper and zinc, in the proportions of seven and one half parts of copper to ninety-two and a half parts of zinc, or any other mixture substantially the same, and which will produce the intended effect.

No. 13,427.—JOSEPH GARRATT, Sr.—*Improvement in Alloys for Journal-Boxes.*—Patented August 14, 1855.

Claim.—The production of an alloy of a bluish-gray color, which, while it has unsurpassable anti-friction qualities, has also sufficient tenacity to allow of journal-boxes being formed of it that do not require the protection of outer casings of a harder metal; the said alloy being composed of zinc, copper, and antimony, in about the following proportions, viz: Seventeen parts zinc, one part copper, and one part and a half of antimony, or any other mixture substantially the same, and which will produce the same effect.

No. 13,465.—BENJAMIN F. LAWTON.—*Improvement in Journal-Box Alloys.*—Patented August 21, 1855.

The alloy is composed of wrought-iron, copper, tin, and arsenic in various proportions, according to the degree of hardness, toughness, etc., required—for instance: two parts oxyd of arsenic, three parts tin, five parts iron, (scraps,) fifteen parts copper.

Claim.—The aforesaid alloy or box-metal, as a new material for the purpose of forming boxes, journals, axles, and all other rubbing surfaces of the moving parts of machinery, as described.

No. 13,466.—BENJAMIN F. LAWTON.—*Improvement in Journal-Box Alloys.*—Patented August 21, 1855.

This alloy consists of cast-steel, (scraps,) nickel, copper, and tin, in various proportions—for instance: twenty parts cast-steel, eight parts nickel, twelve parts tin, and sixty parts copper.

Claim.—The aforesaid box-metal or alloy, as an improved material for the purposes of forming locomotive crank-boxes, piston-rings, journals, boxes, axles, and other rubbing surfaces of the moving parts of machinery.

No. 12,591.—Warner Groat.—*Improvement in Packing Journal-Boxes.*—Patented March 27, 1855. (Plates, p. 173.)

B is the journal, C its bearing; *a* the annular packing; D the adjustable tightener brought up against the packing, its flange or shoulder D¹ fitting closely around the lower edge of it; D is provided with two legs *d*, rounded at the lower end. E is the adjusting frame, the ends of which are rounded so as to correspond with the lower end of said legs. By turning the rachet-wheel in the direction of the arrow, the cam F forces the frame E forward, and drives up the tightener so as to tighten the packing around the axle. When sufficiently tightened, the braces G are slipped in and hold the tightener firmly on the packing.

Claim.—The combination and arrangement of the packings, ring, and apparatus for tightening the same within the box, substantially as described, so that the packing in the inner end of the box can be tightened at the end, and the box be kept oil-tight without being pierced with holes, as specified.

No. 13,454.—Edward Campbell.—*Improvement in Glass Journal-Box.*—Patented August 21, 1855. (Plates, p. 173.)

The back A of the cast-iron box is formed with a hollow recess for the reception of the glass lining *d*.

The inventor says: I do not claim the union of glass and iron, whilst the former is in a plastic state, and the latter at a red heat, by pressure to produce a welding of the two.

But I *claim*, as a new manufacture, a journal-box composed of an iron body and anti-friction lining surface of glass, when the said glass lining is combined with its iron back, as set forth.

No. 13,778.—Thomas Chope.—*Improvement in Attaching Shafts to Axles.*—Patented November 13, 1855. (Plates, p. 174.)

To the axle A there are attached metal pieces D D, the outer ends of which are forked and have small metal cylinders *c* fitted in them, the pivots *d* passing through the cylinders and forks. The shafts B are secured to the axle A by passing the curved ends of the plates C behind the cylinders *c*, the lips *a* fitting in the notches *e* of the cylinders. The lips are kept in the notches, when the shafts are in the usual position, by the concave ends of the pieces D.

The engravings exhibit only one end of the axle A with one shaft, the other end with the other shaft being exactly alike.

Claim.—Attaching the shafts B B to the front axle A by means of the curved-plates C C attached to the back ends of the shafts, and the cylinder *c* secured in the ends of the projections D, which are attached to the front axle, the cylinders *c* having notches *e* made in their peripheries to receive the lips *a* on the ends of the plates C, substantially as shown and described.

No. 13,804.—Alfred E. Smith.—*Improved mode of Securing Shafts to Axles.*—Patented November 13, 1855. (Plates, p. 174.)

c are the springs connecting the shafts *a* with the eye-staples *e e*.

The inventor says: I am aware that blocks of India-rubber have been interposed between the ends of carriage shafts or thills and the metal clips attached to the axle to make pressure against the ends of the shafts or thills, with a view to prevent wear, rattling, and accident; but as each block of India-rubber is hollowed out in the front face to fit the rounded end of the shaft or thill, it will seriously impede the up-and-down motion of the horse and the passage of the carriage over irregularities.

I do not, therefore, mean to be understood as making claim to the use of springs or elastic substances at the connexion of the shafts or thill with the axle, to prevent wear, rattling, noise, and accident.

I *claim* connecting the stems of the shafts or thills with the eye-staples by means of a spring or springs acting laterally against the faces of the eye-staples, substantially as and for the purpose specified.

No. 12,513.—Wm. H. Guiwits.—*Improvements in Sleighs.*—Patented March 14, 1855. (Plates, p. 174.)

The cross-bar O serves to stiffen the tongue B, and also to spread the connecting-irons Q, which latter pass through slots R in cross-bar O. This connexion between the tongue and the forward runners D¹ permits great freedom of movement in the latter without any wrenching of the same. The hind runners D are provided with rolling-bolsters M¹ M², between which and fixed bolsters M M the friction-rollers H intervene, the latter being held in their places by the springs H¹ which are fastened to the top of the hind axle-tree C. This arrangement admits of an independent movement of the hind runners without wrenching the sleigh, the axle-tree C being allowed to move slightly in correspondence with the movements of either of the runners D.

Claim.—The combination of the sliding bolsters M¹ M² and friction rollers H H with the axle-tree C and fixed bolsters M, in the manner and for the purposes set forth.

Also, the slots R in cross-bar O, which permit the movement of the forward runners without any wrenching.

No. 12,850.—David S. Barber, Almon Thompson, and De Algeroy Thompson.—*Improvement in Sleighs.*—Patented May 15, 1855. (Plates, p. 174.)

By means of bringing the hand lever into either of positions *n* or *h*, the sleigh will be caused to rest on the ground either with the runners or with the wheels, as apparent from the figure.

Claim.—The attachment of wheels to a sleigh to operate as aforesaid, in the manner herein substantially described.

No. 12,406.—Levi Bissell.—*Improvement in Metallic Springs.*—Patented February 20, 1855. (Plates, p. 175.)

The weight of the car presses upon the bracket M, and consequently upon strap C D (on which the bracket rests); and as the extremities of the rigid bar A B and of the strap C D are supported by the journals of the axles, the strap tends to recede from the rigid bar, which it can only by increasing its length to the extent of its tensile elasticity.

Claim.—The combination of the rigid bar and the thin metallic strap with their extremities rigidly attached together, in the manner and for the purpose substantially as described.

No. 12,475.—Harmon W. Ballard.—*Improved Arrangement of the Springs on Wagons.*—Patented March 6, 1855. (Plates, p. 175.)

This invention consists in such an arrangement of the springs (see engraving) that they may be affixed to any common box wagon without altering it in any way, and at trifling cost, to make it an easy riding wagon; whilst from the position of the springs they admit of the body coming down to its bearings on the rocker or bolster and axletree, (see dotted lines in fig. 1,) when under heavy burden, without injuring the springs.

The inventor says: I do not claim a spring wagon having solid bearings to take the weight of the load when it becomes too heavy for the spring to bear, as this has been accomplished before in other ways.

But I *claim* the arrangement of the springs, as described, on either or both sides of the rocker, bolster, or axle-tree of a wagon, cart, or other vehicle, as and for the purposes specified.

No. 12,764.—Thomas Murgatroyd, Jr.—*Improvement in Carriage Springs.*—Patented April 24, 1855; patented in Canada July 21, 1854. (Plates, p. 175.)

Figures 1 and 2 are front views, showing different positions of the springs; figure 3 is a longitudinal vertical section, and figure 4 an inverted plan.

Claim.—The employment or use of the springs A A^1 attached to the arms *a* of the axles B B by links *b d*, the links *b* being above and the links *d* below the arms of the axle, the two springs A A^1 being connected by stays or rods C; the springs being also braced to prevent a forward and backward motion of the same, and the axles B being supported or braced by the rod or brace D, as herein shown and described. (See illustration.)

No. 12,849.—John W. Adams.—*Improvement in Circular Metallic Plate Springs.*—Patented May 15, 1855. (Plates, p. 175.)

The spring-plates D give the required elasticity, and the concave plates C prevent the spring-plates from yielding beyond a certain distance, so that their elasticity cannot be impaired by over-pressure.

The inventor says: I am aware that conical steel plate springs, with radiating sections cut out, have been previously used for buffer-springs, and I therefore do not claim these; but I do *claim* the combination and arrangement of one or more flat circular steel plates D, held in place by a central pin B, and allowed to spring a limited space between solid convex and concave metallic plates B^1 and C, in the manner and for the purpose herein described.

No. 12,890.—M. G. Hubbard.—*Improvement in Springs for Carriages.*—Patented May 15, 1855. (Plates, p. 175.)

The purpose of this improvement is to dispense with the rocker or centre support on the bottom of the carriage body, which has heretofore been required as a fulcrum. The connexion of the springs *a b*, *a b* by the two clips and bolt *d* gives the required elasticity, and prevents the great strain upon the carriage bottom at the centre when used as a fulcrum for the springs.

Claim.—Forming the fulcrum of the springs as above described by connecting them by a clip and bolt at their crossing point, as herein specified.

No. 12,910.—M. G. Hubbard.—*Improvement in Carriage Springs.*—Patented May 22, 1855. (Plates, p. 175.)

a a are bars, to the ends of which are attached arms *b* and *d*, arms *b* inclining outward and arms *d* inclining inward. The arms *b* are jointed to the hind axle *c*, and the arms *d* to the bolster *e* over the front axle of the carriage. The body of the carriage rests on the rods *a*.

Claim.—The employment of a bar extending under the carriage, substantially as herein described, which by its torsion acts as a spring, in the manner and for the purpose set forth.

No. 13,248.—James F. Heyward, assignor to "The Delaware Air-Spring Manufacturing Company."—*Improvement in Pneumatic Springs.*—Patented July 10, 1855. (Plates, p. 175.)

The space between the dotted line and the India rubber diaphragm L (which latter is supported by a diaphragm G of leather or other flexible inextensible material) contains the fluid which moves upwards, compressing the air in the top of the air-chamber A whenever the flexible bottom is exposed to pressure.

Claim.—The method of rendering available the elasticity of aeriform bodies, in the construction of springs, bumpers, &c., by employing a fluid piston to effect their compression, substantially as described.

No. 13,552.—John J. Speed, Jr., and Jno. A. Bailey.—*Improvement in Conical Plate Railroad-Car Springs.*—Patented September 11, 1855. (Plates, p. 175.)

The nature of this invention will be understood from the claim and engravings.

We do not claim merely arranging springs, as such has before been done.

But we *claim*, in metal conical or dish-shaped disk car-springs, arranged in sets or pairs, one above the other, as described, preventing the splitting of the edges of the disks by expansion, and effecting free, unbroken compensation or lateral play, for the radial elongation of the fibres when the spring is exposed to sudden or heavy compression, and insuring equality of elasticity all around, by making the disks with radial corrugations, and arranging them for operation together, substantially as specified.

No. 13,905. — P. G. GARDINER. — *Improvement in Railroad-Car Springs.*—Patented December 11, 1855. (Plates, p. 175.)

When the spring-plate *a* is allowed to elevate the cap *c*, it assumes an oval shape; and when the cap is forced down so far as to be brought in contact with the base, the spring-plate is brought into a circular form.

Claim.—My improved car-spring, composed of a coiled plate-spring, combined with a segmental base *b* and a movable segmental cap *c*, substantially as set forth.

No. 13,775.—HIRAM ABBOTT.—*Improvement in Upsetting Tire, &c.*—Patented November 13, 1855. (Plates, p. 176.)

The jaws D D, when brought to a proper distance from each other, form a slot into which the heated portion of the bar to be upset is placed, and which slot is intended to guide the bar and prevent its bending while subjected to pressure in the direction of its length.

The jaws B are then forced out by turning down the eccentric levers C, which secures the bar firmly and prevents it from slipping in the jaws. The hand-lever G is moved forward, which, by means of cord *c*, moves also the outer end of lever F F towards the centre of the machine, causing the pair of jaws B B connected to said lever F F to approach the other jaws B on the other side of the machine; and the bar being firmly secured in each pair of the adjustable jaws B, and being controlled by the slot in the middle, the heated and flexible portion of the iron within the slot will be pressed together in the direction of its length and upset, and the length thereof reduced.

The inventor says: I do not claim to have discovered any new method of constructing levers or adjustable jaws, or eccentric or spiral springs or slots.

But I *claim* the arrangement of the parts of my machine, to wit: the bed-plate A, the adjustable jaws B B, (operated upon by the eccentric levers C C and spiral springs,) the eccentric levers C C, the elongated jaws D D, (which form the slot as described by being inserted or diminished in width through the agency of the eccentric lever E and the spiral spring,) the levers F and G, and the eccentric lever E, all as described.

No. 13,405.—WILLIAM J. TEMPLE.—*Improved Self-Adjusting Tongue-Iron.*—Patented August 7, 1855. (Plates, p. 176.)

By pressing down the back end of lever M it will raise the piece B close up, and when released the weight of B will cause it to fall. The ring S to be attached to the yoke is made just large enough to slide over B when it is drawn close up; so that to attach the yoke it is only necessary to guide the end of the tongue into the ring and back the animals until the ring S slides over B, when it falls, holding it secure.

The inventor says: It may be found best in some cases to leave off the nut on B, and connect the lever M directly to it, by making a hole or holes in its end or near it; and the form and arrangements of the other parts be varied by the circumstances of the particular cases.

Therefore I do not claim the particular form or arrangement, but I *claim* making the part B movable and self-adjusting, in connection with the lever, or any similar means, to raise it, in the manner and for the purposes set forth.

No. 12,251.—PARLEY HUTCHINS.—*Improved Hand-Truck.*—Patented January 16, 1855. (Plates, p. 176.)

The elevator consists of a strong frame composed of side-pieces C C and cross-pieces C^1 C^1, and having attached to its front the iron front-piece C^2. This frame rests on the top of the side-pieces A A, and is furnished with tongues on its sides to fit into grooves *a a* in the said side-pieces A A; so that it is confined to the main portion of the truck, but free to be slid up and down, either by hand or by means of windlass G.

Claim.—The elevator, constructed and combined with a hand-truck, substantially as described, whether operated by a windlass or any other device commonly employed for raising weights.

No. 12,358.—JOHN COCHRANE.—*Improvement in Locomotive Trucks.*—Patented February 6, 1855. (Plates, p. 176.)

Two small brace-cylinders F are placed one immediately beneath each of the two steam-cylinders G on each side of the locomotive. The piston-rods *a* of the cylinders F connect with the truck-frame B B by means of connecting-rods *c*. The piston of each of the cylinders F divides its cylinder into two parts, which parts are connected reversely with the front and back ends of the steam-cylinders G, which operate the truck driving-wheels, by means of the two pipes *m n*. From this disposition and combination of the steam-cylinder G and brace-chamber F, the steam will act in opposite directions on their respective pistons, and thus neutralize any vibratory tendency of the truck from the action of the truck-cylinders.

Claim.—The method of neutralizing or preventing the vibratory tendency of the trucks of locomotive engines, caused by the direct action of the forces which operate the truck driving-wheels, by means of the steam or hydraulic brace, substantially as described.

No. 13,323.—Joseph Thornton Russell.—*Improvement in Wagons.*—Patented July 24, 1855. (Plates, p. 176.)

B is part of the bolster; R R the standard receiver, made of iron; and S the standard. These standards can be taken out or changed if desired. When the standards are taken out, the upper part of the standard receivers will serve to keep the wagon-bed in place.

Claim.—The construction of the standard receiver described, and the application thereof to wagon-bolsters.

No. 13,503.—James Parsons.—*Improvement in Wagons.*—Patented August 28, 1855. (Plates, p. 176.)

The nature of this invention will be understood from the claims and engravings.

Claim.—1st. The arrangement of the side-pieces or ways A A, resting upon the elevating-blocks *n n*, near the outer end of the bolster C, thereby gaining a greater width between them than is attained in other wagons constructed for similar purposes, thus giving space for loading if raised on a plank or platform, to raise partly above and between them, if necessary to clear the ground in hauling; also, the manner of their connexion between the forward and hind wheels, by passing or sliding through the brace-bands *e e* of the mortises or slots *o o* of the arch.

2d. I claim, in the structure of cast arch, the open mortises or slots, and their uses, that when the arch F F and wrought axletree are combined as represented in figure 2, when supported by the hind wheels, the mortises or slots *o o* will be brought nearly or quite in a horizontal position, for the reception of the side-pieces or ways, as described, thus serving the purposes of coupling the wagon long or short, to suit circumstances.

3d. I also claim the peculiar adaptation of the oblong band *e e* of the braces H H, through which the side-pieces or ways slide, and the hind elevating-blocks pass; and the blocks being held in their proper position by the bands *e e* dropping into the notches *f f* of elevating-blocks D D, thus giving them the sliding-motion upon the side-pieces or ways; and the side-pieces or ways are permitted to slide freely through them and under the blocks; and from thence they form a connexion with the cast arch and wrought axletree, by a stirrup firmly binding them together.

4th. I also claim the manner of so arranging the hind elevating-blocks D D as to give them the sliding principle as described, and the ears *s s* on opposite sides; thus rendering them adjustable in coupling the wagon long or short, by means of the steady or toggle pins *i i i i*; and, again, by their holding in connexion with the braces the arch in a perpendicular position, by the upper part of the casting, or mortises or slots *o o*, being notched into the elevating-blocks as at *c c*, as described and shown.

No. 13,872.—Joseph Francis.—*Improvement in Military Wagons.*—Patented December 4, 1855. (Plates, p. 177.)

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I wish to be understood as not claiming the transportation of boats, or segments thereof, in cradles on roads or rail-roads, as that has before been done.

I *claim*, 1st. Constructing the bodies of road-wagons, and like vehicles, of corrugated plate-metal, supported by a bottom frame permanently attached thereto, so as to serve to support the iron body at all times, and be used as a sled upon which to drag the superstructure, when taken off its wheels, as set forth, and made water-tight for transportation, as specified.

I also claim the mode of attaching and detaching the running-gear, so as not to pass any bolts which are liable to wear and cause a leak through any part of a water-tight body, but simply to connect the same with the frame, as shown at figure 3, by the outside connexions and braces, so as to securely brace the iron body in proper form, and be permanently united therewith.

No. 12,317.—Washburn Race and Birdsill Holly.—*Improvement in Carriage-Wheels.*—Patented January 30, 1855. (Plates, p. 177.)

a are the mortises for the tenons of the spokes *b*; they terminate in an annular cavity *c* between the inner ends of the mortises and the box *d* of the hub. The tenons of the spokes are compressed in a proper press and immediately inserted into the mortises, where they soon expand so as to form a kind of head between the mortise and hub, so that the tenon will never become loose.

The inventors say: We do not claim a hollow cast-iron or metal hub; but we *claim* the compressed tenon in combination with the annular cavity, in the manner and for the purpose set forth.

No. 12,572.—George A. Prentiss.—*Improvement in the Arrangement of Wheels, Axles, and Friction-Rollers.*—Patented March 21, 1855. (Plates, p. 177.)

A is an ordinary wheel with a cylindrical recess B; C the friction-rollers arranged on rings D around the bearers E attached to the load-axle F: G the securing-axle passing through the load-axle. The securing-axle ties the two wheels together and preserves their parallelism, so that both wheels remain perpendicular to the load-axle, thereby preventing the evils arising from wabbling.

Claim.—The combination, substantially in the manner described, of the following elements, viz: a load-axle with a bearer secured thereto, a securing-axle concentric therewith or nearly so, and a ring or series of friction-rollers, the whole being applied to a pair of wheels, substantially in the manner and for the purposes specified.

No. 12,897.—D. W. Clark and S. H. Gray.—*Improvement in Carriage-Wheels.*—Patented May 22, 1855. (Plates, p. 177.)

The nature of this improvement is apparent from the figures.

Claim.—Constructing the wheel as herein shown and described, viz: having the felloes C constructed of malleable cast-iron in the form herein shown, and having the spokes B fitted in mortises in the hub A and in sockets *a* on the inner surfaces of the felloes. The spokes B having sockets *d* secured on them at about their centres, in which the inner ends of short oblique spokes *e* are fitted; the outer ends of said spokes *e* being fitted within oblique sockets *a* on the inner surfaces of the felloes, as herein shown and described.

No. 13,012.—Sylvanus Perkins.—*Improvement in Wagon-Wheels.*—Patented June 5, 1855. (Plates, p. 177.)

The nature of this improvement consists in making wagon-wheels by combining a male and female hub, each armed with spokes, the female hub being movable; the spokes in the female hub to arch or disk towards the point of the male hub, and the spokes of the male hub to arch towards its longer end; also, in arranging the rim with a rib, which serves as a stay for the arches formed by the two sets of spokes; also, in arranging a nut on the point of the male hub, to be used in bracing or to flatten the arches formed by the spokes, and also in arranging a nut on the point of the pipe-box for the purpose of fastening the box in the male hub.

The inventor says: I do not claim the male and female hub, or the rib on the inside of the tire; neither do I claim the hollow spoke, or the nut on the end of the male hub, as being new in themselves.

But I *claim* the combination and arrangement of the female hubs F and I, the spokes C, the rib B, the tire A, the box H, and the nuts E and D, operated as and for the purposes set forth.

No. 13,585.—Jno. M. Sigourney.—*Improvement in Cooling Cast-Iron Car-Wheels.*—Patented September 18, 1855. (Plates, p. 177.)

A sheet-iron ring F of the same width as the chilled portion of the wheel is placed concentrically round the wheel to retain in position the hot sand, which is then drawn from the surface of the casting into the annular space between the ring F and the tread of the wheel.

I *claim* the arrangement of the mould, chill, and ring F, operated in the manner set forth, for equalizing the cooling of the car-wheel.

No. 12,911.—Isaac Krebs.—*Improvement in Whiffle-trees.*—Patented May 22, 1855. (Plates, p. 178.)

Fig. 2 shows the whiffle-tree, and the position of the rods or bolts *b* and lever C, when the tracing or tugs are attached. The operation of the parts will be easily understood from the figures.

The inventor says: I do not wish to be understood as setting up any claim to the construction of the usual form of a whiffle-tree, nor of any of the devices used separate and apart from each other, being well aware that many devices forming a whiffle-tree for the disengaging of animals from vehicles have been made and used in many forms, with sliding belts, and spiral or helical springs, in combination with separate and distinct levers operated by connecting links or cords, but none of these devices or their combinations, as set forth, do I claim. But to distinguish my said improvements from such as are in general use, I herewith specifically set forth the particular new features of my improvements, and do *claim* the construction of a whiffle-tree with the *continuous* sliding bolts or trace-fastening rods *b b b b*, communicating *directly* with, and attached to, *one* single and the *same lever*, together with the staple *d*, *one single flexible* spring *e e*, clevis-clips *f f*, in *combination*, and through all of which are actuated and retained in position, *simultaneously* at one and the same time, the *continuous* sliding bolts *b b*, substantially in the manner shown in figures 1 and 2, and as described, for the purpose set forth.

No. 12,976.—Harvey Webster and Alonzo Webster.—*Improvement in Whiffle trees.*—Patented May 29, 1855. (Plates, p. 178.)

The engravings represent a section through, and views of two positions of the parts attached to each end of a whiffle-tree. A is one end of the whiffle-tree; B is a trace; and *g* is a line, by pulling which the latch *f* throws the clamp *b* out, and at the same time the projection *d* throws the trace off the pin *a*.

The inventors say: We do not claim combining with a whiffle-tree a means of suddenly disengaging the traces therefrom while a horse connected to it is running.

Nor do we claim combining with the whiffle-tree a means of disconnecting it from the carriage under like circumstances.

But we *claim* the arrangement and combination of the movable spring-clamp *b*, its cast-off *d*, its spring-latch *f*, and the stationary pin *a*, or holder, the whole being applied to each end of the whiffle-tree, and made to operate substantially in manner and for the purpose specified.

No. 13,297.—Archibald Bailey and Daniel L. Allard.—*Improved Whiffle-tree.*—Patented July 24, 1855. (Plates, p. 178.)

If it becomes desirable to detach the horses, the cord *e* is drawn, which will move the levers *c* and *b* around their fulcra 4 and 6, whereby the projections at the ends of levers *b* will be drawn out of their notches in the cam-hooks *a*, and the cam-hooks will be allowed to turn on their centre pivots, and the cockeyes to pass out of their catches.

The inventors say: We are aware that hooks or catches have been placed in the ends of the levers themselves, but such an arrangement we do not claim.

But we *claim*, in combination with the compound levers *b c*, arranged and operated as herein described, the pivoted cam-shaped catches or

hooks *a a*, for holding or instantly releasing the cockeyes of the traces; by which arrangement we secure the parts against imperfect action, and are enabled to imbed all the parts within the single-tree, as described.

No. 13,418.—Oramel C. Barnes and O. J. Barnes.—*Improvement in Whiffle-trees.*—Patented August 14, 1855. (Plates, p. 178.)

The nature of this invention consists in providing a whiffle-tree with a turning-hook and slide-catch, with an angle-shaped piece of iron to be driven into the end, forming a wedge to tighten the band, and also to form a groove for the catch to slide in of olid iron, and forming a bearing in which the hook may turn.

The inventors say: We do not claim the turning-hook, nor the sliding catch, but we *claim* the application of the angle-shaped iron forming the solid groove, together with the wedge and bearing for the hook.

No. 13,712.—George H. Yard.—*Improvement in Whiffle-trees.*—Patented October 23, 1855. (Plates, p. 178.)

The plate I can be slid back and forth on plate H, the two plates being dovetailed, and plate H being fastened to the end of the whiffle-tree C. When it is to be slid back so as to make room for unhitching the trace, the pin L has to be lifted; and when the plate I is run out so that its point enters the hook G, the pin L drops into the hole in plate H, so as to prevent the plate I from accidentally sliding back.

Claim.—The traversing slide I, provided with a point fitted to the hole in the hook G, in combination with a sliding pin L, to fasten it, when the end of the slide is put into the hook, to fasten the end of the trace on to the hook, substantially as described.

No. 13,744.—George C. Barney.—*Improvement in Whiffle-trees.*—Patented November 6, 1855. (Plates, p. 178.)

This whiffle-tree is made in two parts *a b*, hinged together at D, so that the two parts *a b* will be kept in a straight line by the forward draught of the horse. The hinged part of the whiffle-tree is placed between the upper and lower plates *c c* of a stirrup B, projecting from the back or cross-bar C of the thills.

Provided the breeching of the harness is applied to hold-backs, so made as to enable it to free itself therefrom by forward draught on it, the discharge of the horse from the thills furnished with this whiffle-tree will be achieved by pulling the hinge-pin D upwards and out of the holes of hinge D, and the two parts of the whiffle-tree will be set free from one another and the thills; this whiffle-tree, when discharged from the cross-bar, will not hang on or injure the hind legs of the horse, as it would were it made in one piece.

Claim.—Making the whiffle-tree in two parts, in the manner essentially as described, and connecting them together and to the cross-bar

of the shafts, by devices or means substantially as specified, whereby results as explained may be attained.

XI.—HYDRAULICS AND PNEUMATICS.

No. 12,165.—Philip W. Mackenzie.—*Machine for Blowing Blasts, etc.*—Patented January 2, 1855. (Plates, p. 179.)

The drum D is arranged on an axis C, so that it can be revolved thereon. The drum has three longitudinal slots F through its periphery, for the arms G of the blower, which is on an independent axis H, eccentric to the axis C of the drum and inside of it; so that as the drum is revolved, the arms of the blower are projected through said slots, beyond the periphery of the drum, at one side to fill the case B surrounding it, and at the front side are drawn within the periphery of the drum, to prevent any drawback or back-stroke of the blower upon the discharging blast. In order to pack the arms, which are constantly changing the angle of their bearings on the sides of the slot as the drum rotates, the said arms are passed through slotted cylindrical pieces M, which are supported in boxes N, on the inner side of the periphery of the drum.

Claim.—The use of the drum and blower having centres eccentric to each other, the said blower being internal of the drum and propelled by it, substantially in mode of construction and for the purposes hereinbefore set forth.

Also, as a part of this invention, the cylindrical adjustable packing for the arms of the blower, in combination with the drum and blower-arms, substantially in mode of construction and operation and for the purposes hereinbefore set forth.

No. 13,743.—Thomas W. Bakewell.—*Method of Heating Air for Blast-Furnaces.*—Patented November 6, 1855. (Plates, p. 179.)

The air (previous to its admission to the furnace) is driven into vessel V by fan F; the exhaust steam enters the same vessel through pipe S, the quantity of steam being regulated by valve *v*. The heated air passes to the furnace at P. The water of condensation drains off to the force-pump at W.

The inventor says: I do not claim the introduction to furnaces of heated air or steam by itself, either separately or combined.

But I *claim* the heating of air to supply furnaces by bringing the escape steam of an engine into direct and intimate contact therewith in a suitable vessel, separate from the furnace and previously to its admission thereto, substantially in the manner set forth.

No. 12,195.—David N. B. Coffin, Jr.—*Stop-Cock.*—Patented January 9, 1855. (Plates, p. 179.)

The nature of this improvement is plainly shown in the engravings. *c* represents the elastic valve. The dotted lines represent the valve *a* open.

Claim.—The arrangement of a rocking-lever, substantially as herein described, so that if turned either way by the hand, it will open the valve, and be in such a position that when the hand is removed, the valve will be free to close by the pressure of the spring.

Also, the arrangement of the elastic packing, substantially as herein described, so that it will perform the two duties of packing the valve-stem and constantly pressing the valve towards its seat.

No. 13,457.—Henry Eling.—*Improved Basin Stop-Cock.*—Patented August 21, 1855. (Plates, p. 179.)

This improvement relates to the basin cock, employing a rising and falling screw-valve, and is designed to render it capable of having its valve adjusted in case it should open too soon or not sufficiently wide when the stem of the cock is brought to a proper position over the basin. By simply loosening the nut it may be turned to the right or left, and the valve adjusted to the extent desirable.

The inventor says: I do not claim closing a cock by means of a spring, when said cock is not provided with a screw-valve.

But I *claim* making the cap C independent of the nut D, so that by simply loosening the nut the cap may be turned and the valve adjusted.

No. 12,284.—Albert W. Roberts.—*Improvement in Fire-Engines.*—Patented January 23, 1855. (Plates, p. 179.)

The four valves F F G G are placed on the centre at the meeting of the two chambers, upon angular inclined valve-beds and openings S R. Two of the valves are for injection and two for ejection, operating alternately with the rise and fall of the upper and lower plungers D D. When the plungers rise, the upper plunger D acts as a suction, causing the upper valve F of inlet opening I to open for the admission of water to the upper chamber, preparatory to being forced through opposite valve opening G; the opposite valve G being closed at the same time by the action of the plunger rising. At the same time the action of the rising of the lower plunger closes the lower valve G of the inlet opening I, and opens the ejecting valve F of the outlet opening J, and forces the water through the same. When the plungers descend, the lower plunger acts as a suction to the lower valve G of the inlet opening I, which opens to admit the water into the lower chamber preparatory to ejection by lower opposite valve opening F through outlet J; the opposite valve F being closed at the same time by the simultaneous action of the plunger descending. At the same time the descending of the upper plunger closes the upper valve F of the inlet opening I, and opens the ejecting valve G of the outlet opening J,

and forces the water through the same. Thus the alternate rising and falling of the two plungers keep up a continual injection through I, and a continual ejection through J. By the arrangement of the main brake K and counterbrakes L L, the power of the purchase is confined to the centre of the engine, and the brake-arms require a shorter vibration.

The inventor says: I do not claim the brakes and levers; neither do I claim the valves or cylinders.

But I *claim* the arrangement of the valves of pumps for fire-engines and other purposes, in the manner substantially as described. Also, the arrangement of the compound brake and levers, substantia y as set forth and described.

No. 12,441.—Amos Nudd.—*Fire-Engine.*—Patented February 27, 1855. (Plates, p. 179.)

This invention consists in connecting the brake-lever C with a revolving shaft by means of a connecting-rod *e* and crank *g*, the motion of the shaft being steadied by a fly-wheel K.

The inventor says: I do not claim the application of a fly-wheel to a fire-engine, or to any other machinery; but I claim the method described of easing the motion of the brake-lever, by the attachment of a crank, in the manner set forth.

No. 12,686.—William Loughridge.—*Stationary Hydro-Pneumatic Engine for Extinguishng Fires.*—Patented April10, 1855. (Plates, p. 180.)

Pipes A and B are laid all over the district which is to be supplied with water. Supply-pipe A, being larger than force-pipe B, receives the water from the reservoir, and pipe B receives it from the pipe A, through pipes C, which are arranged at proper intervals to allow free circulation between both pipes. Valves D are opened by the pressure in pipe A, and are closed when the pressure in pipe B becomes greater. At convenient distances there are plugs I, to which the hose can be attached. F is the crank-shaft of the pump, connecting with the engine. From pulley G, on shaft F, is suspended a weight H sufficient to work the pump after the breaking out of a fire until steam can be raised to drive the pump by the engine. The wheel J on shaft F is held by a brake-lever K, to restrain the action of the weight, till an alarm of fire is given. This alarm is given by opening one of the cocks *c*, which are placed at convenient distances and form the connection between pipe B and the signal-pipe S. The water, entering pipe S, rises in pipe O and tank N, and raises float M until it lifts the brake-lever, thereby setting free the weight H and putting the pumps in motion. This gives the necessary alarm.

Claim.—1st. The employment, for the purpose of supplying water for fires and ordinary uses at the same time, of the supply and force pipes A B, connected by connecting-pipes C, fitted with valves D; said supply-pipe being connected with the suction *a*, and said force-pipe with the discharge *b* of a force-pump, and the whole operating substantially as set forth.

2d. Though I do not claim the employment of a weight as a motor, irrespective of its particular use in this apparatus, I claim the application of the weight H, or its equivalent, to the driving-shaft F of the pump, in connexion with a brake K, as described, for the purpose of setting the said shaft in motion by the mere act of liberating it from the restraint of the brake, and thereby calling the attention of the engineer, and continuing to drive it until the engineer can get the engine ready and connect it, thereby obviating the necessity of having the engine always connected and in readiness, substantially as herein set forth.

3d. The combination of the signal-pipe S, the tank N, and float M; the signal-pipe being connected either with the supply or force pipe, and the float with the brake-lever, substantially as set forth, for the purpose of enabling a person at any distance from the forcing-pump to set free the brake and start the pump instantaneously, and to give notice to the engineer when to connect the engine, or get in readiness.

No. 12,912.—A. B. Latta.—*Improved Carriage for Steam Fire-Engines.*—Patented May 22, 1855. (Plates, p. 180.)

The hind-wheels are placed upon an axle in such a manner that they or the axle may revolve independently of each other, except when coupled together, as hereafter described. The inner ends of the hubs of the wheels are elongated in the form of sleeves Z upon the axle 10, and there are appropriate notches and teeth 2 2 in the inner ends of these sleeves for the purpose of coupling. On each side of the middle of the axle is a coupling-box 3 having each, at its end next the nearest wheel, teeth or notches 4, adapted to coupling with the sleeve of the nearest wheel. These boxes have free end-motion on the axle, but are compelled to revolve with it by means of feathers and grooves. Forks Y serve to operate these coupling-boxes for the purpose of coupling or uncoupling one or both wheels. The steam-cylinder I, for driving the pumps J for throwing water, is placed in a horizontal position outside the frame. The rod 8 of each piston extends out at both ends of the cylinder, one end entering the pump-barrel and carrying the pump-piston, while the other end works through guides K. To this end of the piston-rod is jointed the connecting-rod 12, which operates the crank U at the end of the hind-axle. Connecting-rods R operate the valves by means of eccentrics 9. Upon the front and sides of the carriage, hooks and rests 13 are attached, upon which the suction-hose can rest without being detached from the force-pump.

Claim.—The combination of the piston-rod, connecting-rod, and crank, with the shaft, couplings, and driving-wheels, as described, so that the same power that operates the fire-engine may at pleasure operate the driving-wheels for the locomotion of the carriage, or leave them stationary while the engine is performing its duty, all substantially as described.

Also, connecting the forward guide-wheel to the body of the carriage by the large horizontal ring in which it revolves, in combination with the vertical springs and brace-springs for supporting the boxes against

shocks experienced in running over pavements and other rough places, as described. The inventor does not claim either the ring or the springs *separately*, but only the *combination*, in the manner and for the purposes substantially set forth.

Also, combining hooks, rests, or other equivalents, with the body of the carriage, to support the suction-hose, without detaching them from the induction-ports of the pumps, substantially as described.

No. 12,817.—William Fowler.—*Faucet.*—Patented May 8, 1855. (Plates, p. 180.)

No description required.

Claim.—The construction of the faucet, as herein shown and described, viz: having the lower end of the tube E fitted within a valve-seat D, which seat is screwed into the upper part of a socket C at the upper part of the main pipe or tube B, and adjusting the lower end of the tube E snugly within the valve-seat D, by means of the nut F; the tube E turning within the seat D; the seat D and tube E being provided with openings *c d*, which, when made to coincide with each other by turning the nozzle G and tube E, allow the water to pass up through the nozzle.

No. 12,830.—Ezra Ripley.—*Balance-Gate Faucet.*—Patented May 8, 1855. (Plates, p. 180.)

This invention consists in combining a double discharge-gate B B with a double cut-off gate D D, so that when the cut-off gate is closed there is an equal pressure of fluid on each side of the closing surfaces of the gate, thereby preventing all unequal strain on this surface, and tendency to leak from that cause.

Claim.—The combination of the duplicate discharge-gates of the faucet-tube, constructed as herein described, with the duplicate discharge cut-off gates; the two parts being combined in the manner as herein shown, for the purpose of forming a balance discharge and cut-off gate for faucets or fluid-gates.

No. 12,950.—Joseph Hollely.—*Fluid Faucet.*—Patented May 29, 1855. (Plates, p. 180.)

b is the packing, which (when the eccentric key is turned into position represented in the engraving) fits tight into its seat. When hot or corrosive fluids are used, vulcanized India-rubber is substituted for the leather, covered with thin sheet-metal to prevent rapid wearing out.

Claim.—The eccentric barrel, having an elastic packing on it, acted upon by an eccentric key, in the manner and for the purpose set forth.

Also, facing the rubber packing with metal, in combination with the above, for the purposes specified.

No. 13,047.—Edward A. Sterry.—*Faucet.*—Patented June 12, 1855. (Plates, p. 180.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I am aware that valves have been made to rise and fall vertically without being turned upon their axis, and therefore I do not claim this.

But I *claim* the arrangement of the valve *e*, the set-screw *i*, the grooved shank *d*, and the screw enlargement *c* of the spindle of the key, with each other, and with the female screw on the sides of the chamber *a*, and the groove *k*, which acts through the threads of said screw, by which, in a cock of the usual proportions, the valve can be moved up and down without being turned on its axis, substantially as set forth

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No. 13,424.—Charles Cleveland.—*Ventilating Faucet.*—Patented August 14, 1855. (Plates, p. 181.)

The engraving represents the faucet A with the spigot B set for discharging by self-ventilation; and when inserted in an air-tight cask the fluid will issue through orifice *c*, and the air enter through D until the cask is emptied.

Claim.—The combination of a venteduct D with a faucet, constructed in any manner substantially the same and for the purpose set forth and described.

No. 13,677.—Albert Fuller.—*Improved Faucet.*—Patented October 16, 1855. (Plates, p. 181.)

The number of threads to the inch upon the screw-shaft *l* is the same as that upon the vertical rod *k*, and when the handle *m* is turned, the India-rubber plug *d* will, by means of the eccentrically placed rod *k* acting upon nut *i*, either be drawn away from its seat, so as to let the fluid pass, or be forced upon the seat and prevent the passage of the fluid. As the rod *k*, by means of its screw-thread, travels in the nut *i*, the unerring return of the valve to a horizontal position, and to its seat, is secured by a positive motion, the plug being slightly elevated while being pushed away, and returned exactly to its proper position when drawn back.

Claim.—The use of the devices employed for insuring the accurate sealing of the valve when actuated by a crank or other positive motion, the same consisting of the screw-rod *k* travelling in the female screw of the nut or eye formed on the valve-stem, and being cut, constructed, and arranged with regard to the screw-shaft *l*, so as to operate with the same as described, whereby the valve and valve-stem, when the plug is drawn upon its seat, are brought into the exact position required for enabling the valve to find its proper seat.

No. 13,776.—Job Brown.—*Weighing Attachment for Faucets.*—Patented November 13, 1855. (Plates, p. 181.)

The weighing machine is connected to the faucet B for the purpose of drawing liquids, grain, and other articles from vessels in given quantities by weight, the weighing machine operating the faucet so as to cut off the discharge of liquid or other articles from the vessel when the desired quantity has escaped.

The dotted lines represent the position of parts when the weighing apparatus, having received its weight, has descended far enough to move the faucet (by means of the cord) sufficiently to cut off further supply from the vessel.

Claim.—Attaching or connecting the frame F to the scale-beam G by means of the pulley *f*, resting upon the short end of the beam, and attaching a cord *g* to the platform *b* of the frame F, and to the gate or spigot of a faucet of the vessel A, the above parts being arranged substantially as shown, for the purpose specified.

No. 13,836.—Louis Finger, assignor to Louis Finger and Lazarus Schell.—*Filtering-Faucet.*—Patented November 20, 1855. (Plates, p. 181.)

The parts being arranged as seen in fig. 1, the plug is revolved until opening S in the plug is opposite to the inlet-pipe A, and the water flows through the openings C into the chamber R of the filter; when the parts are in this position, the passages K are covered by disc L, and no water can escape through the drip-pipe *m*. When the faucet is again turned, the water is shut off, and at the same time the brushes are passed over the surface of the filters F, (the filters being so arranged that when the plate is revolved so as to bring the openings M over the filters, the passages K shall be entirely closed,) and the passages K are opened. The sediment which may have been deposited upon the surface of the filter is thus brushed off, and, together with the small quantity of water which remains in the chamber R, passes off through channel *d* and drip-pipe *m*.

Claim.—The brush O in combination with the plate L and the passages K, operating in the manner and for the purpose substantially as set forth.

No. 13,026.—Thos. C. Clarke.—*Filter.*—Patented June 12, 1855.—(Plates, p. 181.)

The filter is screwed at A on to the nozzle of a hydrant; B and C are two valves, connected by a rod. The water, when running in, forces B down until it finds an outlet at D. The same pressure closes C, thus preventing the escape of water below, which, filling the cavity K, is forced through the filtering medium E, (the latter being sustained in position by a perforated plate F,) and passes out at H.

Claim.—The application of the spring L, so that it shall, in connexion with the pressure of the incoming stream of water, work the up-

per and lower valves, always leaving the lower valve C open for the passage of sediment after the running of the water ceases, thus forming a self-cleansing filter; which cleansing is further promoted by the facility with which the filtering medium itself is changed and renewed by unscrewing the lid in which the filtering medium is secured.

No. 13,027.—Thos. C. Clarke.—*Hydrant-Filter.*—Patented June 12, 1855. (Plates, p. 181.)

When the water is stopped off by bringing valve B down upon its seat, the lower valve D is thereby opened, and the sediment is allowed to escape between F and D.

Claim.—The combination of the filtering-chamber, the rod C, and the valves B and D, whereby the simple operation of starting the water brings into operation the filter, and the stopping off the water opens the escape for the sediment.

No. 13,054.—Nathaniel Waterman.—*Portable Floating Filter.*—Patented June 12, 1855. (Plates, p. 181.)

This filter is set into the water which is to be filtered, and by its weight slightly sinks in the water, and thus floats; the water passing from the outside through the gauze *c* and filtering-substance F, and gauze *a*, into the inside A of the filter.

Claim.—A portable floating water-filter, substantially as described, wherein the water is filtered from the outside into the inside under a uniform pressure, regardless of the quantity of water in the filter, as set forth.

No. 13,070.—Orson C. Phelps, assignor to Orson C. Phelps and Jno. Holton.—*Metallic Medium for Filtering.*—Patented June 12, 1855. (Plates, p. 181.)

The wire gauze is first passed through metallic rolls to flatten the wires, by which means the interstices between the wires are to be very much reduced. *d* are discs of such wire gauze placed against shoulder *c* within nozzle A, and secured by a nut *f*.

The inventor says: I do not claim rolling wire gauze by passing it between metallic rolls; neither do I claim the use of wire gauze as a filtering material, when the same is unprepared, in the manner described.

But I *claim* the use of discs of rolled wire gauze prepared and applied to the filter, in the manner substantially as set forth.

No. 13,628.—Gustavus Weissenborn, assignor to Epes W. Sargent.—*Thermo-udoric Filter.*—Patented October 2, 1855. (Plates, p. 181.)

The steam enters through *b*, the water through *c*; the steam escapes through *c*. The water, in passing along with the steam through the spiral chamber *f*, becomes thoroughly heated, and commingles with the steam. From the centre of the chamber *f* the water falls on the brush-wood *h*, and trickles down through it, becoming still more heated, and leaving a deposite of the mineral or other matter on the said filtering mass.

The inventor says: I do not make any claim to the well-known result produced by heating water containing impurities or mineral substances to cause a deposite of the same; but I am not aware that impurities or mineral matters have ever before been separated from water by commingling the same with steam in a suitable apparatus to heat the water, and cause a deposite of the foreign matter it contains on twigs, brush-wood, stones, or other suitable substances, in the manner and for the purposes forth.

Therefore I *claim* the method set forth of separating impurities or mineral substances from water, by so introducing steam and water into a suitable apparatus, that they shall commingle, and the water thereby be heated, to fall in a shower upon, or be brought in contact with, pebble-stones, twigs, brush-wood, or other suitable substances or surfaces, whereon said mineral matter or impurities will be deposited, substantially as specified.

No. 12,421.—Geo. N. Todd.—*Self-regulating Water-Gates.*—Patented February 20, 1855. (Plates, p. 182.)

The inventor says: I do not claim the employment or use of a float for operating the gate or regulating the amount of water supplied, irrespective of the special mechanism described and used for effecting the above purpose, for floats have been previously used in various ways.

But I *claim* having the float H attached by a chain or rod G to the outer end of a lever E, which passes transversely through a shaft D on the upper part of the flume or penstock B, the inner or opposite end of said lever E being attached to the gate C by a chain F, by which the gate C is raised or lowered to admit the requisite quantity of water to pass through under a variable head, as shown and described. (See engraving.)

No. 13,319.—E. N. Moore and Isaac H. Hanyan.—*Balance Water-Gate.*—Patented July 24, 1855. (Plates, p. 182.)

The gate is opened by turning shaft B until the disks C are turned above the openings D, which can easily be done, as there will be no friction in consequence of the disks bearing against the projections *a*, because the pressure of the water against one disk will counteract the pressure of the water against the opposite disk.

Claim.—Constructing a water-gate, by having two disks or plates C C, of proper form, attached to opposite ends of a shaft B, which passes transversely through a box A; said disks bearing against the projections *a a* on the sides of the box, and over openings D in the sides of said box, substantially as shown and described.

No. 12,626.—Smith Groom.—*Improved Hose-Coupling.*—Patented April 3, 1855. (Plates, p. 182.)

Figure 1 represents the clutch *d* within the groove. By sliding back the ring E against shoulder *h*, the clutches will be allowed to spring back out of the groove. (See figure 2.)

Claim.—A hose-coupling composed of two parts, on one of which are spring-clamps or jaws controlled by a friction-ring, and on the other a groove, into which said jaws or clamps take; the whole being so arranged, when united, as to make a tight joint, and yet allow one-half of the coupling to turn on the other half without uncoupling it, as set forth.

No. 12,831.—Albert W. Roberts.—*Nozzle for Hose-Pipes.*—Patented May 8, 1855. (Plates, p. 182.)

No description required.

Claim.—The combination of two or more movable nozzles or tips B of different sizes attached to one pipe A, which can be moved by the pipe-holder or his assistant, to change the size of the stream when in motion, for fire-engines or other purposes.

No. 12,937.—Lucien E. Hicks, assignor to Himself and George N. Davis.—*Improvement in Hose-Couplings.*—Patented May 22, 1855. (Plates, p. 182.)

The nature of this improvement is plainly set forth and illustrated in the claims and engravings.

The inventor says: I do not claim a common annulus of leather as a packing for the screw-joint of a hose-coupling; but I do *claim* combining the two parts or halves A B of the coupling, by means of a locking or bayonet connexion, or the equivalent therefor, and an elastic tube F, possessing sufficient elasticity not only to form, by its expansive power when compressed, a close joint under pressure of a liquid within the hose, as explained, but to maintain the locking-connexions in place when their catch-stud is in its recess, as described.

Also, making the bearing-shoulder *r* conical, or so as to cause the circumference of the tube F to be borne against the cylinder-seat S by the expansive power of the tube acting against such conical part described; the same being not only to give support to the tube F, but to aid in maintaining a close joint against the pressure of the fluid in such tube, as explained.

Also, the shoulder-tube U, as combined with the elastic packing-tube F and the part A, and used substantially in manner and for the purpose of supporting the tube F as specified.

No. 13,112.—Albert M. Waterhouse.—*Improvement in Hose-Couplings.*—Patented June 19, 1855. (Plates, p. 182.)

The nut being screwed on to the end B A C of figure 3, until the slots in the one are made to coincide with the slots in the other, the end

B C D, figure 1, is pressed through the nut and into the end B A C, figure 3, the slots in the nut and the pipe being made wide and deep enough for the ears A, figure 1, to pass easily. When the pipe is thrust in so far that the ears have passed below the nut (see figure 4), the nut is turned around, and is carried, by its screw, down upon end B A C, and, gradually pressing upon the ears, brings the end of its pipe B C D further into the pipe, figure 3, until it is brought home.

The inventor says: I do not claim the pipe, as represented in figure 1, with two or more projections or ears; but I do *claim* the slotted nut, with the female-screw on its inner surface.

I claim the pipe represented in figure 3, with straight or vertical slots, (one or more,) and with a screw on its outer surface.

I also claim the combination of these parts as described, or their equivalents, each with the other and altogether, and all other combinations substantially the same.

No. 12,549.—Thomas Hanson.—*Valve for Hydraulic Ram.*—Patented March 21, 1855. (Plates, p. 182.)

The flexible tube, when spread out by the preponderance of the pressure in the air-vessel above it, is brought in contact all around with the bore of the tube, thus closing the passage to the driving-chamber, and when contracted by the preponderance of the pressure in the driving-chamber, it opens a direct passage of water from the driving-chamber to the air-vessel.

Claim.—The mode, substantially as specified, of forming the connexion between the driving-chamber *c* and air-vessel *e* of water-rams, the tube *h* and flexible cup 5 placed within it, substantially as and for the purpose specified.

No. 13,324.—Thure Emanuel Sandgren.—*Hydro-dynamic Friction Joints.*—Patented July 24, 1855. (Plates, p. 182.)

P is a shaft (the engraving represents it as a propeller shaft) which snugly fits and turns in the hollow cylinder A. The water enters at *a* and passes through channels D to the cavity *e*, between the two rubbing surfaces of A and the hub B of the propeller, for the purpose of preventing heating and friction.

Claim.—Forming a hydraulic bearing for a rotating shaft, by means of the water-ducts passing through the cylinder or case in which the shaft rotates, for the purpose of supplying water as a lubricator to the rubbing surfaces, in the manner and for the purpose set forth.

No. 13,303.—W. H. Elliot.—*Hydro-Pneumatic Machine for Exhausting and Sealing Vessels.*—Patented July 24, 1855. (Plates, p. 183.)

The nature of this improvement will be understood by reference to letters patent No. 13,291.

Claim.—The yielding lining of mouth *b*, the chamber *a*, with its elastic movable portion *e e*, and the lever *d*, with or without the liquid

used for expelling the air from the chamber *a*, or their equivalents, when used in combination, operating in any manner essentially the same as herein described, and for the purposes set forth.

No. 12,232.—JOHN S. BARDEN.—*Water-Metre.*—Patented January 16, 1855. (Plates, p. 183.)

The cylinder F oscillates on journals 1 2; the water enters at Y. H J are the ingress passages for the water to pass into each end of the cylinder and out alternately through the egress passage K, hollow journal 2, and stuffing box E. The valve C is suspended upon two journals 3 4, whereby the valve adapts itself to the motions of the cylinder. The cylinder heads M N are enlarged so as to form reservoirs for the reception of all sediment. The water having filled the cylinder, and the piston G reaching the end of its stroke, (see figure 1,) the piston pushes the small piston 7 back sufficient to throw off from catch O the latch *q*, when the cylinder, from the weight of the piston, drops, causing the opposite end to rise sufficient to allow the latch R to drop of its own gravity into the catch P, by which means the position of slide-valve and passages is changed. During the return motion of the piston (now commencing in consequence of the reversed pressure of the water) the water is forced out which has filled the cylinder during the above-described first stroke of the piston, and so forth.

Claim.—1st. The two heads being secured, one to each end of the cylinder, by means of bolts, in the form of reservoirs, for the purpose of collecting all sediment that may be drawn into the cylinder through the passages and is not thrown out, or the collection of sediment upon their sides deposited from the water itself, without which the machine would in a short time cease to operate.

2d. The two small pistons, 7 8, with the spiral springs attached, in combination with the guides and catch O P, the latches *q* R suspended from above by the hinge-joints S T, and the bumper attached, the latches falling of their own gravity.

3d. The construction of the valve C, suspended upon the two arms, in connexion with the hanger L, the two boxes 5 6, the two spiral springs within the same, and resting upon the top of the said boxes, with the cross-bar 7 and screw D for regulating the pressure of the valve; also, in having the cross-bar an elliptic spring resting on the boxes themselves, and finally the entire combination of the above parts for the object described.

No. 12,887.—JOHN TAGGART, assignor to JOHN TAGGART and JULIUS S. SHALER.—*Fluid Metre.*—Patented May 15, 1855. (Plates, p. 183.)

If water under pressure enters the induction-pipe *e* it will flow into chamber *a*, and press dasher D against one side (say, for instance, the right side) of neck *c*. Suppose the valve *h* is closed and *i* open, the water will fill the space in chambers *a* and *b* to the left of dasher D, and will force the lower end of the dasher towards valve *i* till it strikes the valve-arm *r*, thereby closing said valve *i* and simultaneously opening valve *h* (the two valves moving simultaneously in consequence of their outside connexion by a rod *p*). The moment this takes place, the pressure of the water in *a* will throw the dasher from the right to the left side of neck *c*, and the water will fill that part of the chamber *b* which is to the right of the dasher, moving it towards valve *h* till it strikes arm *q* and closes the valve, simultaneously opening valve *i*, and so on.

Claim.—The improved automatic fluid-metre, as constructed and made to operate substantially as described; that is to say, of the following elements, or their mechanical equivalents, in combination, viz:

1st. Two chambers *a b*, united by a rectangular or square neck or passage *c*, made of a width greater than the thickness of the vibrating piston or plate extended through the neck.

2d. An induction-pipe or opening *e* in the upper chamber.

3d. Two eduction-passages *k l* and valves *h i* applied to the lower chamber.

4th. A vibrating-plate, dasher, or piston D, extending from one chamber *a* into another chamber *b*, as described.

5th. A mechanism applied to the eduction-valves, whereby they may be alternately opened and closed by the vibrating-plate or dasher during its movement, as described.

No. 12,934.—J. S. BARDEN, assignor to OLIVER SNOW and G. B. FARNUM.—*Water-Metre.*—Patented May 22, 1855. (Plates, p. 183.)

The groove F around the piston-plate, with the holes G, serves to form a passage for a current of water to pass around and press upon the inner surface of the leather piston, thereby effecting a perfect packing. *w w* are the fulcra of the levers q^1 q^2. The operation of the parts is apparent from the engravings. The dotted lines represent the position of the levers when the valve is open.

Claim.—1st. A cylinder of any given size with a common plunger within it, open at both ends, and secured within a case divided into two compartments, as above set forth; each compartment with their heads acting as heads to the cylinder, and reservoirs to receive the sediment either drawn in and not thrown out, or that which may be deposited from the water.

2d. The reservoir for the collection of sediment, whether connected with a cylindrical or a rotary water-metre.

3d. The mode of moving and throwing the valve, as above set forth.

4th. The casting or turning of a groove upon the circumference of a piston-plate, and around its entire diameter, with holes drilled from the base of the same through on the inside, in the manner and for the object set forth.

5th. The entire combination, for the object as above stated.

No. 13,198.—James Curtis and Samuel Hoard.—*Water-Metre.*—Patented July 3, 1855. (Plates, p. 183.)

The nature of this improvement will be understood from the claims and engravings.

The inventors say: 1st. Though we do not claim the invention of a metre composed of two cylinders or chambers, of which one is filled while the other is discharged, we *claim* the employment of two chambers, having such communication with each other that the incoming water entering each cylinder or chamber in its turn will expel a volume of air previously contained therein, and drive it into the other cylinder or chamber, and cause the said air to act as a piston to separate from the incoming water, and to discharge through the agency of the pressure thereof, the water in the other cylinder or chamber, substantially as described.

2d. Though we do not claim the invention of a float-valve to shut off the flow of the fluid through a metre, in case of the parts becoming deranged, we claim fitting a float-valve *f* to each end of the pipe J, through which the air is transferred from one to the other of the two measuring cylinders or chambers, substantially as described; or that in whichever cylinder the water should rise above its proper level, by reason of the derangement of the inlet and outlet valves, the pipe J will be closed and the flow of water stopped.

No. 13,320.—Henry R. Worthington.—*Water-Metre.*—Patented July 24, 1855. (Plates, p. 184.)

A and B are the two cylinders with the pistons a^1 a^2 and b^1 b^2. D^1 D^2 are the valves, the valve D^1 having two cavities in its face, and D^2 only one. O is the delivery passage into which E^2 and f^2 empty. The valves are operated by the central discs G. The fluid is admitted under pressure through opening K.

Claim.—The employment of two cylinders, which may be distinguished as cylinders Nos. 1 and 2, with pistons working in the same, so arranged and combined with regard to each other as that the motion of the piston in cylinder No. 1 shall actuate the supply and delivery valves in cylinder No. 2, while in like manner the motion of the piston in cylinder No. 2 actuates the supply and delivery valve of cylinder No. 1, thus producing a positive and direct motion as set forth.

No. 13,792.—Samuel Krauser & Christian Ritter.—*Water-Metre.*—Patented November 13, 1855. (Plates, p. 184.)

A single drop passing from supply-pipe B, through metre E, into receiver F, indicates a certain larger quantity, for instance a gallon, drawn off at the nozzle of pipe B, (the metre having been previously regulated for the purpose,) and by measuring the quantity in receiver F, the whole quantity of water which has passed through B may be ascertained. The stem *c* passes through the trough E, and has its rear end bent up so as to receive a set-screw *d*, which also passes through

the end *e* of the trough. The front end of said stem has upon it a wedge-shaped plug *f*, which is slightly oblique to the line of the stem; and immediately in rear of the plug is a drip *i*, which follows the plug to drop into and through the funnel *g* into receiver F. Spring *h* presses against one side of stem *c* for the purpose of forcing the plug *f* to one side of slot *i* in the plate *j*, which is placed in the front end of the metre E. The water which passes from B into the metre passes on one side of plug *f*, between it and the slot *i*, and on that side on which spring *h* is placed, said spring being for the purpose of holding the plug away from the opening *i*; *k k* are set-screws for adjusting the plug in a lateral direction, in combination with the spring *h*. Set-screw *d* is for adjusting the plug in a longitudinal direction. The plate *j* on its inner side is formed into tapering grooves, the object of which grooves is to direct any solid matter that may be in the water away from the slot, and thus prevent it from being obstructed.

The inventors say: We are aware that the dividing of the gas which passes through a gas metre into two or more portions, and ascertaining the whole quantity by measuring a part thereof, when under pressure, instead of measuring all the gas which passes through the metre, as heretofore, has been used. This we do not claim.

But we *claim*, 1st, measuring or indicating the passage of a quantity of water through a pipe, by allowing a small graduated portion thereof to escape, and waste into a measuring and retaining receiver, or other vessel, employed for that purpose, by means substantially as described.

We also claim, in combination with the rod *c* and plug *f*, the spring and adjusting screws for the purpose of regulating the passage for the water through and into the metre, as set forth.

We also claim the drip, in rear of the plug, to cause the water from the slot to drop into the funnel, and thence into the receiver, as specified.

We also claim the inclined angular recesses on each side of the slot, on the inner face of the plate *j*, for the purpose of carrying away from the slot any impurity or solid matter in the water, as described.

No. 12,199.—Gilbert B. Farnam.—*Forcing-Pump.*—Patented January 9, 1855. (Plates, p. 184.)

By means of this arrangement ready access can be had to the valves for repairs, whilst at the same time direct passages are provided for the water to pass from the induction to and through the eduction valves, instead of the circuitious passages found in horizontal pumps as heretofore constructed. The column of water set in motion is not all suddenly arrested by the change of motion of the piston, for the reason that the column may continue to move directly through the water-box and valves, until arrested by its own weight, notwithstanding the change of motion of the piston. In this pump, therefore, the piston can be worked at a high velocity. Before the piston is inserted in the cylinder, the ring *t* is first put into the enlarged part of the cylinder; and as this makes a continuation of the bore of it, and the outer end of the bore of

the ring is trumpet-shaped, the piston with its leather packing-rings can be inserted without injury to the leather rings.

Claim.—Arranging the two sets of induction and eduction valves *f f* and *l l* of a double-acting horizontal pump on two plates *e* and *k*, secured one to the top and the other to the bottom of a water-box *a a*, divided by a vertical partition *d* into two compartments *b* and *c*, one end of the horizontal cylinder *n* being secured to one side of the said water-box, opposite one of the compartments *b*, when this is combined with the connexion of the other compartment *c* of the said water-box with the opposite end of the cylinder, by means of a side-pipe *p q*, substantially as and for the purpose specified; also, making the outer end of the bore of the cylinder of an enlarged diameter, with a ring *t* fitted thereto, having a bore of the same diameter as the cylinder and flaring or trumpet-formed *u u* at the other end, substantially as specified, in combination with and as a means of inserting the piston made with conical leather packing-rings *x x*, substantially as specified.

No. 12,296.—EDMUND MORRIS.—*Improvement in Buckets for Chain-Pumps.*—Patented January 23, 1855. (Plates, p. 184.)

The gum-ring is made so small that when placed on the cone, it will remain, by its own contractile power, at the top or smaller end of the cone; but when the bucket is in use in a pump-tube (the chain being riveted to the ends E and F), the friction forces the ring down towards the base of the cone enough to make a water-tight fit.

Claim.—The combination and arrangement of the gum-ring A with the cone B, substantially as described, for the purpose set forth.

No. 12,312.—GEORGE FOWLER.—*Double-Acting Force-Pump.*—Patented January 30, 1855. (Plates, p. 185.)

Claim.—The combination of the solid piston with the cylinder and reservoir, when the piston is inserted from the lower end of the cylinder and worked by a parallel side-rod or shaft outside of the cylinder, whether for single or double-acting pumps, so as to constitute it an efficient lifting-pump, without suction-valves; and the whole constructed, combined, and arranged substantially as set forth. (See engraving.)

No. 12,326.—HENRY ROGERS.—*Improved Force-Pump.*—Patented January 30, 1855. (Plates, p. 185.)

When the bucket *c* is let down into the water, the water fills the bucket through the bottom-valve *g*. In raising the bucket, by means of windlass *w*, the valve *g* is closed, and (as the piston *a* is stationary) the water is forced up through delivery-pipe *b*.

Claim.—The combination of the suspended valve-bucket *c*, with the stationary hollow plunger *a*, or of the suspended hollow plunger with the stationary valve-bucket, when so constructed, arranged, and operated as to serve, automatically, to clear the delivery-pipe *b* of water, as and for the purposes set forth.

No. 12,342.—W. C. BURNHAM and J. S. BURNHAM.—*Improvements in Double-Acting Force-Pump.*—Patented February 6, 1855. (Plates, p. 185.)

The operation of this pump is as follows: Suppose the piston G to be at the lower end of the cylinder E, and the pump now first operated. Upon drawing the piston upward the valve *e* will open and the water will flow into the chamber *a* through the suction-pipe B, and into the lower end of cylinder E through valve *e*. (See figures 1 and 3.) The valve *f* at the lower end of the passage F will be kept closed by the pressure of the air against it as the piston rises. When the piston is moved downward, the water that entered at the lower end of the cylinder is forced through the opening *l* into the compartment *d*, the valve *e* being closed by the pressure of the water; and the water in the compartment *d* being under the pressure of the piston G will raise the valve *g* and flow into the chamber *c* and out of the pipe C, (see arrows 2, figure 4,) the chamber *c* being open at the top, as shown in figure 3. Upon the downward motion of the piston G, a suction is formed in the passage F, and the water rushes from the compartment *a* through the valve *f*, up the passage F into the upper part of the cylinder E through the opening *k* (see arrows 3, figure 4); and when the piston is moved upward, this water that entered into the cylinder through the opening *k* is forced down the passage F through the opening *m* into the compartment *b*, the water in the compartment *b* raising the valve *h* and passing into the compartment *c* and out of the pipe C. Thus a continuous stream is thrown by the pump.

Claim.—The general construction of the pump, as herein shown and described, viz: having the casing D, cylinder E, and passage F, arranged as shown, and cast in one piece, and secured upon the upper part of a base or circular chamber A, having compartments *a*, *b*, *c*, *d* within it, and valves *e*, *f*, *g*, *h* upon its top plate, arranged and communicating with the several passages, as shown and described, and for the purpose as set forth.

No. 12,350.—BIRDSILL HOLLY.—*Improvement in Elliptical Rotary Pumps.*—Patented February 6, 1855. (Plates, p. 185.)

The large cogs *a* fit (as the pistons P P^1 revolve) into the corresponding recesses *b* in the line of their conjugate diameters. By revolving one of the pistons, the other will be carried round by means of the smaller cogs *e*. These pistons revolving in the air-tight shell *d* are continually producing variable chambers, and thus draw in the water through induction-pipe *f*, and force it out through eduction-pipe *f*^{1}. The small grooves on the periphery of the cogs *a* become filled with water, the centrifugal action of which becomes opposed to the resistance of the water to be forced, and serves thus as a tight packing.

Claim.—The corrugated or grooved pistons or cogs, in the manner and for the purposes specified.

No. 12,413.—Gustavus Hammer.—*Improvement in Pump-Valves.*—Patented February 20, 1855. (Plates, p. 185.)

This improvement is to be a remedy for the faults of having the valves attached to one and the same stem. The inducting valves 1 1 of one end of the pump are attached to the educting-valve 2 of the opposite end of the pump (see figure 2) in such manner that the instant the inducting-valve *i* of one end of the pump closes, (by closing the open space 8,) it will close the educting-valve 2 of the opposite end against the educting opening in the vertical wall 10 (represented in figure 1, in dotted sectional lines). The pivot 5 is the centre of motion, common to both the valve 2 and valves 1 1.

By having each set of valves so attached, all of them can be closed at one and the same time, and thereby retain the water that has been drawn in the pump when its operation is stopped, which dispenses with the necessity of using the ordinary check-valve.

Claim.—The manner described of connecting the inducting-valves 2 of one end of a double or single acting pump with the educting-valves 1 1 at its opposite end, on or to a separate stem or spindle, so that each set of valves may have an independent movement of the other in its operation, substantially for the purposes set forth.

Also, the combination of the two educting-valves 1 1 with the inducting-valve 2, in order to give each opening an equal area with a given movement of the valves, as set forth.

No. 12,517.—Hiram Moore.—*Method of Operating Pumps by Wind.*—Patented March 14, 1855. (Plates, p. 186.)

A plate J is attached to the shaft F, which is set in motion (by means of gearing I D) from the windmill-shaft A. A spiral-rib K extends backwards from the said plate J. This rib, as it revolves together with the plate and shaft, will catch over pin L on pump-rod M and draw it down to the end of the spiral rib at *b*, which will take about one half a revolution of the shaft. As soon as the end *b* of the rib passes the pin L, the pump-rod will be drawn up to its former position by the force of the spring N, which bears against the extension P of the pump-rod. Thus the water will be raised. As the velocity with which the water is raised corresponds to the force of the spring, and will consequently always be the same, an increase in the velocity of the shaft F will cause the rib to catch the pin before it has completed its upward motion. Thus an increase in the velocity of the windmill will allow a smaller quantity of water only to be raised, and this quantity will be in proportion to the increase in the velocity of the windmill.

Claim.—The combination of a compensating cam and spring, or the equivalent thereof, for operating a pump driven by a windmill, substantially in the manner and for the purpose set forth.

No. 12,542.—Jno. P. Cowing.—*Device for Air-Chamber of Pumps.*—Patented March 21, 1855. (Plates, p. 186.)

By turning valve J so as to shut the vessel F air-tight, (see fig. 1,) or by turning the valve so as to effect a communication *b b* with the air outside, (see fig. 2,) the pump may be either used for merely drawing water or as a force-pump for discharging the water with great force.

A is the pump cylinder, and R the pump-rod.

Claim.—The combination and arrangement with the air-chamber or vessel F of the pump, having its delivery-spout or outlet below, or at or near the bottom of said chamber, substantially as shown and described; of a hand air-valve or perforated nut J, at or near the top of the air-vessel, for the conversion by hand with facility and despatch of the close air-vessel into an open water reservoir, or *vice versa*, above the discharge-outlet or spout of the pump; and whereby the uses of the common well or lift-pump may be varied with despatch, and its conveniences augmented, as set forth.

No. 12,544.—Chas. G. Custis.—*Pump.*—Patented March 21, 1855. (Plates, p. 186.)

A is the pump-barrel; C the induction-chamber. The leading-chambers D and E respectively communicate with the valve-chambers F and G by means of passages *h i*. Chamber C communicates with both F and G by means of valves *k l* (opening upwards). Valves *m n* lead from chamber H into chambers D E. K discharge-pipe. B induction-pipe. The upper end of the pump-barrel communicates with chamber D through L; the lower end of the pump-barrel has pipe M leading out of it and into chamber E. A single cap-plate N covers the valve-chambers and the top of the pump-barrel.

The inventor says: I am aware that induction and eduction valve-chambers and valves with their case have been arranged on the side of a horizontal pump-barrel, midway between its two ends; the barrel being made to communicate with the valve-case by two pipes leading from the said case respectively into the two ends of such barrel.

I am also aware that valves and their chambers have been placed at the lower end of a vertical pump-barrel, and a leading-pipe used to connect the valve-case with the upper part of the pump-barrel; the first of these arrangements only requires the removal of a cover-plate to obtain access to the valves, (such cover-plate having no connexion with, or forming part of, the cover-plate of the end of the barrel,) while the second of these arrangements rendered it necessary to raise from the valve-case the whole pump-barrel and cap-plate of the valve-case in order to obtain access to the valves. I therefore do not claim either of such arrangements; my invention having reference to an upright pump-barrel.

I *claim* arranging the eduction and induction valve-chambers concentrically around the upper end of the pump-barrel, and with respect to one another, substantially as specified; they being provided with valves

and passages connecting them together, and with the two ends of the pump-barrel, as described; the said arrangement admitting one cap-plate to be employed both for the valve-cases and the pump-barrel, and at the upper end of said pump-barrel, as explained.

No. 12,566.—WILLIAM T. VOSE.—*Pumps.*—Patented March 21, 1855. (Plates, p. 186.)

This invention consists in an arrangement where two valves in or on the pistons are all that is necessary to the elevation of water by means of two pump-barrels. D is the induction, E the eduction pipe. The operation of the pump will be understood from the engravings.

Claim.—Connecting the two pump-barrels at the adjacent ends, as described, in combination with not only arranging the valves of their respective pistons, so that one of them shall be applied to one or the upper side of one piston, while the other is applied to the opposite or lower side of the other piston, as stated; but applying the eduction and induction pipes respectively to the disconnected ends of the barrels, substantially as specified.

No. 12,579.—ABEL BARKER.—*Rotary Pump.*—Patented March 27, 1855. (Plates, p. 186.)

This improvement is intended to prevent the water from being broken and beat up into foam by the rapid movement of the buckets, as would be the case if the water passed from the induction aperture directly to the buckets. The water in this pump passes in an unbroken current from the induction, opening directly into the mouth of channel *k*, and follows after each bucket until the said current is struck out and carried forwards by the next bucket in succession, discharging at aperture *j*.

Claim.—Causing the buckets *c c c*, during a portion of their revolution, to pass through an enclosed channel *k*, and during the remainder of their revolution to pass through the chamber which communicates directly with the central induction opening *f*, substantially in the manner and for the purpose set forth.

No. 12,601.—THOMAS LING.—*Self-Adjustable or Anchoring Pump.*—Patented March 27, 1855. (Plates, p. 186.)

The end of pipe E is so constructed as to discharge the water downwards, and it has the plate F fastened to it so as to traverse with it, and cover the opening D, when E is raised by means of pump-lever G. The plate F also serves to guide and steady the pipe E.

Claim.—1st. Connecting the piston or stationary part P to a wedge or anchor W, by a flexible joint Y, or its equivalent, so as to allow the anchor to adapt itself to the bottom of the well without cramping the other parts, substantially as described.

2d. Connecting the anchor to the cylinder, or moving parts, by means of the projections V and slotted arms *w*, or their equivalents, so as to draw the anchor from the well by means of the pipe and cylinder, or moving parts, substantially as described.

3d. The devices, substantially such as are described, or their equivalents, for guiding and steadying the upper end of the pipe, and discharging the water downwards into a box having an opening in the side, in which the pipe traverses, closed below the pipe by the plate F, or its equivalent.

No. 12,617.—ABEL BARKER.—*Method of Lubricating Pistons of Air-Pumps.*—Patented April 3, 1855. (Plates, p. 186.)

An opening is made in the annular part of piston *s*, and it is covered by the inwardly opening valve *t*. As soon as the oil that has been introduced above the piston has found its way to the bottom of the cylinder, it will be perceived that it will be at once forced up above the cylinder again through the aperture covered by valve *t*.

Claim.—The transference of the lubricating oil from the bottom of the engine-cylinder to the upper side of the piston thereof, for the purpose of insuring the proper lubrication of said piston, substantially as set forth.

No. 12,625.—ROBT. B. GORSUCH.—*Direct-acting Hydraulic Steam-Pumps.*—Patented April 3, 1855. (Plates, p. 187.)

When the plunger M is nearly down, (see figure,) the upper end of it will pass the holes *b* in the ring-packing D^1, and the water under pressure (which, by means of a pipe, is in constant communication with the space around said packing) will rush through the holes *b* over the plunger and into the suction-end of the pump-cylinder, and will not only prevent or destroy the vacuum, but will also act suddenly upon the forcing-end of the plunger with a power about equal to that upon the forcing-end of the plunger. This water pressure, acting conjointly with the steam at the moment the engine is taxed to move the steam-valves, in addition to its regular load, enables it, by means of arm R on the piston-rod C, to throw the steam-valve D with unerring precision across the openings; and at the same time the water from the forcing-end of the pump-chamber having been driven through the force-valves a^1, the motion of the plunger has not been accelerated to such a degree but that the reversing takes place quietly. The returning plunger closes the holes *b* until it reaches the point in the upward stroke corresponding with the one represented in the figure.

Claim.—Effecting a water pressure upon the suction-end of the pump-plunger M, in direct-acting steam-pumps, at or near the completion of the stroke, without diminishing the resistance against the forcing-end of the plunger, in the manner shown or in an equivalent way, for the purpose of closing the suction-valves *a*, filling the vacuous space in the pump-chamber, preparing the force-valves for opening and acting conjointly with the steam pressure upon the piston B, whereby the steam-valve D is operated with precision, whatever may be its velocity.

No. 12,631.—Benj. F. Joslyn.—*Double-acting Pump.*—Patented April 3, 1855. (Plates, p. 187.)

This improvement consists in making a passage or water-way through the piston and the end of the cylinder, by attaching a tube A to piston L, extending through a stuffing-box in the end of the cylinder, and allowing it to play with the piston; the tube being provided with a valve H on the piston to prevent the return of the water. When the piston moves upwards, part C will be filled through valve F, water being supplied at B. When the piston moves downwards, the part D will be filled with water passing through tube A and valve H, whilst C discharges through valve E to the air chamber M, and *vice versa*.

The inventor says: I do not claim placing cylinders in any particular position in regard to the air-chamber or other parts, nor the exact form or proportions of any of the valves, tubes, or other parts.

But I *claim* forming a direct passage to admit fluids to one part of the cylinder by means of a tube attached to and working with the piston, and passing through the other part and end, when applied to double-acting pumps, as described, or any other substantially the same.

No. 12,645.—Arcalous Wyckoff.—*Chain-Pumps.*—Patented April 3, 1855. (Plates, p. 187.)

F is the elastic valve, consisting of four sections, so as to be able to move upward and make room for the upward passage of elevators E. The projecting ring G, underneath the valve, will prevent the sections from opening downwards, and the elevators from returning back with the water in case the motion of the chain is suddenly stopped.

The engravings exhibit only the lower half of the chain C; the upper half, together with the driving-wheel, being left away.

Claim.—The application of an elastic or other suitable valve to an endless chain-pump cylinder; said valve being arranged so as to be capable of only opening upward, substantially as and for the purpose set forth.

No. 12,753.—Rufus Porter and Jonathan D. Bradley, assignors to Jonathan D. Bradley and George Dennison.—*Elastic Tube Pump.*—Patented April 17, 1855. (Plates, p. 187.)

The conduit A from the well terminates in a coil of India-rubber hose B, of sufficient thickness and elasticity to resist, when empty, the weight of the air. This hose is firmly attached to a stout helical surface C C^1, so that when traversed by a roller D, its several parts will be successively pressed, and will in turn recover by their elasticity *behind* the roller, thus producing a vacuum, drawing the water, while the roller's pressure forces the water which is before it. One-half of the helical surface or band C is fast on the stationary support H, the other half C^1 is attached to the first one by screws E. These two halves clamp firmly between them a bead F, projecting from the hose, thereby confining the hose to its place. When it is desirable that the spring of the hose should be relieved, or that the water should recede as soon as the pump ceases to act, the machine is so arranged as to produce what is equivalent to an elongation of the crank-arm; to wit, the crank

is applied to an eccentric axis of the roller, (*o* fig. 3,) and a short arm P extents from the crank, so that it will in a little less than a semi-revolution encounter a fulcrum Q, projecting from the supporting arm K. This purpose may also be effected by an eccentric, in or by cams on the main axis, allowing, however, in such case, the main axis I to revolve in stationary boxes. To equalize the resistance to the roller, the part of the hose where the helix has completed its circuit is made tapering to a less thickness, so that the roller coming round to encounter again the resistance of the *one* end of the hose, will at the same instant, at the other end, have the full spring of the rubber *behind*, but not the full spring before it. To ensure, however, the closing of the tube at this cone, we fasten under it a lift *s*, which corresponds with and compensates this diminution of thickness.

Claim.—1st. The mode of equalizing the resistance by a truncated cone of gradually diminishing thickness, by which the roller may leave the tube, in combination with a lift *s* below, as herein before specified.

2d. The relieving the spring of the tube, and the allowing the water to recede by means of jointed arms, eccentrics, or cams, as herein before specified.

3d. The mode of attaching the tube to the helical band by means of forming the latter in two parts, and by means of a bead or moulding on the former, as specified, for the purposes set forth in the foregoing specification.

No. 13,007.—Edwin A. Jeffery.—*Double-Acting Pump.*—Patented June 5, 1855. (Plates, p. 187.)

The object of this improvement is to simplify the construction of double-acting pumps.

C is the piston-tube; *a* a^1 the piston-heads; D the ball-valve; H the air-vessel.

The inventor says: I do not claim merely substituting ball-valves for other kinds of valves, in a tubular piston, with valve seats at its ends.

But I *claim* connecting the piston-heads by a long tube, having a short valve-chamber near its middle, with a single ball-valve, the water passing alternately through each end of the tube, and out at the sides of said valve chamber; the valve-chamber being so short that the ball will exclude the water from one end, by rolling only far enough to admit the water fairly at the other, while the piston-heads are so far apart that the eduction-port shall always be embraced between them, substantially as set forth.

No. 13,214.—James E. Cronk.—*Device to allow Escape of Waste-Water from Pump-barrel.*—Patented July 10, 1855. (Plates, p. 188.)

The nature of this improvement is clearly set forth in the claim.

Claim.—The valve G placed over the outlet passages *h*, leading from the chambers *c d e*, said valve being attached to a spring-lever H, which is acted upon by a sliding-rod I, arranged substantially as herein

shown, so that said valve will be closed by merely grasping the handles M M of the sliding-rod I and lever D in operating the pump. The valve being opened when the handles M M are freed from the hand by the action of the spring J, as shown and described.

No. 13,219.—John J. Heard.—*Ship-Pump.*—Patented July 10, 1855. (Plates, p. 188.)

L is an opening in the gate G, which serves the purpose of opening a communication between the passage E and pipe F when the gate is raised; at such times a leather washer M upon the step N projecting from gate B closes the bottom of the water-way C, and cuts off the communication between the pump and the well D. If, now, the pump be operated, water can only be admitted through pipe F, which enters the bilge O. When the gate is lowered, passage E is closed and the pump is brought in communication with the well D. Thus the pump may operate either upon the water in the well or upon that in the bilge, as may be required.

Claim.—The attachment B with its gate G, operating in the manner and for the purpose set forth.

No. 13,233.—Jos. Smart.—*Self-regulating Water-Packing for Pumps, &c.*—Patented July 10, 1855. (Plates, p. 188.)

One of the stuffing-boxes B is above the cap A, as in ordinary pumps, and the other beneath, leaving a space D between the two for admission of water, which is supplied by a small valve E in the plate of the lower box and opening inward. With every upward stroke of the pump a fresh supply of water is furnished, completely filling the space D, for the purpose of preventing the admission of any air to the working chamber.

Claim.—The application to pump-caps of two stuffing boxes, so arranged one above the other, leaving a space or reservoir between them; also the manner of supplying the same with water by means of a small valve on the lower plate, or any other, substantially the same, which will produce the intended effect, as described.

No. 13,254.—Jacob Edson.—*Improved method of Operating Valves of Pumps.*—Patented July 17, 1855. (Plates, p. 188.)

a c is the tripper referred to in the claim; the engravings represent it in two positions.

The inventor says: I do not claim a tripper for the purpose of opening the valves by the descent of the piston, as such have been used before; but I *claim* the peculiarly formed tripper described, in combination with the curved cap of the valve D, by which means a single tripper is made to open both valves, in the manner set forth.

I also claim the twisted partition Q, for the purpose set forth, whereby the cylinder is divided into two water-passages, which deliver the water upon the opposite side from that on which they receive it.

No. 13,273.—Oliver Palmer.—*Rotary Wrecking-Pump.*—Patented July 17, 1855. (Plates, p. 188.)

This invention consists in the combination of an angular arm or bucket so made as to press the water outward from the shaft, with a spiral partition in the suction-pipe, which gives the water an initiatory rotation in the direction contrary to that in which the arms revolve. This is for the purpose of causing the rotation of the arms to force the water outward more effectually than it would do otherwise.

Claim.—The combination of the arms B B, constructed in any equivalent manner, with the spiral partition L.

No. 13,299.—Jno. A. Burnap.—*Double-Reciprocating Split-Piston-Rod for Pumps, &c.*—Patented July 24, 1855. (Plates, p. 188.)

The nature of this invention will be understood from the claim and engraving.

Claim.—In reciprocating rod-gear of valves or pistons, operating essentially as and for the purposes set forth, the double-reciprocating split-rod gear *s s*, when arranged and operating longitudinally side by side, as described, with the inner faces of the rods bearing against and acting as long moving guides and supports to each other, to strengthen them and prevent lateral shake or play, while their exterior is bound and tightened by one packing-box, and the two rods or split portions *s s*, with their respective valves or pistons, are free to move separately or in opposite directions to each other, for the admission, discharge, or cutting off of the gas or fluid, or for operation by the gas or fluid, as specified.

No. 13,370.—Henry R. Worthington.—*Improvement in Direct-Acting Hydraulic Steam-Pumps.*—Patented July 31, 1855. (Plates, p. 189.)

Suction-valves a^1 a^2 admit the water at the proper time from supply-pipe S, and force-valves b^1 b^2 deliver the same into discharge pipe F. Piston P keeps the opening A (in the middle of the water-cylinder, and connecting with the force-pipe at B by means of connecting-pipe H) covered until the stroke is nearly completed. At that point the piston passes into position represented in figure 1, and allows the fluid from the force-pipe to flow through H and A into the chamber behind the piston, for the purpose of relieving the resistance at or near the end of the strokes.

Claim.—The described mode of counteracting the resistance to the motion of the pump-piston in direct-action pumping engines, by which the steam-valve is moved; that is to say, by making a passage into the pump-chamber or cylinder, so arranged that said passage or opening shall for a time be uncovered or disclosed at or near the end of each stroke of the piston, by which the fluid, which is beyond or above the force-valves, passes behind the water-piston and makes pressure thereupon in the direction of said piston's motion, for the purposes set forth.

No. 13,459.—Sylvester H. Gray.—*Improvement in Pumps.*—Patented August 21, 1855. (Plates, p. 189.)

By arranging racks between the pistons, and making one piston or its attachment serve as the guide for the other, and *vice versa*, the necessity is avoided of having the rod of one piston work through the rod of the other.

The inventor says: I do not claim operating the two pistons of a single cylinder double-acting pump, by means of two racks and a pinion, when said racks and pinion are arranged above the top or below the bottom piston, and the rod of one piston passed through the rod of the other; but I *claim* the employment and arrangement of the rod C C^1 and pinion D combined, between the pistons.

No. 13,559.—Thos. J. De Yampert.—*Double-Acting Force-Pump.*—Patented September 11, 1855. (Plates, p. 189.)

The inventor says in his specification: By my peculiar arrangement, as shown in the drawings, I can, with a stroke of one inch, produce an effect equal to that produced by a stroke of four inches in a common pump, with a plunger of the same area; while this proportion can be increased by adding more cylinders, radiating from the centre of chamber A, and connected with the crossed-levers by suitable connecting-rods. The engravings represent two cylinders B C, with the pistons *d c*, connected by levers *l* P *o m*.

Claim.—The system of crossed-levers and connecting-rods herein described, when placed and operated in the intermediate or central chamber A, and when combined with two or more pistons, working in cylinders which radiate from the central axis or fulcrum of said levers, substantially in the manner and for the purposes set forth.

No. 13,622.—Samuel Pearn.—*Improvement in Ships' Pumps.*—Patented October 2, 1855.—(Plates, p. 189,)

The object of this improvement is to dispense with the usual valves in the construction of pumps. The system of pipes *a* a^1 is fastened to a proper frame, which is hung in journals. By swinging this apparatus alternately in opposite directions, to an extent sufficient only to enable the water by gravity to run alternately from the pipe of one series to the pipe next above of the other series, the water is elevated and finally discharged above.

The inventor says: I wish it to be distinctly understood that I do not limit myself to the mode of mounting the said pump, and of imparting motion thereto, which may be varied at pleasure.

I *claim* the combination of the two series of oppositely inclined conical pipes, when the small ends of the pipes of one series are inserted and projecting within the body of the pipes of the other series, and *vice versa*, with sufficient space around the inserted ends for the return of the water, as the apparatus is vibrated alternately in opposite directions, substantially as and for the purpose specified.

No. 13,643.—Ellwood Garrette.—*Improvement in Vibrating Pumps.*—Patented October 9, 1855. (Plates, p. 180.)

Supposing the two-winged pistons *f h k g i* to be in such a position that wing *f h* is close to *m*, and wing *g i* close to *n*; as soon as axle *k* is turned so as to move the wings in the direction of arrow 2, the motion of wing *g i* will commence to create a vacuum in that part of compartment *d* which is in rear of the wing and compartment *e*, on account of the communication *b a c* between said parts of the two compartments. The water from inducting pipe *g* will enter the side passage, and (though opening *b c*) it will fill the compartments *d* in the same manner as the piston wing recedes from the opening *b*, and it will fill the compartment *e*, on both sides of wing *f*, as the wing-valve *h* will be free to open in the direction of arrow 1. When the wings have finished their quarter revolution and commence their return motion, the resistance of the water will close the wing valve *h*, and the wing *f*; in its motion towards *c*, will force the water (the communication of which with the induction pipe is cut off as soon as wing *f* in its return motion has passed the induction entrance) through *c a b* and through wing valve *i* (now opening in direction of arrow 1). By the time the wings have returned to their original position, the water (previously contained in compartments *e* and *d*) will have filled the compartments *d* and *o*. When the wings now perform their second stroke in the direction of arrows 2, the wing *g* will lift the water contained in compartments *d* and *o*; and by the time the second quarter revolution in the direction of arrows 2 has been completed, a quantity of water will have been forced up through the eduction pipe *m*, equal to the capacity of compartment *d*. At the same time the compartments *e* and *d* have filled with water in rear of the motion of the wings, as above described; and during the return motion of the second stroke (opposite arrows 2) the water will be forced in front of the wing *f* through *c a b*, and valve *i* into eduction pipe *m*. Thus this pump is made double-acting by means of two valves *h* and *i*.

Claim.—In vibrating double-acting pumps, the arrangement of the side passage *a*, with its openings *b c* into chambers *e a* respectively, in combination with the vibrating pistons *f g*, having their valves *h i* opening upwards, or in the direction of the outlet of the water, in the manner and for the purposes set forth.

No. 13,816.—D. W. Clark.—*Improvement in Double-Acting Pumps.*—Patented November 20, 1855. (Plates, p. 189.)

A represents the pump cylinder; B the valve chamber; C the inlet, and D the discharge pipes; and E E^1 E^2 the three passages leading from the cylinder to the valve chamber.

The pistons F F are arranged to play over a rod passing up through the centre of the cylinder to near its top. G G are the eccentrics by which the pistons are operated; they are connected to the pistons by links H H, which turn on the pins *a a* of the pistons and the pins *b b* of the eccentrics. These eccentrics have cog teeth *c c*, and conse-

quently both operate together when power is imparted to the crank I and transmitted from it directly or by intermediate cog gearings J J to the eccentrics. As the eccentrics revolve, one of the pistons is caused to descend while the other ascends, and water is discharged through the two passages E^1 E^2 and drawn in through E; and as they continue their revolution, the pistons move together, discharge the water which rushed in through E as one ascended and the other descended, and simultaneously therewith draw in water through E^1 and E^2.

The pins of the eccentrics (see fig. 2) are set so that they shall never be in line with each other, or both get on the centre at the same moment; the object in thus arranging them is, that when one of the pistons has just completed its stroke the other shall have commenced to return, and the pump be thus prevented from losing the water, as a continuous suction is kept up.

I do not claim the mere intermediate arrangement of the driving-gear to the two pistons in the one cylinder, as such is old; neither do I claim operating the pistons of pumps by revolving cranks or eccentrics, whether pitched in relation to each other, so that the pistons move simultaneously in opposite directions for the full length of their strokes, or only for the partial length thereof, when the said pistons operate in separate chambers or barrels, and are not driven by intermediate gear in the one cylinder or barrel.

I *claim* giving to the two reciprocating pistons, when arranged to move in the one cylinder by intermediate gear, as specified, a simultaneous travel in the same direction, at or about the period of change of stroke in the pistons, while for the remainder, or the greater part of their stroke, they travel in opposite directions to effect the required double action specified of the two pistons in the one cylinder or barrel, and whereby the one piston serves to follow up the movement of the other in their joint action upon the one body of water between the pistons, till a fair hold is got upon the water to render the suction continuous, neutralize the effect of leakage, and prevent the formation of an air or vacuous space between the two pistons at their turning stroke and run apart from the water between them, substantially as specified, by means of the revolving eccentrics G, or their equivalents, pitched or set with lead in relation to each other, and the two pistons of the single cylinder, as set forth.

No. 13,881.—Hosea Lindsey.—*Improvement in Pumps.*—Patented December 4, 1855. (Plates, p. 189.)

The piston-rods being connected by the guide-rods G, one piston will be forced outward as the other is shoved inward, and the water will be forced out of the upper end of pipe C in a continuous stream.

The pipe and cylinder can be turned by means of crank D, or other contrivance.

I *claim* the horizontal cylinder E and pipe C, connected as shown; the cylinder being provided with valves *b b*, and piston-rods F F, the piston-rods being operated as the pipe C and cylinder E rotate by the curved flanch I, as shown and described, for the purpose specified.

No. 13,930.—C. D. Wright.—*Improvement in Rotary Pumps.*—Patented December 11, 1855. (Plates, p. 190.)

The hollow shaft E serves as a force-pipe. When motion is given the shaft E and sphere C, rotating in the direction indicated by arrow, (see figure 1,) a suction or exhaust is created in the compartment *f* of the shell B behind the piston G, and the water will pass through suction pipe A into the compartment *c* of the shell, and from there through the opening H at one side of the flanch, enter and fill the compartment *f*; and when the same opening on the opposite side of the flanch passes out from the concave *a* in the inner side of the shell or body, the water will pass into the other compartment *e* of the shell B, and will be forced during the succeeding revolution of the sphere through the opening H, in front of the piston, and into the compartment *b* of the sphere, and out through the hollow shaft E. When the openings H on one side of the flanch D are open or free from the concave *a* adjoining them, the openings on the opposite side of the flanch are covered by the concave *a* adjoining them. By this means the proper cut-off between the compartments of the shell or body B are obtained, flanch D and piston G working water-tight against the inner side of shell B.

I *claim* the construction of the pump, as shown, viz: having the hollow sphere C placed within an inclined or oblique shell B, which forms the body of the pump, the sphere being attached to a hollow shaft E at one side, and communicating with a section pipe A at its opposite side, two opposite sides of the sphere fitting in concaves *a* in the side of the shell, the sphere being also divided into two compartments *b c*, one of which *c* communicates with the suction pipe A, and the other *b* with the force-pipe or hollow shell E; the sphere having a flanch D attached to it, which divides the shell or body B into two compartments *e f*, and the flanch having a piston G working in it, at each side of which apertures B are made in the sphere C, the above parts being arrayed, substantially, as shown, and for the purposes specified.

No. 13,967.—Joseph Weis.—*Improvement in Suckers for Pumps.*—Patented December 18, 1855. (Plates, p. 190.)

On the bucket being raised in the barrel A the pressure of the column of water above keeps the gum-elastic E tight over the orifices *d* in the hollow cone C, and prevents effectually any escape in that direction; while the same pressure also causes that portion of the gum-elastic which projects above the hollow cone to bend outwards and bear against the inside of the barrel, thereby forming a secure and water-tight packing. On the descent of the piston or bucket, the water below pressing through the orifices *d* against the gum elastic, forces the latter inward, and causes it, at the spaces intervening between the wings of the wedge-shaped block G, to assume the form shown in dotted lines, and thereby allows a free passage for the water. The moment the upward stroke commences, the gum-elastic resumes its former position. The cylindrical portion D serves as a guide.

I do not lay claim, exclusively, to cone-shaped elastic substances as

self-packing apparatus for pump-buckets, the same having been used before;

But I *claim* the wedge-shaped block G, with any convenient number of wings, in combination with the perforated hollow cone C, and the similarly shaped piece of gum-elastic, or other similar substance, E, arranged and constructed substantially as specified, the same to be applied as buckets or valves for pumps.

No. 13,979.—Thomas Crane.—*Improvement in Rotary Pumps.*—Patented December 25, 1855. (Plates, p. 190.)

By rotating the shaft C the eccentric hub D will cause the annular piston E to move within the chamber A, the periphery of the piston touching the inner side of chamber A only at one line as it passes around within the cylinder; and as the valve or cut-off F is attached to the edge of the annular piston E by projection *b* on said valve, being fitted loosely in the annular slot *a*, a reciprocating motion is given to the cut-off F. As the piston E moves in the direction indicated by the arrow, the edge of the piston divides the chamber A into two compartments, the obtained vacuum being the suction portion; and as the cut-off F moves downward in the chamber B, the recess *d* projects into the chamber A, and the water passes up through the suction-pipe H into part *f*, and at the same time the water drawn up previously is forced out of the other compartment *g* by the movement of the piston, the water being transferred from the suction to the force-passage, as the outer edge of the piston passes from the point *h* to the point *i*; and when the piston touches those points, the recess *d* is withdrawn from chamber A, so that the piston is not allowed to react and drive the water down the suction-pipe H.

I do not claim the eccentric hub D and annular piston E, for they have been previously used;

But I *claim* the combination of the hinged valve F with the eccentrically moving round piston E, when said valve is of the shape represented in the accompanying drawings, and is so arranged in relation to the pump-chamber A, the off-set chamber B, the suction-pipe H, and the eduction-pipe G, as to render it impossible for said pipes to be for an instant brought into connection with each other during any portion of the revolution of the piston E, substantially as set forth.

No. 13,590.—Daniel Bedford.—*Apparatus for Discharging Reservoirs, etc.*—Patented September 25, 1855. (Plates, p. 190.)

The object of this improvement is to stop off the connection between the outlet-pipe *b* with the reservoir *a*, making it sufficiently tight to prevent the escape of noxious gases, and retaining a large quantity of water in the receptacle till the discharge takes place, when the whole contents are suddenly disgorged into the outlet, which acts as a percussive force to drive off all the more solid contents of the receptacle.

l is the water supply-pipe.

The inventor says: I lay no claim to a float for either opening or closing a valve, nor do I claim a balance-valve, when the levers and weights thereof are not so arranged as to hold the valve open when opened by the weight of water, &c.; these being old and well-known devices, and forming no part of my invention, which is the tumbling lever-valve, and, combined therewith, the float.

Therefore, I *claim* the mode of hanging and balancing the valve *c*, by means of the lever *e* and its appurtenances, in the manner and for the purposes set forth.

I also claim, in combination therewith, the float *g*, for closing the valve *c* when the whole contents of the receptacle are discharged.

No. 13,126.—Moore Russell Fletcher.—*Tidal Alarm Apparatus.*—Patented June 26, 1855. (Plates, p. 190.)

When the tide falls, the float F will move downwards with it and turn the barrel A, which will put in motion the striking apparatus and wind up the weight G, and *vice versa*, during the rise of the tide.

The inventor says: I do not claim a series of levers or hammers applied to a bell, nor a cylinder with tappets or pallets to operate such levers and cause them to be successively raised above and allowed to fall down upon a bell or a series of bells.

But I *claim* the improvement by which the bell is sounded both at rise and fall of the tide, meaning to claim the two tripping cams *n o* applied to each hammer, in combination with the float F and weight G, as applied to the barrel A, and made to put in revolution the said barrel as described, and thereby cause the tappet-cylinder to actuate the hammers either during the rise or fall of the tide, as explained.

No. 13,446.—Caleb Winegar.—*Method of Drawing Water from Wells.*—Patented August 14, 1855. (Plates, p. 190.)

D D are the two wires with the weights E E, which wires guide the gate B, which supports the bucket A, and which is drawn up and let down by a chain *c* attached to the said gate.

Claim.—The guiding of the bucket by means of two wires, or their equivalents; suspending two weights near the bottom of the well, in combination with the gate-frame, in the manner described.

No. 12,346.—Richard Deering, Sr.—*Current Water-Wheels.*—Patented February 6, 1855. (Plates, p. 191.)

The object of this invention is to furnish a portable water-power, connected with a scow or vessel, so that it may be transported from place to place and anchored in any current.

The screw or worm is made concave on the side, with a small flange on the edge for the purpose of retaining the water as much as possible on the screw, which would otherwise tend to fly off at the periphery; and, as the power of the current on the screw will gradually lessen as

it progresses, the conical centre *c* will throw it towards the periphery of the screw, where its remaining force would be most available.

Claim.—The concave flanged screw, in combination with the conical body or centre, as and for the purposes set forth.

Also, the arrangement herein described of hanging the water-wheels and other machinery in framing adjustably connected with the vessel or scow, whereby they may be raised or lowered, for the purposes specified. (See engraving.)

No. 12,420.—Thos. Tripp.—*Water-Wheel.*—Patented February 20, 1855. (Plates, p. 191.)

Claim.—So constructing the buckets that the direct surface (of the warped surface-bucket) shall receive the water in a direction normal to a plane parallel to the axis; and the reacting surface combined therewith, having its central line equi-distant from the axis, and at the same distance therefrom as is the central line of the direct surface.

No. 12,569.—Oscar Willis.—*Centrifugal Water-Wheel.*—Patented March 21, 1855. (Plates, p. 191.)

The sides of the nut and rim of the wheel which form the sides of the bucket are bevelled to such an extent as will give space for the water to pass off without offering any resistance to the pursuing bucket, and at the same time to present a surface on each side of the bucket diagonal to the central vertical line of motion to receive the reactive power of the water acquired by its spreading on the bucket. The buckets range on the top of the wheel on a line in front of the centre of the wheel tangential to a circle of suitable diameter described around said centre, so as to receive the water at such an angle as will overcome the centrifugal direction it has obtained in passing the inclined ways in the block, or bottom of the forebay, and thus prevent it from running or rushing to the outer edge or rim of the wheel. The wheel is shrouded on top so as to prevent the escape and loss of water in its applications to the buckets, and to prevent injury being done to them by any hard substance hanging between them and the inclined ways in the block or bottom of the forebay. The orifice of discharge from the block is so proportioned to that at the tail of the bucket, that a column of water about one-third less in size than that of the orifice of discharge at the tail of the bucket is all that can be admitted at a time to the wheel's buckets. The buckets are set in the nut and rim of the wheel on a curved line, and the centre part of the top edge of the bucket is bent forward in the direction of its motion; so that the top of the bucket is curved on its edge, and the upper part of the central vertical section of the bucket, where the water first strikes, is a straight inclined plane at a slightly-obtuse angle with the direction of the water.

The inventor says: I do not claim a curved bucket, nor do I claim bevelling the nut and rim individually, nor do I claim them when combined in such a form as to facilitate the escape of the water only, as this has been done by Fontaine Jonval, and others, previously.

But I *claim*, 1st, the peculiar double-curved buckets, in combination with the bevelled rim and hub, or nut, in the manner and for the purposes set forth.

2d. I also claim ranging the top of the bucket on a line tangential to a circle of suitable diameter, described around the centre; its inner being in advance of the radial line, substantially as and for the purposes specified.

3d. I also claim forming the annular water-space on the upper side of the wheel, substantially as and for the purposes specified.

No. 12,606.—William S. Smith.—*Current-Wheel.*—Patented March 27, 1855. (Plates, p. 191.)

d are braces which connect the paddles *c* to the upper hub *a*; the lower hub *a*, to which the paddles are attached, is united to the upper hub by means of bolts *b*. This hub *a a* is movable on shaft S, and can be elevated or depressed by a lever. The shaft inclines outwards from the bank, so as to bring the paddles nearly horizontal when they reach the water; the depth to which they are permitted to descend being regulated by means of the sliding-hub, which can be maintained at the desired height by a pin *m*.

Claim.—The construction of current-wheels, with heads or hubs movable on the shaft, as and for the purposes set forth.

No. 12,779.—James B. Hurt.—*Mode of Applying Eccentric Wheels to Water-Power.*—Patented May 1, 1855. (Plates, p. 191.)

No description required.

Claim.—The water-wheel, without arms or main shaft, revolving on fulcrum-wheels underneath, thereby lengthening out the lever-power near the whole diameter of the wheel; the thin and thick interties shouldered and bolted to each rim; the cast segments bolted to middle rim, which gears into the cogs of wollower on horizontal shaft, extending across on the inside of water-wheel; also, the two revolving fulcrum-wheels, with flanges on the outside of each wheel to keep the water-wheel in its true position.

No. 12,927.—John Tyler.—*Curbs for Water-Wheels.*—Patented May 22, 1855. (Plates, p. 191.)

This improvement enables the outer extremity of the lip *b* to be brought closer to the extremities of the buckets than it would be safe to do if it were a solid portion of the curb. Any impurities or obstructions drawn into the wheel and brought into contact with the said lip will throw the lip open, (see figure 1,) and thus prevent injury to the curb or buckets.

Claim.—Combining the within-described hinged-lip *b* with the curb

of a water-wheel in such a manner that its inner curved surface forms the termination of the scroll water-way surrounding the wheel, whilst its straight surface forms one side of the mouth of the said scroll water-way, for the purposes herein set forth.

No. 12,949.—Dean S. Howard.—*Water-Wheel.*—Patented May 29, 1855. (Plates, p. 191.)

The object of this arrangement of the buckets and plates between, is to receive the direct action of the water at the periphery of the wheel, whence the buckets verge from a vertical towards a horizontal course along the shaft, forming a double conical screw.

Claim.—The combination of the curved sides and twisted buckets, whereby the water is discharged at or about a right angle with its course in the scroll on entering the wheel, when the pressure of the water is applied to the convex side of the bucket, the wheel revolving in the same direction that the water passes through the scroll, as and for the purposes described.

No 13,172.—Birdsill Holly.—*Method of Regulating the Issue-Apertures and of suspending Turbine-Wheels.*—Patented July 3, 1855. (Plates, p. 192.)

As the hand-wheel P is turned, the action of the screw M and nut K will raise or lower the wheel A, and thus regulate the extent of the issues.

Claim.—The mode described of opening and closing the issues, and regulating their extent, in combination with the mode of hanging the revolving-wheel, as set forth.

No. 13,280.—Willard M. Wheeler.—*Water-Wheel.*—Patented July 17, 1855. (Plates, p. 192.)

The rims B have spaces A for the buckets C to play in. The buckets (which are pivoted at E), after passing guard *o*, are opened a little by the springs L, when the water catches in the bucket, and throws it open; the pivots of the buckets pass through the rim, and are fitted to receive arms F, which have friction-pulleys G at their ends. Around these pulleys there is placed an endless band D, which is just long enough to allow the buckets receiving the action of the water in the flume M to be open, and hold the others, all or nearly all, closed. The guard *o* fits down between the rims to the body of the wheel, and has a lip extending up over the wheel rather more than the width of the bucket. In the guard *o* there are fitted slides, with springs to press them out against the rims to keep a tight joint. These slides are made large enough to cover one of the spaces A at each side, and prevent the water rising around and over the guard *o*.

1st. I *claim* closing the buckets by means of the band or chain in connection with the arms and springs, operating as described.

2d. I claim the guard with its slides, operating in the manner and for the purposes described, or any other substantially the same.

No. 13,287.—Henry Van De Water.—*Turbine Water-Wheel.*—Patented July 17, 1855. (Plates, p. 192.)

By raising or lowering the cylindrical gate E, the opening for the discharge of the water between the lower edge of said gate and the surface of the cone C can be regulated. The chutes or guides *i* are curved or of a spiral form, corresponding to the buckets *h*; and at the mouth of each chute there is a slide *j*, which is connected to a circular rim I, which rim can be raised or lowered, (by proper mechanism, not shown in the engravings,) so as to increase or reduce the mouth of each chute.

The inventor says: I am aware that the French turbine (Jonval's) receives power from the water the same as mine, viz: first, by gravity, and then by suction. The first column operates by the same law as in ordinary wheels; the second part of the column, that is to say, from the bottom of the wheel to the lower part of the fall, would in ordinary wheels, which discharge in the open air, be of no additional effect to the wheel, as the water would leave this point without velocity, and would only fall by its gravity. I do not claim, therefore, placing the wheel H within a cylindrical casing, the lower end of which is immersed in the "tail-water" underneath the wheel; for that has been previously done.

But I *claim*, first, the employment of the guide or concave conical projection C, at the lower part of the casing A, in combination with the cylindrical gate E; the above parts being constructed and arranged as shown, and for the purpose as set forth.

2d. The chutes or guides *i* placed above the wheel H, in combination with the slides *j*, which form a gate by which the water is admitted in proper quantity upon the wheel, and tangentially thereto, as described.

3d. Surrounding the wheel H with an annular chamber or recess *g*, in combination with the buckets *h* of the wheel H, when said buckets are formed as shown, viz: with smaller spaces between their lower ends than their upper ends, for the purpose of causing the water to act upwards against the lower surfaces of the buckets, and thereby relieve the step of the shaft D of the weight of the wheel and said shaft, as shown and described.

No. 13,366.—C. C. Taylor.—*Improv d Bucket for Water-Wheel.*—Patented July 31, 1855. (Plates, p. 192.)

Fig. 3 represents a section on line *x x*. The water enters through *h* in the direction of arrow 1, impinging upon *e* with direct percussion, and passing from the bucket, as indicated by arrow 2, when it favors rotation in the direction of arrow 3 by reaction. After the water strikes *e*, the centrifugal force due to rotation carries a portion of the water

outward into the conical part *c* of the bucket, upon which it reacts on leaving the wheel, adding to the reactive power of the wheel.

Claim.—Swelling the outer portion of the bucket into a conical surface, as described, and combining the same with the double-inclined plane *e d*, substantially as and for the purposes specified.

No. 13,458.—Wm. Fields and Solomon Gerhard.—*Improved Pressure Water-Wheel.*—Patented August 21, 1855. (Plates, p. 192.)

The valve B is opened by the inclined side of each bucket when the wheel is in motion, the valve being pivoted in the centre, so that the pressure of the water above the valve is nearly balanced, requiring very little power to open it.

Claim.—The combination of the valve B with the buckets A upon the wheel D revolving in the case C, substantially as described.

No. 13,685.—Hiram Morris, Elijah K. Gorton, and Edward Saeger.—*Impact Water-Wheel.*—Patented October 16, 1855. (Plates, p. 193.)

Each of the buckets *c* has a vertical slot through its middle part, through which a bolt *e* passes, which bolts hold the upper *f* and lower rim *g* together. The rims have segmental incisions *a*, which receive the flanges of the buckets, and which incisions are somewhat longer than the buckets, which latter have the same curvature as the incisions. Consequently each bucket can be turned towards or from the centre of the wheel, so as to close the buckets or open them more or less, and they can be fastened in the desired position by means of a latch *h* (pivoted to the side of each bucket) taken into one of the small holes *b* in the lower rim.

d is the circular concave packing-ring, which is to guide the water into the wheel, which can be adjusted higher or lower by means of adjusting-box P.

Claim.—1st. The buckets, so constructed as to be adjusted and movable to open and close the issues, as may be desired, by means of the circular grooves in the rim of the wheel and flanges on the buckets, and the studs and bolts passing through the buckets, and the fastening the buckets in any desired position by means of a latch and catch, in the manner described.

2d. We claim a circular concave packing-ring and decking, with the adjusting-box, constructed in the manner described.

No. 13,793.—Richard L. Nelson.—*Self-Feathering Adjusting Tide-Wheel.*—Patented November 13, 1855. (Plates, p. 193.)

Hub C is so arranged that it may freely slide up and down on shaft B, but turns with said shaft. Rods *a* pass through said hub, and two buckets D D^1 (the broad surfaces of which are at right angles to each other) are attached to each rod *a* both sides of the hub. To the lower end of the hub, so as to rise and fall with it but not to turn around with it, is arranged a segmental cam E. As the blades D^1 (which are the ones receiving the action of the flowing water and stand perpendicularly therein) strike the incline *b* of the cam, they turn to a horizontal position, bringing their fellows D into a vertical position.

F is a brake-disc attached to shaft B; *e e*^{1} are pressing-wheels arranged in sliding pieces G G^1, connected to levers H, which latter are pivoted *f*, and have floats I I^1 at their upper ends. When the current is in the direction of arrow 1, the brake-wheel *e* is drawn away from disc F, and the wheel *e* is forced against it by the power of the current, carrying with it float I; and *vice versa*, when the current flows in the direction of arrow 2.

Claim.—The arrangement of the floating cam and the floating self-feathering blades or brackets, when said cam and blades are made to rise and fall with the rise and fall of the stream or water that drives the wheel, substantially as described.

Also, in combination with a tide or current water-wheel, the self-acting water-brake, for causing the variable force of the current to be applied to the regulating of the speed of the wheel, substantially as described.

No. 13,895.—John H. Gatiss, assignor to Abraham Edwards.—*Improvement in Water-Wheels.*—Patented December 4, 1855. (Plates, p. 193.)

A represents a rectangular box, with an opening B in its centre for the expended water to escape from. The buckets D D, etc., are fixed radially on shaft *e*^{1} by means of arms *a a*, etc. Tangential with the circle described by the outer points of the buckets, are placed the wings E E, etc., so as to leave water-ways or inlets *c c*, *c*^{1} *c*^{1}.

F, figure 2, is a desk which fits snugly over the wings E, and is fastened to it by means of screws *f f*, etc., and holes *i i*, etc. G G are two segmental pieces, having upon them the gates *k k*, etc., so set that they will slide with the grooves *e e*, etc., in the wings E, and close or open the passages. To each of the pieces G G is attached a rod H, by which rods they can be raised. The shaft of the water-wheel can be excluded entirely from the water by means of trunk I. Figure 3 represents the shape of the buckets; the lips or flanges *b b* are for the purpose of holding the water to the face of the bucket, and causing it to escape to the centre of the wheel; and bringing these lips to a sharp edge, as seen at *b b*, prevents the formation of a counter current at those points.

I am aware that centre-vent water-wheels have been used, and that the shafts of such wheels, as well as the wheels themselves, have been enclosed in a flume; these, therefore, I do not claim.

But I *claim* the arrangement of the gates, passages, and buckets of a centre-vent wheel, such as described; so that the water may act upon each bucket simultaneously and with equal force, first striking them at their very lowest points, and held thereto by the lips or flanges, and then escaping to the centre discharge, as set forth and shown.

No. 13,198.—Atchinson Queal.—*Impact Water-Wheel.*—Patented December 11, 1855. (Plates, p. 193.)

A semi-circular horizontal rim B is permanently fitted around a suitable framing, and has two plates *a a* attached to one of its ends, which ends form a quarter circle in length. C is the wheel, which is formed of a circular head D fitted directly over the rim B; to said head D a circular plate E is attached underneath the rim B. An aperture F is made through the centre of the head and plate E, said aperture being made through a solid hub *b;* and the shaft G passes through this aperture, the shaft being connected to the wheel by pins *c*, which fit in the sides of the hub *b*, said pins projecting from opposite sides of a ball *d* on the shaft.

M is the induction, and N the eduction opening, the two passages being on opposite sides of the partition L. The water acts in the space between the head D and plate E upon one of the buckets H, which descends within the space as its roller *f* descends the inclined semi-circular rod J, and the wheel is turned in the direction indicated by the arrow, figure 1. When the bucket H approaches the eduction-passage N, it is raised in consequence of its roller *f* passing up the inclined rod J, and the water is discharged. (See arrow 2, figure 2.) The other bucket is operated in a similar manner. By this improvement the water is not allowed to act laterally upon shaft G, and consequently under-friction in the bearings is avoided. The head D and plate E are also kept parallel with the rim.

I *claim* the sliding-buckets H H placed in the head D of the wheel, and operated by the inclined semi-circular rod J, in combination with the partition L, arranged as shown and described.

I further claim attaching the wheel C to the shaft G by means of the pins *c c* fitting in the hub *b*, the pins being attached to a ball *d* on the shaft, for the purpose set forth.

No. 12,208.—Frank G. Johnson.—*Self-Regulating Wind-Mill.*—Patented January 9, 1855. (Plates, p. 193.)

The inner ends of the sails A are pivoted to (what the inventor calls) the spoke-wheel *h* (only two of the sails A being shown in the engraving.) This wheel *h* is keyed to the shaft N. The regulating-wheel *c* and the brake-wheel *d* turn loosely on the same shaft. The inner ends of the sails are mounted on plates P, each of which has an arm with a slot S fitting over one of the pins *b* on the circumference of the regulating-wheel. Bolts *d* are attached to the spoke-wheel, and pass through slots *i* in the regulating-wheel, so that they do not interfere with the motions of this wheel; on their outer ends (between the regulating and the brake wheel) they form the fulcra for bent levers, the longer arms *x* of which carry weights at their ends; the shorter arms of them are connected to the rim of the regulating-wheel by means of spiral-springs *o*, and thus they (the shorter arms) are drawn towards the rim of the regulating-wheel, and the arms *x* towards the central axis N. But when the velocity of the wind-mill increases, the weighted ends of the arms *x* will fly out by their centrifugal force; and as the shorter are pivoted (in *e*) to the regulating-wheel, this latter will be moved in the direction of the arrow *y*, and the pins *b* will move the outer ends S of the plates P around the centres E of the plates, and the edges of the sails will turn against the wind.

The shorter arms have prolongations *g*, to the ends of which cords *j* are attached; the other end of said cords is wound around the hub *m* of the brake-wheel *d*. By pulling cord *i* the arm *o* of brake-lever *o p* will press upon the circumference of the brake-wheel and retard its motion, while the wheels *c* and *h* pass on. The cords *j* will wind around the hub of the brake wheel and draw in the arms *x*. Thus the sails can be turned edgewise to the wind, and the mill be stopped whenever desirable.

The inventor says: I do not claim as my invention the method or principle of regulating wind-mills by the use of weights or governors revolving with or by means of the wind-mill, and controlling the sails thereof through the intervention of levers and cords.

But I do *claim*, 1st. The combination together of the hub or spoke-wheel, the regulating-wheel, (figure 3,) and the brake-wheel, etc., (figure 1,) with their several parts, constructed, operated, and controlled substantially in the manner and for the purpose herein set forth.

2d. The combination together of the weighted levers *x x x*, the hub or spoke-wheel, and the regulating-wheel, (figure 3,) substantially in the manner and for the purpose herein set forth.

No. 13,067.—Charles R. Webb.—*Wind-Mill.*—Patented June 12, 1855. (Plates, p. 193.)

The claim and engravings sufficiently explain the nature of this improvement.

The inventor says: I do not claim anything as to the form of sails, as my invention can be applied to all kinds. I do not claim the general principles embraced in my arrangement of mechanisms for operating wind-mills.

But I *claim* placing the two cog-wheels G F in the head of the mill, so that they shall gear into each other in the centre thereof, and bringing down the power from said wheels by an oblique shaft, whose foot or bearing is vertically beneath the teeth in contact in the head of the mill.

No. 13,156.—Addison P. Brown.—*Self-Regulating Wind-Mill.*—Patented July 3, 1855. (Plates, p. 194.)

The outer hinge L on each arm I of the fan encloses the arm, and has in it a helical slot, with a pin in the arm. The hinge itself is heavy, being virtually a weight, the centrifugal force of which will tend to turn the fan edgewise. Any sudden impetus of the wind moves the two sliding-hubs E and N, overcoming the spring F, and lifting the weight G; and the bars G, by means of their thimbles H, push the fans K further out upon their respective arms I, while the helical slot and

pin at L turn each fan simultaneously edgewise to the wind to a degree proportionate to the force of the wind.

Claim.—1st. The helical slot and pin, as a means of governing the degree of obliquity of the fans to the wind.

2d. The combination of weights with the helical slots and pins, combined and operating in the manner and for the purpose specified.

No. 13,244.—JOHN ELGAR.—*Self-Regulating Wind-Mill.*—Patented July 10, 1855. (Plates, p. 194.)

Two wings C C are hung with hinges by their edges to each arm of a vertical wheel, independent of each other, which may revolve about their hinges within certain limits, and are kept up against stops in their proper angle to the wind, in plane with each other, by springs acting on the back of the wings. The wings, which, in the rotation of the wheel, are aft of the arms, are held up to their stops by springs so strong as to yield only in a storm, and thus relieve the wheel from too great pressure. In common winds they are stationary, and furnish the means of a constant power to propel the wheel, while the wings which are forward of the arms are held up to their stops in light winds by weaker springs, and move back when the breeze is stronger.

Claim.—A double set of wings attached to the arm of a wind-wheel and to act in the following manner: One set, those that are *behind* the arms in the line of rotation, are stationary in their plane, except in a storm, and furnish the means of a *constant* power; while the other set, those which are forward of the arms in the rotation of the wheel, are controlled by the wind and springs so as to act automatically, even in the varying impulse of the wind, and relieve it from danger of injury in a storm, substantially as described.

No. 13,247.—BENJAMIN FRANTZ, assignor to JOHN PHILLIPS.—*Self-Regulating Wind-Mill.*—Patented July 10, 1855. (Plates, p. 194.)

The wind, when too violent, will depress the fan M and lever K, and regulate the position of the fans G by the operation of the intermediate parts mentioned in the claim.

Claim.—Making a direct use of the wind itself for governing wind-mills, by means of the wind-lever K, or its equivalent, connecting rods *m m*, collar I, and strap-rods *e e*, in combination with the wings G G, substantially in the manner set forth.

No. 13,268.—J. S. MORGAN.—*Wind-Mill.*—Patented July 17, 1855. (Plates, p. 194.)

The inventor says: I do not claim separately forming the wings or sails in pairs, and connecting the same by pinions so that the two parts of the sails or wings will move simultaneously towards and from each other, for this has been previously done; but for the purpose only of allowing the sails to close when moving against the wind, and to open

when acted upon by the wind, there being no device applied for the purpose of regulating the wings or sails to insure an equal motion of the mill.

I *claim* connecting the weights *m* to the wings or sails *h* by means of the cords or chains *j i*, said wings or sails being arranged in pairs and connected by pinions *g g* and weights and cords or chains, arranged substantially as shown and described.

No. 13,288.—JOS. DICKINSON AND OLIVER WHITE.—*Self-Regulating Wind-Mill.*—Patented July 17, 1855. (Plates, p. 194.)

When the wind, acting against the face-plate F, becomes sufficiently strong, it will overcome the action of spring I, and push back the plate, and turn the vanes C, as they are connected with the plate by means of cranks H and rods G.

The figure represents a plan of the machine.

Claim.—Applying to a wind-mill or motor a governor or regulator, which shall change the angle of the vanes with the plane of the periphery of the wheel, thus regulating the force of the wind upon them, by the force of the wind or motive power alone, by means of the face-plate F, spring I, rods G, and cranks H, or their equivalents, constituting an arrangement effecting the purpose set forth.

No. 13,969.—JEREMIAH BURNITE, assignor to HIMSELF and JAMES CLARK.—*Improved Arrangements and Combinations of Machinery for Regulating Velocity of Wind-Wheels.*—Patented December 18, 1855. (Plates, p. 194.)

The plates L and D (to which latter is secured the wind-wheel frame A) are keyed to shaft C; the shafts E and F revolve with shaft C without revolving on their own geometrical axes; and wheels I and K, being in gear with the cog-wheels M and N, revolve around their own axes at the same time they revolve around shaft C. The cogged-rim P^1 is fastened to the frame of the machine by pillars O^1; and the wheels M^1 N^1, on the same shafts with wheels M and N, play respectively around the outer and inner circumference of rim P^1. When, through the increasing force of the wind, the wind-wheel makes more revolutions than required, then the balls O, by their centrifugal power, will rise, and by means of the links P, they will raise the plate Q. The plate R is firmly connected with plate Q by means of rods *h*, which pass through holes in disc S. Two other discs, *k* and *l*, are secured together firmly by means of braces T. On the lower disc K rests a vertical rod *q*, which is also held by the upper disc *l*. When, by the rising of disc R, the discs *k* and *l* are raised, the rod *q* is raised with them, and striking with its head against cross-piece *p*, which connects the two cylinders *d*, it thus strikes the pieces g^1 and with it the clutch m^1, when, at the same time, it lowers *g* and the clutch *m*, so that the recess in clutch *m* will catch the pin projecting from wheel K, causing the wheel K and shaft F to revolve with the clutch. Thus a revolving motion will be imparted to wheel U, which latter is provided with cogs on its inner

periphery, where it is acted upon by one of the wheels G or H; besides these, it is provided on its lower periphery with bevelled cogs, which act on the bevel-wheels s on screw-shafts X, one to each of the said frames W. As soon as the bevel-wheels and screw-shafts revolve, the said screw-shafts (passing through nuts V, attached to frames W) move the sliding frames W radially inward, so as to diminish the leverage of the sails, and consequently to retard the motion of the wind-wheel. It will be understood that when the wind becomes too weak the clutch *m* will have risen, and clutch *m*¹ will sink and clutch the wheel I, and wheel G will move plate U in the oppo-ite direction, and the screw-shafts X will move the sail-frames radially outwards so as to increase their leverage.

During the movement just described, the sails themselves undergo a change. Each of the wings consists of two separate frames, one of which is movable in shaft *u*, the other stationary. The two frames have alternate square openings, so as to present one continuous surface when the wind acts with average force. When screw-shaft X moves the sliding frame inward, the bevel-wheel *r* is turned by running over rack *s*, and thus *t* is turned together with screw-shaft *u*, which latter, by passing through a nut attached to the movable one of the two sail-frames, depresses said movable sail-frame so that the openings in the two frames, after a certain movement, correspond together; and thus the surface of the wing on which the wind can act will be reduced, and the motion of the wing will also be retarded.

Claim.—First, causing the vanes or sails to traverse automatically from or towards the centre of the wind-wheel, by means substantially such as described and for the purposes set forth; also, in connexion with the centripetal and centrifugal traversing of the sails, or vanes, the vertical adjustment of the same, viz: causing the double lattices, of which the vanes are composed, to expose more or less surface to the wind, by making the slats of one cover more or less the openings in the other, substantially as described.

XII.—MECHANICAL POWERS.

No. 12,732.—Lewis Smith.—*Compensation Bearings.*—Patented April 17, 1855. (Plates, p. 195.)

A represents part of a cross-head, and C C the bearings or gib of the slide B. C C are made of brass; the bars D D, forming a toggle joint, are of iron. If the brasses bear too heavily on the slide, the heat produced by undue friction will cause the brasses to expand more than the bars, and thus the toggle joint will be allowed to straighten, and the gib to move slightly away from the slide. The same principle can be applied to journal-boxes, &c.

Claim.—Relieving bearings of machinery from undue pressure, and consequent friction, by means of the different expansion of two or more

different metals; the parts being constructed, combined, and operating substantially as herein set forth, or in any other manner substantially the same.

No. 12,928.—Jonathan Whipple, Jr.—*Improved Self-Acting Nipper-Block.*—Patented May 22, 1855. (Plates, p. 195.)

The part E of lever E D has on its upper side a groove (terminating into a fork F). The rope passes freely between the fork and between the said groove and the groove of the pulley A, when travelling in the hoisting direction (see arrow *x*). As soon as the drawing power and the hoisting ceases, and the rope tends to move back in the direction of arrow *y*, the ratchet-wheel R, on the axis of pulley A, acts upon pawl C, thereby depresses the arms D of lever D E, presses arm E upwards, and clamps the rope tight between the two grooves.

Claim.—The construction of the self-acting nipper-block with one wheel or pulley, combined with a ratchet-wheel, pawls and levers, and jaw or nipper, substantially as set forth and described.

No. 13,976.—Benijah J. Burnett.—*Improvement in Cranes.*—Patented December 25, 1855. (Plates, p. 195.)

The nature of this improvement will be understood from the claims and engravings.

Claim.—1st. The pendant segmental traveller E, freely suspended and balanced from the jib and top of the tower by means of the main braces B and back-stays A, arranged to spread outwards from towards the top downwards, as shown and described, and whereby the "tripping out" or lateral displacement of the foot of the crane or segmental traveller E is obviated, all twisting or binding avoided, and a perfectly free but steady action given the same, either as regards pressure in the vertical direction transferred to the top of the tower, or horizontal swing, as set forth.

2d. The combination and arrangement with the segmental traveller E, or swinging foot of the crane of the circular or revolving frame H, of anti-friction rollers *r* freely suspended on the tower, and rotating round the same, together with the swinging foot or segmental traveller, by the horizontal pressure of the latter on the rollers, in contact with their bite, on or against the fixed belt *x* surrounding the tower, substantially as shown and described for the purposes set forth.

No. 2,288.—Isaac J. Cole.—*Improved Compound Crow-Bar.*—Patented January 23, 1855. (Plates, p. 195.)

This instrument is particularly designed for use on railroads, in assisting to lift the wheels of locomotives when off the track.

The inventor says: I do not claim the combination of the two levers B C, as such a combination is well known; but I *claim* the combination of two levers B C, the latter having a circular projection G on its lower

side, with the head-block A, in the manner and for the purposes substantially as set forth.

No. 13,269.—Edward Mingay.—*Improvement in Derricks.*—Patented July 17, 1855. (Plates, p. 196.)

By winding up rope *k* by turning windlass *f*, the long arm of lever *h* will be depressed, and weight *l* quickly elevated, while, at the same time, windlass *g* being operated, also assists in raising the weight; after the weight has been raised, *h* can be elevated to its original position by means of rope *r*.

Claim.—Attaching to a derrick a lever *h*, having its fulcrum *i* in the boom *c* of the same, and actuated by a rope *k* and windlass *f*, substantially as described.

No. 13,813.—G. W. Bigelow.—*Improvement in Cutting Teeth of Gear-Wheels.*—Patented November 20, 1855. (Plates, p. 196.)

The blank B¹ is secured to the upper end of shaft U, and the cutter C¹ to the slide G. Motion being given the driving-shaft I, the shaft C will rotate, and pinion F will force down the slide G. When the cutter has performed its work, one of the smooth portions of the periphery of pinion F will come in contact with rack *d*, and spring H will throw up the slide G to its original position. Just previous to the termination of the downward stroke of the slide, one of the pins *i* will catch into recess *h* in arm Z, and will raise bar Y; and the belt R, (which passes around pulley P and a pulley at the end of shaft C,) while the slide G is descending, will wind up the coil-spring Q, the shaft M being prevented from turning in consequence of the pawl X bearing against one of the projections *e* on plate O. As soon as slide G is thrown up by spring H, the pin *i* will pass out of recess *h*, and bar Y will fall and strike upon the outer end of pawl X, and throw the inner end free from the projection *e*; and the coil-spring Q will then rotate the shaft M about half a revolution, until the pawl catches against the other projection *e*, and shaft L will also be rotated in consequence of gear-wheels N N, and screw S will turn the worm-wheel T, and the blank will be turned a requisite distance, preparatory to the next cut of the cutter. The blank may be turned a greater or less distance at each stroke of the slide by placing different sized wheels N N upon the shafts L M.

Claim.—Giving the blank or wheel to be cut an automatic feed-motion, by means of the pulley P on the shaft M, said pulley having a coil-spring Q within it; the screw S on shaft L, the worm-wheel T on the lower ends of the shaft U, and the circular plate O having projections *e e* upon its periphery, and the pawl X and bar Y provided with the arm Z, the arm being operated by the pins *i* on the inner side of the pulley D; the parts being arranged substantially as shown and described.

No. 12,280.—Samuel Gibson Jones.—*Improvement in Lifting-Jacks.*—Patented January 23, 1855. (Plates, p. 196.)

The weight, which is supported by the forked-end *g*, is lifted by bringing the long arm of lever C from position figure 1 into position figure 2.

The inventor says: I do not claim either of the three parts A B C, irrespective of their relation and adaptation to each other.

I *claim* the peculiar manner in which I combine the main post A, the sliding-piece B, and the bent-lever C; the fulcrum of the said lever C being placed near the lower end of the main post, and its weight-point *e* adjustably connected with the sliding-piece B by means of the holes *f*, near the lower end of the said sliding-piece, whilst the upper end of the same piece is adaped to slide within the loop *c*, formed on the upper end of the main post, all as and for the purpose described.

No. 12,345.—Nelson B. Carpenter and John Powers.—*Improved Lifting-Jack for Moving Rail-Cars.*—Patented February 6, 1855.—(Plates, p. 196.)

The slide is placed underneath the weight to be raised, and the screws B B of the two jacks are then turned, and the two jacks, frame and slide, with the weight, will be raised. When sufficiently raised, the screw-rod G is turned, and the slide E, with the weight upon it, may be moved laterally.

The inventors say: We do not claim the jacks A A separately, for they are well known and in common use; neither do we claim the combining in the same machine of any mechanical powers for giving a vertical and lateral motion to the object or article to be adjusted; nor do we claim the slide E, separately, or in itself considered. But we *claim* the improved jack, contructed substantially as shown and described, viz: connecting two ordinary screw-jacks A A by a frame C, provided with an arch D, and having a slide E fitted on the upper part of the frame C, the slide being connected to the frame, as herein shown, and operated by a horizontal screw G, for raising and adjusting railroad cars upon the track, and other analogous purposes.

No. 12,464.—Thomas C. Ball.—*Improvement in Jack-Screws.*—Patented February 27, 1855. (Plates, p. 196.)

By turning the outer screw, both screws are elevated in the time usually employed to elevate a single screw, and they are elevated to double the height acquired by the ordinary jack-screw. While the load rests upon screw C, and prevents the same from revolving, the tubular screw B is left free to be revolved; and while working within A, and elevating by means of its right-hand thread, it also, at the same time, operates upon the interior screw C, by means of its left hand thread, and thus also elevates C.

The inventor says: I do not claim the invention of jack-screws, nor any of the forms thereof heretofore used, and I am aware that a jack-

screw has been constructed in which the centre piece has two opposite threaded screws, one on each end, and working in two female screws, one above and the other below.

But I *claim* the combination of the tubular screw B with the standard A and the inner screw C; the whole being arranged substantially as and for the purpose set forth.

No. 13,783.—JOHN FOUSER.—*Improvement in Supporting-Jacks.*—Patented November 13, 1855. (Plates, p. 196.)

It will be seen that by means of the two sliding-blocks B C, and by placing the fulcrum D of lever E in one or the other of the recesses *e*, and operating the screw-coupling H, the outer point of the lever E, which supports the load, may be raised or lowered, or projected more or less forward, at pleasure.

Claim.—The lever E, with its sliding-block B, having any convenient number of recesses *e*, in combination with the adjustable screw-coupling H and its sliding block C, arranged and constructed substantially in the manner and for the purpose set forth.

No. 13,835.—FRANCIS DREW, assignor to HIMSELF and SOLOMON S. GRAY.—*Improvement in Lifting-Jacks.*—Patented November 20, 1855. (Plates, p. 196.)

Pinions C C^1 engage with the teeth E E^1 upon follower B. As one of the levers G is depressed, its pawl I operates ratchet-wheel K, which revolves the wheel C, by which means the follower is raised; at the same time, by means of connections H H^1, the lever G^1 is raised; when this lever is depressed, its pawl I^1 revolves ratchet-wheel K^1, and the follower is again raised. Thus by operating the levers, the follower is continually raised, the retaining-pawls *x* x^1 engaging with the racks P P^1 and preventing it from returning.

When it is desired to drop the follower, it is only necessary to raise the pawls *x* x^1, I I^1, and it descends by its own weight.

Claim.—The described jack, consisting of the sockets F F^1 with their connecting arms H H^1 and pawls I I^1, in combination with the ratchet-wheels K K^1 and cog-wheels C C^1, arranged and operating in the manner set forth.

No. 12,290.—JOHN SUTTON.—*Lubricator for Steam-Machinery.*—Patented January 23, 1855. (Plates, p. 197.)

Claim.—1st. Arranging the cylinder B and piston C of the feeder within or in the bottom of the grease reservoir A, with the cylinder opening directly into the reservoir, substantially as described, whereby the construction of the feeder is simplified, and it is rendered more compact, and provision is made for collecting the sediment within the reservoir.

2d. Constructing the feeder with a valve *f* in the piston, opening towards the discharge end of the cylinder, and a valve *d* in the discharge end of the cylinder, opening against and closing with the pressure of the steam or motive agent, substantially as described, whereby it is caused to be only necessary to move the piston once back and forth to charge and discharge the feeding cylinder, and the lubrication is effected more quickly and with less trouble to the engineer. (See engravings.)

No. 12,803.—ROBERT M. WADE.—*Lubricator.*—Patented May 1, 1855. (Plates, p. 197.)

The lever I being drawn in the direction of the arrow until it stops against the end *r* of the rim P, the opening *f* in the lower valve will be directly over the opening *i* in the diaphragm *a*, (see fig. 1,) and the lubricator discharges into the cylinder, the upper opening at this time being closed by the valve G. When the lever I is released, the spring S will carry it around to position fig. 2, when both upper and lower openings are closed. When it is desired to feed the lubricator, the section *n* of the rim P is turned outward, permitting the spring S to carry the lever around until it is brought up by the then extremity *x* of the rim. In this position of the lever, the opening *l* in the cover B is coincident with the perforation of the valve G, the small air-openings *o* and *t* being at the same time opposite each other. This permits the admission of oil to the reservoir; and when sufficient has entered, the section *n* is swung into place, and the lubricator is again ready for operation.

The part of spindle C which passes through socket F of valve G is of square section, and so is the socket, to prevent the valve from turning on the spindle. The nut E can be so turned as to press both the valves closely into their seats.

The inventor says: I make no claim to the shutting off of one passage of the lubricator when opening the other, by arrangement of valve perforations, as set forth; but I do *claim* constructing the moving parts of a central sectional spindle with disc-valves at its extremities, susceptible of steam-tight adjustment, as described: and combining the same with the perforated diaphragm *a* of the oil reservoir, for preventing external leakage, and otherwise acting as set forth.

Also, the sectional rim P and spring S in combination with the arrangement of the valve apertures relative to the ends of said rim, so as to furnish three stopping points to the actuating lever, for feed, discharge, and the entire closing of the lubricator, when operating as set forth.

No. 12,859.—GEORGE DIXON.—*Velocitrot Lubricator.*—Patented May 15, 1855. (Plates, p. 197.)

As the connecting rod L moves back and forth, it causes the oil-cup which is attached fast to it to move with great velocity, and doing so, the valve C is (by reason of the motion of the connecting rod being quicker than the action of gravitation) caused momentarily to be suspended; and while thus suspended, the oil flows through the dis-

charge *d* upon the crank-pin. By the time sufficient oil has escaped, the valve falls and checks the supply. The oil flows through the space between the tubular inner surface *d* and the triangular valve-stem *b*. The screw D serves to regulate the height to which the valve shall be allowed to open.

Claim.—Providing oil-cups of crank-pins, and other movable journals, with a valve C, constructed, arranged, and operating substantially as herein described.

No. 13,406.—JAMES M. THOMPSON.—*Improvement in Oil-Drippers.*—Patented August 7, 1855. (Plates, p. 197.)

The dripper should not be filled quite up to partition *a*, as there should be no oil in the chamber at any time except what runs from the tube F, when the dripper is inverted to allow the oil to escape through the stem B; and as the capacity of the chamber is much larger than the capacity of the tube C, the oil passing from tube F into the chamber will leave the tubes C and F free to admit air to the bottom of the dripper, thus securing a free stream from the stem B, and preventing the escape of any oil except through the stem.

Claim.—The arrangement of the chamber E, in combination with the tubes C and F, as constructed, for the purpose specified.

No. 13,749.—MICHAEL EGAN.—*Improvement in Automatic Lubricators for Railroad Axles.*—Patented November 6, 1855. (Plates, p. 197.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim in general terms feeding oil to the axle by intermittent motion of the feeder or feeders, produced by the revolution of the axle or otherwise. Neither do I claim the employment of a feeder, which, by either constant or intermittent motion, receives oil from a reservoir below and deposites it on the axle.

I *claim* the arm B placed under the bearing and made to descend into the grease and rise to the journal at each revolution of the axle by being connected to the eccentric D, or its equivalent, substantially as set forth.

No. 13,769.—JOHN SUTTON.—*Self-Feeding Atmospheric Lubricator.*—Patented November 6, 1855. (Plates, p. 197.)

Mode of operating this lubricator: Determine the number of drops of oil required per day for the part to be lubricated; select a feeder holding that quantity; put a washer on the shank end, and attach it to the brass box, bush, or other part, so that it shall be a fixed air-tight joint; see that the cap B has its elastic washer *d*; remove the dome C and regulating-plug D. In the space E place a flat circular piece of gutta-percha, cork, or rubber, having cut a small channel across its underface; then put in loosely circular pieces of cloth above it, screw down the regulating-plug D tightly with the fingers, fill the reservoir

through the neck *c* with oil, put on the cap B, etc., as now combine, screwing it tightly with the fingers; now, should it feed too much, tighten the plug D more, thus shutting off the air, or slacken it if not feeding enough until it delivers to suit, when the dome C may be screwed to its seat, as it is now in working order.

The inventor says: I *claim* an arrangement of means constructed on or within the cap or cover B (of the reservoir containing the oil or other lubricating material) sufficiently distant from the oil to never be in contact with the same, by the adjusting of which the passage or passages leading from the reservoir to the atmosphere may be entirely or partially opened or closed at will, thus causing an increase or decrease of the feeding of the oil to the part receiving lubrication. When properly adjusted, the dome C may be firmly secured down, when nothing can interfere with the regulating part.

I do not confine myself to the use of the plug D and the substance in the space E, as a hollow or other plug, or equivalents, may be used to produce the same effect; either of which may be used as the part, when placed, may permit, and without altering the principle or mode of feeding described.

No. 13,397.—CHARLES A. POSTLEY.—*Improved Machine for Measuring and Weighing Grain.*—Patented August 7, 1855. (Plates, p. 197.)

The grain elevated by elevators D, and deposited in feed-hopper C, passes into buckets or measures E, as they are successively carried under the hopper. Connecting-rod T serves to operate the bucket-chain by falling into one of the teeth of ratchet S once during each revolution of the shaft which carries the crank-wheel U. The buckets pass, in their way forward, under the strike F. The supply of grain from C is governed by valve O and levers M and M^2, operated by cam N, causing the valve to remain open whilst the bucket under the hopper is being filled and weighed, and closing it during the passage of the buckets onward.

The inventor says: I *claim* the combination, substantially as and for the purpose set forth and described, of the weighing mechanism, or its equivalent, with the series of measures upon an endless chain which carries them in succession under the hopper, under the strike, and over the scales.

I am aware that in the grain-weighing machines the cut-off has been so arranged that it is operated by the weight of the grain received in the hopper, and when the desired weight is attained; this, therefore, broadly, I do not claim.

But I *claim* the combination with the lever M^2 and valve O, respectively; of the lever M operated by the cam N, or its equivalent; and of the platform Z^2 and levers *g* and g^2, by which the said valve may be operated by the motive power of the machine, or, failing this at any time, by the weight of the grain itself, substantially as set forth and described.

No. 12,615.—JAMES P. ARNOLD.—*Improvement in Presses.*—Patented April 3, 1855. (Plates, p. 197.)

The chain U is hooked to the platen D at Z, and passes over friction-pulleys V. The belt-shipper W is fastened to this chain, and consequently, as the platen descends, the chain will draw the shipper along on the cone drums F F. The pressing operation having been finished, the chain is freed from hook Z, when (by means of weight or otherwise) the shipper W and belt are carried back to the other end of the cones. Figure 1 is part of a side view, and figure 2 is a top view of the machine.

The inventor says: I am aware that conical pulleys and a travelling belt thereon have been used for various purposes where speed and power are required at variable stages; these I do not claim.

But I *claim* operating the shipper that moves the belt along the cones by the descent of the platen whilst pressing, so that the power shall be increased with the resistance until the material is pressed, and then allowing the shipper to run back at an increased velocity when the bale is ready to be removed, substantially as described.

No. 12,740.—PELLS MANNY.—*Improved Hay-Press.*—Patented April 17, 1855. (Plates, p. 198.)

When the operation of pressing the hay is to be commenced, the doors H I, at each end of the case, are closed; the hay is placed in case A at one side of the lid K, and the lid is closed over the hay. Power is then applied in any proper manner to the levers C C, and the sliding-bottom B is moved, and with it the followers G G, and the hay is compressed in the form of a square bale within the square H I G. After that the doors are opened, and the bale withdrawn. Meanwhile the other space A, behind the followers, is to be filled with hay, and the follower in its return-motion compresses a second bale, and so forth.

Claim.—Having the followers G G aranged or placed so as to cross or intersect each other at right angles and inclined as herein described, and having the doors H I at each end of the box or case also inclined to correspond inversely with the followers for the purpose of having the hay compressed in the form of square bales; the line of pressure being diagonally through the bale, or the followers and doors exerting the pressure on the four sides of the bale, as herein shown and described, whereby little or no pressure is exerted against the sides of the box or case.

No. 13,060.—JONATHAN GROUT.—*Improved Self-acting Cotton-Press.*—Patented June 12, 1855. (Plates, p. 198.)

a a are the sides of the press; the floor of the press is placed on cross-piece C; two pieces A A are made fast to the top and side-timbers of a room, one log being placed horizontally, and the other perpendicularly, and the whole press is suspended on these so as to swing

freely. F carries two levers B B with catches *d e;* the movable beam H passes through slots in the pieces *a*. As the press is swung out from the perpendicular to an oblique position, the levers are drawn along upon beam H, bringing the catches right to take hold and thrust it down as the press is swung back to its former position; here the small catches L L, which are attached to the sides *a a*, hold the beam fast while the same operation is repeated. The material to be pressed lies between H and C.

Claim.—The construction of a press, designed for the general purposes of a press, so arranged as to swing freely about an axis of motion, so that when the press is swung out in one direction, the said levers are brought into such a position relative to the other parts that they take hold of the beam and thrust it down as the press is swung back to its former position, and in a manner which allows the operation to be repeated until the degree of pressure desired is attained, substantially as set forth and described.

No. 13,061.—GEO. KING.—*Improvement in Pressing Tobacco in Plugs.*—Patented June 12, 1855. (Plates, p. 198.)

The tobacco is placed in hopper H in the form of rolls, and one over the other. Motion being given to pitman G, as the wheel C revolves, the pin *i* strikes against *h* on pulley *g;* and said pulley being drawn a certain distance, the sliding-box E is drawn towards the wheel by means of cords *f*, and the bar *p* forces the lower roll of tobacco from hopper H into box I, the slide J being drawn upwards by cord *j*. When *h* passes *i*, the box E moves back to its original position by means of spring L, and slide J falls by its own gravity, and forces the roll of tobacco down upon the upper surface of plunger F, where a^1 represents the roll. F is now moved towards C by pitman G, and roll a^1 falls within box E, directly in front of the plunger, and by the return movement of F is pressed against the inner surface of the plate D. The box now again moves towards the wheel; *i* coming in contact with *h*, the cord *n* turns pulley *m*, and cord *l* attached to said pulley draws down plate K, and the plug formed by the pressure to which it was subjected is forced downward from the machine.

Claim.—1st. The box E and plunger F, when arranged and operated substantially as shown, so that both the box and plunger have a reciprocating motion for the purpose of allowing the tobacco to be fed into the box, and also compressed therein, as described.

2d. The combination of the box E and the plunger F with the hopper H and slide J, for the purpose as herein shown and described.

No. 13,199.—AUGUSTUS M. GLOVER.—*Improvement in Cotton-Presses.*—Patented July 3, 1855. (Plates, p. 198.)

The roller E is in the rack-rod B at its lower end, projecting slightly beyond the face of the rod, and also beyond *a* the platen. By the introduction of roller E, opposite to the rack, the platen *a* is guided in its

movement in the box without liability of the wrapper or bagging to be either ruptured or wrinkled, as the platen is prevented from touching the wrapper by the circumference of said roller projecting slightly beyond the face of the platen.

Claim.—The use of the roller E moving with the platen *a* in combination with the rack C and pinion D, as described, for the purpose of preventing the platen touching the sacking in its descent, and keeping the platen in position when below the hopper, and the sides of the bale-box removed, as set forth.

No. 13,337.—Geo. R. Comstock.—*Improvement in Cheese-Presses.*—Patented July 24, 1855. (Plates, p. 198.)

When the pressing operation has been completed, the pawls F and I are removed, and the gate run up by turning crank J; the connexion of rim *h* of eccentric and pins *i* of plates *f* causing the gate to rise. When the gate reaches the end of its upward movement, the roller R comes in contact with the bottom of platform P; and it is only necessary to turn crank Q to cause the platform and its load to travel outward to the front of the press, the rollers *s s*¹ guiding and preventing it from tilting.

The inventor says: I am aware that rollers, to aid the outward movement of the platform, have been used, but requiring separate adjustments to bring them into action. Such, therefore, I do not claim.

But I *claim* the roller R in the lower portion of the pressing gate, and brought into action by the rising of said gate on the removal of the pressure, substantially as and for the purposes specified.

No. 13,426.—H. H. Fultz.—*Improvement in Cotton-Presses.*—Patented August 14, 1855. (Plates, p. 198.)

When the follower K and rod I are to be shoved back after the pressing operation has been performed, the springs Q are turned on their pivots, when the pawls move outwards from the teeth of rod I, so as to leave it free to be drawn back.

The inventor says: I claim nothing new in the manner of operating the follower by rack-bar or rod and pawls, nor yet in the addition of retaining pawls acting in concert with drivers, and am aware that the application of springs to the back of the pawls is old; neither do I claim, of itself, arranging the springs so that the pawls may be relieved of their pressure.

But I *claim* the arrangement with the retaining and driving pawls P and O, on either side of the follower rod or rack-bar I of the one spring Q, bearing at its opposite ends on the said pawls, and hung upon an intermediate pivot *c* in relation thereto; so that, upon turning the spring as described, both the retaining and driving pawls are expeditiously and simultaneously relieved from, or thrown into, spring-gear with the follower rod, and the working of the follower in its reverse directions is expedited, as specified.

No. 13,790.—Rhudolphus Kinsley.—*Improvement in Tobacco-Presses.*—Patented November 13, 1855. (Plates, p. 199.)

*c*¹ are the rolls or lumps of tobacco, and *d* are plates placed between each two rolls; *f* is the follower, which, before the pressing operation commences, projects sufficiently above the top of box *a c c*, that the follower can be properly depressed and the rolls compressed by placing the whole box under a press. On each side of the follower *f* are spring-bolts *e;* these are driven back as the follower enters the box; and when it has descended the proper distance, the bolts are brought opposite holes *h* in the slide of the box and spring outwards into said holes, and thus secure the follower down. The whole box is then removed from the press; and when the rolls are sufficiently set to remain in shape after the pressure is relieved, the catches are forced back so as to release the follower; and when that is removed, the two slide pieces are turned outward, as shown at *c*², (fig. 1,) and the tobacco can then be removed. Fig. 1 represents a section on a larger scale.

Claim.—The construction and employment of a press-bar or compresser, substantially as described, in which the article to be compressed can be put and placed under a press, and, when compressed, can be retained in that position, and removed from the press till set, while the press is liberated for other operations, all as set forth.

No. 13,826.—William F. Provost & Charles J. Provost.—*Improvement in Cotton-Presses.*—Patented November 20, 1855. (Plates, p. 199.)

Platen E is hung to rod *k*, bent over the platen at its top; said rod passes down through a slot in one of the uprights B. and terminates in a round head, which fits into a metallic shoe *l*, in which it may freely turn. This head and shoe prevent the rod from yielding to the pressure against the platen when connected to the rod *m* on the opposite side of the press, but is free to turn or be swung around with the platen, out of the way of the charging of the press, or for removing the bale, the rod *k* acting as a crane for that purpose. The rod *m* is arranged in a slot *n* in the other upright, and is prevented by means of a head *o* and plate *p* from rising above the height of said plate *p*, but can be pushed down into the slot *n* until the top of the rod is out of the way, when the bale is to be removed or the press to be charged. The link *r* which makes, as it were, one continuous rod of the two rods *k m*, can be removed, preparatory to swinging out the rod *k* and pushing down rod *m*.

Claim.—1st. The manner of hanging and holding the platen D by means of the rods *k m* and the coupling link *r*, so that the platen may be swung around out of the way, and the rod *m* let down, as described.

Also, in combination with the levers G F and their fulcras, the pivoting of the long one of said levers to one side of the centre of the follower D, to cant and to apply the power of the press in as near a direct line to the resistance as possible, as described.

No. 14,005.—William Wilber.—*Improvement in Hydraulic Oil-Presses.*—Patented December 25, 1855. (Plates, p. 199.)

Figure 1 represents only about one-half of the longitudinal section, the other half being exactly alike; *x x* indicates the centre line.

Two double-acting pumps, not shown in the engraving, force the water from reservoir C into cylinder F of the press; the water drives the pistons G G. The cylinder F is made of staves of hard wood, as seen in figure 3, and lined inside with a copper cylinder and double banded on the outside with iron bands; this construction being preferable to metallic cylinders, in reference to the lightness and elasticity of the wood staves. H H are the piston shafts, and on their ends are attached plates I I, which are driven into the seed-boxes J, the top parts J¹ of which being hinged on rod R, so as to be readily swung open for removing the seed-cake, and refurnishing it with fresh seed. The bed plates M on each end of the press are made of several sections of wood, cut across the grain, and the end of the grain is presented to the action of the press. These bed-plates are faced next the seed-box, with metallic plates L recessed and grooved to admit the end of the seed-box, and to convey downwards the oil which is pressed out against them.

The through-rods N serve to hold the feed-plates against the force of the piston, and to avoid the crushing of the wood; said rods are provided with collars, so that the strain will be disseminated throughout the thickness of the bed, as in figure 2.

Centrally located in the bottom of the seed-boxes J, so as to form a part of said bottom, are slides P, having grooves in them, into which take tongues, on the bottom of said boxes, as seen in figure 4, to guide them. Through these slides pass vertical steam-pipes *e*, uniting with one main pipe *f* connected with a steam-boiler. The pipes *e* extend into the seed-boxes, shielded by plates *i i*, which form divisions in the seed-boxes. The steam is allowed to pass through small openings to come into contact with the seeds placed in said divisions. The oil pressed out of the seed passes out through the joints of the seed-boxes, which joints are sufficiently open, and packed with cloth for that purpose. The cork in the pipe *j* is opened, and the water flows out of cylinder F into reservoir C.

The inventor says: I am aware that, in tobacco and other presses of a similar character, staves of wood have been used, hooped simply on the outside with iron. This I do not claim.

But I *claim* the manner of constructing the cylinder of a hydraulic press, viz., of staves of wood when lined with copper, or other suitable metal, as well as double banded, in the manner and for the purpose set forth.

I also claim the making of the bed-plates M of sections of wood, having the end of the grain of the wood in a line with the thrust of the piston or platen, for the purpose of using the elasticity of the wood, and thus relieving the press from the rigidity of metal, and for lightness and cheapness of construction, and also for enabling me to arrange the through-bolts so as to divide the strain upon them, and prevent their crushing the wood, as described.

I also claim the manner of uniting the through-bolts or rods with the bed-plates, viz., by means of the collars let into the separate sections of wood for relieving the heads of the bolts of the strain, and distributing the strain throughout the bed plates, substantially as described.

I also claim, in combination with the seed-boxes, the introducing of steam directly into the seeds in said boxes in contradistinction from heating them by conduction or radiation, so as to have both heat and moisture in the boxes, as described.

I also claim the hinging of the door and one of the sides of the box to the other side, so that drawing out the rod R, the door of the box will spring away from the plates, and one side will, at the same time, give slightly but sufficiently to release the cakes from the said pressure, thus allowing them to be easily lifted out or removed, as set forth.

No. 12,155.—William H. Brown.—*Improvement in Suspended Purchases.*—Patented June 2, 1855; patented in England, October 2, 1854. (Plates, p. 199.)

The weight is attached at *x* on block G, and elevated by means of purchase-fall T till the tackle-blocks G and F clutch, after which the purchase-fall T is relieved of all strain. The clutch-bars I are held in a close position by connecting-spring M. As the block G rises, the upper ends of bars I strike lips H, and are opened until the slots in the clutch-bars arrive opposite the lips, when spring M closes them over the lips, as shown in figure 4. Guide-falls U U¹ serve to move the burden along cable B to the desired position. When the burden is to be lowered, the clutch-bars are detached. This is done by pulling upon purchase-fall T and raising block G, (see figure 3,) which causes pin L to pass through the opening in cross-bar H¹, and brings the movable cap-piece K¹ in contact with H¹; whereby the connecting-rods K are pressed down to a line even with the centres of their joints, which causes them to remain in that position and hold open the clutch-bars I. The clutches are again brought up to their clutching position by moving up cap-piece K by hand.

The inventor says: I do not claim a suspended cable for transporting weights of any kind across ravines or streams; nor do I claim transporting bodies of any kind by means of a movable cable or catenary, which is to be raised or lowered to deliver the burden or weight at any intermediate place between its points of suspension or fastening, as these have been essayed.

But I do *claim*, in combination with a permanently suspended cable, a carriage provided with suitable block and tackle, by which a suspended weight of any kind may be transported to any given point and then lowered or raised, or by which it may be lowered or raised, as it is transported, at pleasure, substantially as described.

I also claim, in combination with a suspended cable, a truck or carriage composed of a main wheel D, guide-wheels E E¹, and flexible

frame C, so that the wheels may adjust themselves to the line of the catenary, as described. (See figure 2.)

I also claim the automatically coupling and uncoupling of blocks F G, substantially in the manner and for the purpose set forth.

I also claim the system of equalizing beams Q R S, when combined with two, three, or more cables, for the purpose of evenly distributing the weight upon the several cables, as set forth. (See figure 1.)

No. 12,246.—Jno. L. McPherson.—*Improvement in Scales.*—Patented January 16, 1855. (Plates, p. 200.)

a and *b* are the two concentric circular rims supported on the knife-edges *c*, and so loaded by weights *d* and *e* as to be accurately balanced when the weights are on opposite sides of the axis of suspension. The dish *f* is supported on a knife-edge *i* of a bar *h* running across the outer rim *a* on the side of the axis of suspension nearest the weight *e* Any substance placed upon the dish will add to the weight on that side of the axis of suspension, and, for the restoration of the equilibrium, render it necessary to move the weight *e* towards the weight *d*. To do this, the rim *b* is moved within rim *a* by means of knob *l*, until the pointer *p* rests on the mark *q* of the indicator *r;* the scale will then be again balanced on knife-edges *c*, and the weight of the article in the dish indicated by the division of the graduated arc *m* upon which the pointer rests.

Claim.—The concentric loaded rims *a* and *b* in combination with the attachment of the dish, constructed, arranged, and operating substantially and for the purpose specified.

No. 12,249.—Elisha P. Beckwith.—*Improvement in Spring-Balances.*—Patented January 16, 1855. (Plates, p. 200.)

The cylinder A encompasses a spring balance of ordinary construction, only that the central rod B, around which is placed the spiral spring C, is graduated so as to determine the weight of the article without the usual index. Around the lower end of rod B turns a short arm E, which sustains a vertical pointer G. The distances between the horizontal graduations *b* on the outside of cylinder A, are equal to the graduations on rod B. Now, for instance, an article weighs four pounds, (see figure 1,) then the mark 4 on rod B will be even with the lower surface of cylinder A, and the pointer will be on a line with the fourth horizontal line *b* on the cylinder, and (if the price of the article be six cents) the arm E is turned round, so that the pointer will move around the cylinder on said fourth line *b* until the pointer has arrived on that one of the vertical lines *a* which is marked 6 on the upper edge of the cylinder. At the intersection of the lines *a* and *b* is marked the aggregate cost of the article.

Claim.—The employment or use of the cylinder A surrounding the spring balance, and divided into parts or graduated, substantially as shown, so that by the aid of the index rod G, or its equivalent, not only the weight, but also the whole or aggregate cost of any article may be determined at a given price per pound.

No. 12,698.—David M. Smyth.—*Improvement in Platform-Balances.*—Patented April 10, 1855. (Plates, p, 200.)

Platform *a* is supported by two hangers *b b*, which rest on the knife-edges of four links *c*, which are in turn suspended to four short arms *d*, each two of them on parallel rock-shafts *e e*, from which rock-shafts extend long arms *h* downwards, (arms *h* forming with arms *d* any suitable angle to operate on the principle of the bent lever,) weights *i* being attached to the ends of arms *h*. The rod *l* connects a lower arm *m*, on one of shafts *e*, and an upper arm *n* on the other; so that the article to be weighed may be placed on any part of the platform, and receive equal resistance from the two weights. The outer ends of the shafts rest with knife-edges *f* on notched plates *g*. One end of the shaft carries a pointer *j*, which indicates the weight on sector *k*.

The inventor says: I am aware that in platform-balances the two rockers that sustain the platform have been connected together, so that the articles to be weighed may be placed on any part of the platform, and exert an equal force on the balance; and therefore I do not wish to be understood as claiming to be the first inventor of such an arrangement, irrespective of the combination specified.

And I am also aware that scales have been made to operate on the principle of the bent lever to weigh articles of varying weight, the arm carrying the weight gradually increasing in leverage as the arm sustaining the article to be weighed gradually decreases; but this mode of operation has never been combined with a platform-balance, and therefore I do not claim it as a separate device.

But I do *claim* the arrangement of the platform above, with hangers suspended at four corners to the two rockers, which are linked together substantially as described, when this is combined with the weighted arms on the rockers, operating on the principle of the bent lever, substantially as specified.

No. 13,232.—Frederick Scheurer.—*Improvement in Counter-Scales.*—Patented July 10, 1855. (Plates, p. 200.)

The object of this construction is to have a flat scale to lay long goods upon, and to have the scale for the weights directly underneath the same.

Claim.—The combination of the common beam-scales with their inner arms A A^1, connected together by links, to which the scale W to receive the weights is attached, and their outer arms connected by a frame to carry a flat or straight scale G to place the goods on which are to be weighed, the whole being constructed in the manner and for the purpose substantially as described.

No. 13,331.—Augustus Sanborn, assignor to C. and T. Fairbanks & Co.—*Improvement in the Union Platform-Scales.*—Patented July 21, 1855. (Plates, p. 200.)

The nature of this invention will be understood from the claim and engravings.

The inventor says: I do not claim connecting the platform with the beam and steelyard by means of a rod depending from the latter, and applied both to the lever and steelyard by knife-edge bearings or loops, as this is a common method of connecting such parts in ordinary platform scales; but my invention has reference only to or is an improvement on what is termed the "*Union Scale*," or that having a pan or platform, as specified.

What I *claim* consists in the manner in which the platform-lever B and the vertical suspension-rod *b* of the pan and steelyard are connected and supported, the rod *b* being jointed at its lower end to an arm I, independent of the lever B; and said lever connected to the rod *b* by means of a pendulous rod *h* and a pointed or knife-edge bearing *g*, arranged near the upper part of the rod *b*, as specified; the same, while securing a vertical movement to the rod *b*, the only one which it should have, effecting the advantage of allowing the lateral vibrations of the lever B to take place without disturbance of the steelyard or rod *b*, as set forth.

No. 13,497.—Jno. L. McPherson.—*Improvement in Weighing-Scales.*—Patented August 28, 1855. (Plates, p. 201.)

The nature of this invention will be understood from the claim and engravings.

The inventor says: I am aware that various things have been made tubular, or hollow, for the purposes of strength, with lightness of metal. This I do not claim.

But I *claim*, in combination with the shafts H, the fifth or guard fulcrum *c*, which prevents the platform from careening, should the weight be unequally distributed on said platform, without in the least impairing its correct weighing, as set forth.

No. 13,840.—John Allender.—*Balance for Detecting Spurious Coin.*—Patented November 27, 1855. (Plates, p. 201.)

The cavities are just large enough to receive the genuine coin, and have each a slot across the centre just large enough to let the genuine coin pass through freely.

The inventor says: I am aware that balances for proving coin have been made with two levers hung upon one fulcrum, so arranged as to weigh all the coins upon one side of said fulcrum; and when the larger coins were weighed, the lever in which the small ones are weighed is turned to the opposite side of the fulcrum; therefore I make no claim to instruments constructed with more than one lever, and to weigh upon one side of the fulcrum only.

But I *claim* a single lever, of such a size and weight, and provided with cavities or countersinks L M E G F H, arranged at such distances, each side of the fulcrum *h*, as to weigh the smaller coins upon the lightest arm C, without additional weight, and the larger coins, two or more, on the heaviest arm D, with one weight J in one position on the lighter arm.

No. 12,802.—Abner Whiteley.—*Improvement in Arranging Shafts and Pulleys at an Angle.*—Patented May 1, 1855. (Plates, p. 201.)

The end of the shaft W being passed through the box N and stud, and the pin B put in the hole in shaft W, and the pulley P being placed on the stud, the pin B enters the slot in the end of the hub; and when motion is communicated to shaft W, the pin B passing through it, and its ends extending into the slot in the hub of the pulley, the pin B takes hold of the pulley and causes it to revolve, as the shaft W is turned round, while its axis of motion is oblique to the shaft W which drives it.

The inventor says: I do not claim communicating motion when the axes form an angle with each other by means of a cross-head or pin attached to one axis moving within grooves or slots attached to the parts of the other axes or pulleys, as that is well known.

But I do *claim* the above-described mode of arranging the bearings, consisting of the stud or projection from the bearing of one shaft, which stud is a bearing for the pulley, gear-wheel, or coupling, of the other revolving part, and through which the axis having the pin passes, for the purpose of forming a secure and compact adjustment of the parts when the respective axes of motion have a fixed and invariable angle with each other.

No. 12,147.—Edward H. Foote—*Improvement in Protecting Slides and Ways from Dust.*—Patented January 2, 1855. (Plates, p. 201.)

The two ends *b b* of cross-head *c* slide in ways *a a*. To the upper and lower edges of the ways are secured strips *d d* of thin vulcanized India-rubber, so inclined towards each other that they shall come together at their unattached edges, thus enclosing the ways and embracing the cross-head, which latter is beveled off to an edge each way from the middle, as seen in figure 3. This will permit the two India-rubber strips to come together before and behind the cross-head; which closing together is moreover insured by means of clasps *e* in front and behind the cross head, so that no dirt shall enter the ways.

Claim.—The combination of the flexible guards which enclose the ways of slides in machinery, substantially as specified, in combination with the cross-head and the clasps, or their equivalent, substantially as specified.

No. 13,075.—Horatio Allen.— *Two-motion Cone-Valve.*—Patented June 19, 1855. (Plate, p. 202.)

D is the valve; *a* are the steam-ports; A the valve-seat. The valve is operated by two motions in succession. The first motion is in a direction parallel with its axis, or from the smaller toward the larger end of the valve-seat. This movement effects the separation of the valve from contact with its seat. The next movement is to turn the valve partly round, so as to bring it in position D^1, (see dotted lines, figure 1,) and thereby open the ports *a*.

The mechanism for effecting these movements is not represented in the engravings, as it forms no part of the claim.

Having effected the first movement, (a very slight one,) the valve and its seat, although still very close, are no longer in contact, and the rotary motion can then be given without friction upon those parts; and thus the power necessary to operate the valve and the wear will be reduced.

The inventor says: I *claim* so constructing a cone-valve that, in the operations of opening and closing the same, two motions shall be imparted to it, in or nearly in succession, and in directions at a right-angle with each other; the first of said motions effecting the withdrawal of said valve out of contact with its seat, and retaining it so withdrawn, while the second motion shall be given, whereby it can, by that second motion, be turned without friction against the seat, as described; and this I claim, irrespective of the mechanism employed, as this may be considerably varied without changing the character of my invention; the whole being constructed and operating substantially as set forth.

No. 12,214.—Oldin Nichols.—*Improvement in Windlasses.*—Patented January 9, 1855. (Plates, p. 202.)

The chain-cylinder B has (underneath the pawls C and M) two grooves, L and N, which bring every other link of the chain perpendicular with the axis of the cylinder, as it passes under the pawl. The surface of the conical cylinder is reduced towards the needle by a series of graduations, to insure the perfect and free working of the chain. Under the cylinder there are two stationary guiding-arms I I, to guide the chain as it passes on or off from the cylinder; the right-hand one brings the chain partly off the edge of the first gradation of the cylinder, and, consequently, the rest of the chain-coil follows a similar course on the other gradations. Two movable arms J J are held in their working position by the stops *o*; the one at the right-hand is for the purpose of guiding the chain into the groove L continually as it is drawn into the vessel, and the left-hand one throws the chain out of the groove N as it passes around the cylinder, so as not to ride or come in contact with itself when it passes out of the ship. When the chain is to be let out, the right-hand guide is moved from the cylinder, and thus held fast by the stop *o*; and the left-hand guide is moved to the surface of the cylinder, and held fast in that position by the other stop *o*. Thus the top part of the guide keeps the chain in the proper position, so as to be stopped by the pawls when it is let out or drawn in.

The chain, winding several times around the cylinder, can be stopped much easier by the pawl M than it could by letting the pawl C drop on to the said chain, which would bring the whole strain upon it and the cylinder.

Claim.—1st The cylinder B, made substantially and operated essentially and for the purpose as set forth.

2d. The action or co-operation of one or more pawls with the cylinder B, so arranged with this cylinder as to come in contact with and firmly hold the chain when passing either way over the top of this cylinder, which constitutes, with the pawls C and M, both the windlass and stopper, when constructed and operated essentially as set forth.

3d. The combination of the cylinder B, the pawls C and M, and the adjustable guides J, all or either two of them, for raising, stopping and fleeting chain cables, they being constructed and operated essentially and for the purposes set forth.

No. 13,429.—W. N. Gesner.—*Improvement in Windlasses.*—Patented August 14, 1855. (Plates, p. 202,)

The strain or bearing to which the pulley F, when in use, is subjected, is not transmitted to the shaft or any working part of the windlass.

Claim.—The employment or use of the guide-pulley F, attached to the frame E, the frame being connected to the framing or block A, substantially as shown and described for the purpose set forth.

No. 12,778.—John How.—*Improved Machine for Bundling Fleeces of Wool.*—Patented May 1, 1855. (Plates, p. 202.)

The ends of a number of twine balls *d* pass through guides *a* in the bottom *a* of the box, and between the straps *k*, guides *f*, string-raisers q^1, and guide a^1. The straps *k* pass through a slot in the bottom *a*, and are made adjustable in the piece *l* underneath the box, to adapt them to any size of bale, and their ends within the box are fastened to a piece *i*. The pieces having been laid in the front part of the box, the piece *i* is raised, carried forward, and by means of hook *h* secured to lever *g*; this lever is then brought down and fastened by chain g^1 to a hook n^1 on arm *n*, which holds the fleece in press. The rear end of the hinged lever *p* is then freed from catch O, and drops down, thereby raising its other end, to which are attached the string-carriers q^1, over which the strings pass. The strings thus raised up are taken one at a time and tied around the bale.

Claim.—In combination with the packing box, the adjustable straps *k*, with their piece *i*, and the levers *g* and *p* for pressing the bale, and furnishing in a convenient position for the operator the strings or cords by which the pressed fleeces are baled up, substantially as described.

XIII.—GRINDING-MILLS AND GEARING.

No. 13,843.—Thomas H. Corbett.—*Improvement in Belt-couplings.*—Patented November 27, 1855. (Plates, p. 203.)

The clamps consist each of two jaws *a a* hinged together at *c*. By driving the wedge C between the outer ends of the jaws, their rear ends, provided with little teeth, will be forced into the ends of belt A so as to hold it securely, and the two clamps and consequently the two ends of the belt will be secured together by the wedge C.

I *claim* coupling the two ends of a belt or any two objects together by means of two clamps B and a double-wedge key, substantially as and for the purpose set forth.

No. 12,349.—F. B. Hunt & Ellis Nordyke.—*Improved Wire-Cloth Flour-Bolt.*—Patented February 6, 1855. (Plates, p. 203.)

The inventors say: We do not *claim* a wire-cloth bolt, with revolving brushes working within it; for they have been previously used.

But we *claim* the peculiar means shown for graduating the pressure of the brushes F against the wire-cloth of the bolt, viz: the loose hubs I I on the shaft C being attached by arms H to slides G, which work on the outer sides of the stationary arms *c*, the outer end of the slides G being attached to the brush-bars F, which fit in the forked ends of said arms *c*, the hubs I I by being moved on the shaft *c*, expanding or contracting the brush-bars, as desired, the hubs being secured in the proper position by the rods *g J*. (See engraving.)

No 12,422.—Samuel Taggart.—*Improvement in Feeding Flour-Bolts.*—Patented February 20, 1855. (Plates, p. 203.)

The meal to be bolted falls upon hopper-boy B, and as shaft D rotates motion is given to flight-arm E. The flights *e* carry the meal towards the centre of the hopper-boy, and it falls through openings *b b* into annular chamber C, the meal being cooled in its passage from the periphery of the hopper-boy to the annular chamber. The sweepers *d d*, as they revolve, force the meal from the annular chamber into spouts G G, which convey it to the bolts.

The inventor says: I claim neither the hopper-boy nor the flight-arm, with flights attached, separately, for they have been previously used.

But I *claim* the combination of the annular chamber C with its sweepers *d d*, as arranged for the purpose set forth.

No. 13,541.—Geo. H. Coney.—*Improvement in the Method of Securing Keys in Connecting-Rods, &c.*—Patented September 11, 1855. (Plates, p. 203.)

The nature of this invention will be understood from the claim and engravings.

Claim.—The combination of a screw-nut and a screw, divided longitudinally, as described, as a means by which to hold the key in its place.

No. 13.192.—George Butler Willison.—*Improvement in Cooling and Drying Flour.*—Patented July 3, 1855. (Plates, p. 203.)

An annular flange *r* of gum-elastic or other suitable material, attached to and projecting from the under surface of the top of the curb which touches the surface of the stone around the hole in the centre of the upper mill-stone, prevents the current of air from passing down that cavity; and a tangential flange *t*, extending from the circumference of the flange *r* to the side of the curb, and thence passing down the side of the curb so near to the base of the curb as merely to allow of the passage under it of the scrapers attached to the circumference of the upper mill-stone at its base, and terminating at one side of opening *p*, which admits the draft, serves to give direction to the current of air and causes it to pass around and over the stone in a regular course.

Claim.—The application of a draft of cold air over and around the upper mill-stone in grist mills, between the stone and the curb, to prevent sweating on the stones and curb, and to cool and dry the flour by means of the fan *h*, in combination with the annular and tangential flanges inside the curb, to serve as a guide for the current of air and the ventilating tube or tubes, in the manner and for the purposes set forth.

No. 12,378.—Geo. Daniels.—*Improvement in Threshers and Cleaners of Grain.*—Patented February 13, 1855. (Plates, p. 203.)

The object of this improvement is to produce a simple, cheap, and easily-constructed apparatus for threshing, cleaning, and bagging grain in the fields. The operation of the machine will be plainly understood from an inspection of the engraving.

The inventor says: I do not claim a skeleton cylinder, nor inclined planes, nor a blower-case containing a fan attached to threshers and cleaners, irrespective of the peculiar construction of each, as described; nor do I claim placing a fan upon the shaft of a beating cylinder, as this combination has been known and used before.

But I *claim*, 1st. A skeleton cylinder, in combination with a cast-iron bed-plate E, constructed as and for the purposes specified.

2d. I claim the four inclined planes G, placed in relation to each other, as described, each at an angle of about 45°, as described, and so as to leave an oblong opening between them for the passage of the grain and chaff to the receiving-box, substantially as and for the purposes described.

3d. I claim the blower-case B, the receiving-box C, with its inclined plane *f* at its end, arranged and combined on the outside of the box, or body of the machine, substantially as and for the purpose specified.

No. 12,512.—GEORGE LEACH.—*Improved Grain-Cleaner.*—Patented March 14, 1855. (Plates, p. 204.)

The tangential portions of furrows *h* and the tangential furrows *e* keep the eye free, as they conduct the grain quickly outwards, while the curved portions of the grooves *g* and grooves *f* retard the passage of the grain outward, so that it cannot pass too quickly through.

Claim.—Dressing or furrowing the stones by having the furrows or grooves *e f* cut in the face of the bed-stone B, and the furrows or grooves *g h* in the face of the runner C, said furrows or grooves being in the form or shape as shown and described, and for the purpose set forth.

No. 12,657.—BENJ. T. TRIMMER.—*Improved Grain-Cleaner.*—Patented April 2, 1855. (Plates, p. 204.)

The wheat passes on and over the revolving-plate *m*, down the sides between the concave and convex cone, and is here exposed to the scouring action of the spring-teeth J and to the teeth X on the concave; the wheat then descends to the scouring-plate *n*, across which it is scrolled to the centre by the spiral scroll *z z* formed of India-rubber. This scroll exerts a further wiping action on the wheat, and delivers it on to the next scouring-plate. A set screw (not shown in the engravings) serves to raise or lower the bridge-tree upon which the shaft 2 rests, by which means the scouring-teeth and India-rubber scroll are brought to bear more heavily on the wheat, which may be done without danger of bruising the berries, as the spring-teeth and scroll are yielding.

I *claim* the construction and arrangement of the India-rubber scroll and spring-teeth regulated by the bridge-tree, for the purpose and in the manner substantially as described.

No. 13,103.—HARRISON D. REYNOLDS.—*Improvement in Grain-Cleaners.*—Patented June 19, 1855. (Plates, p. 204.)

This improvement consists in the use of a conducting apparatus provided with openings and valves at various points in its length, whereby the grain is conveyed to any part of the scouring-cylinder that may be desired, in order to expose the grain to the scouring action for a longer or shorter time.

The inventor says: I do not claim the devices described, separately considered; but I *claim* the openings *q* in combination with the conductor *r* and scouring-cylinder *s*, arranged substantially as described, for the purpose specified.

No. 13,937.—JONATHAN L. BOOTH.—*Improvement in Grain-Cleaning Machines.*—Patented December 18, 1855. (Plates, p. 204.)

The beaters J throw the grain as it passes out of pipe *h* against the corrugations on the inside of shell A, and thereby cause it to be scoured. The fan H causes a current of air to pass through wire-cloth passages *d*, down through the space between the cylinder and shell, and up through the interior of the cylinder into the fan-box D; and the pulverized smut and dirt will follow the blast or current, and be ejected from the fan-box D. The cleansed grain will fall upon the basin K, and pass through the holes *i* and out through pipe L. At this point the grain will be subjected to another blast, which passes into the lower part of shell A, through the holes *c* into the lower part of tube L, and up through cylinder G.

Claim.—1st. In combination with the fan-box D enclosing the fan H, and provided with the hollow shaft through which the grain is fed, the cylinder G, shell A, and conical basin K, arranged in the manner described, for the purposes specified.

2d. The inverted conical basin K, with the tube or pipe L, provided with apertures *i* attached, in combination with the shell A, cylinder G, and fan-box D, substantially as shown and described.

3d. Feeding the grain into the space between the shell A and cylinder G by means of the hollow shaft E and arms *h h*, arranged as shown; whereby the grain is evenly fed into said space without interrupting or obstructing the current or blast which passes up through the cylinder, and the machine also rendered compact and efficient.

No. 12,586.—WILLIAM H. ELLIOT.—*Improvement in the Combination of Speed and Resistance Governors.*—Patented March 27, 1855.—(Plates, p. 204.)

b is the steam-box; *m* inlet, m^1 outlet-pipe, the inner end of the inlet-pipe being closed up; *o* cylindrical valve fitting over the end of the inlet-pipe, through each side of which there is an opening *n*, and through each side of the inlet-pipe there is also an opening n^1 exactly corresponding in size and shape with the opening in the valve. When these openings correspond in position, the valve is open and the steam escapes into the steam-box, and out of it at the outlet-pipe m^1; but the valve is made to close these openings by either of two motions: one by revolving around the inlet-pipe, which is controlled by the velocity-governor, and one by sliding longitudinally over the inlet-pipe, which motion is controlled by the resistance-governor, so that each governor has perfect control over the valve-opening, without being influenced by the other. Valve-rod *p* passes through the end of the steam-box, by which means the valve receives both its motions. It receives its longitudinal motion from a resistance-governor, through forked lever *k*. *g* is an arm secured to the valve-rod, through which pin *w* passes freely; as the pin projects from segment *r*, any motion of the segment is communicated to the valve by means of the pin *w*, the arm *g*, and the valve rod *p*.

3d. I claim the blower-case B, the receiving-box C, with its inclined plane *f* at its end, arranged and combined on the outside of the box, or body of the machine, substantially as and for the purpose specified.

No. 12,512.—George Leach.—*Improved Grain-Cleaner.*—Patented March 14, 1855. (Plates, p. 204.)

The tangential portions of furrows *h* and the tangential furrows *e* keep the eye free, as they conduct the grain quickly outwards, while the curved portions of the grooves *g* and grooves *f* retard the passage of the grain outward, so that it cannot pass too quickly through.

Claim.—Dressing or furrowing the stones by having the furrows or grooves *e f* cut in the face of the bed-stone B, and the furrows or grooves *g h* in the face of the runner C, said furrows or grooves being in the form or shape as shown and described, and for the purpose set forth.

No. 12,657.—Benj. T. Trimmer.—*Improved Grain-Cleaner.*—Patented April 2, 1855. (Plates, p. 204.)

The wheat passes on and over the revolving-plate *m*, down the sides between the concave and convex cone, and is here exposed to the scouring action of the spring-teeth J and to the teeth X on the concave; the wheat then descends to the scouring-plate *n*, across which it is scrolled to the centre by the spiral scroll *z z* formed of India-rubber. This scroll exerts a further wiping action on the wheat, and delivers it on to the next scouring-plate. A set screw (not shown in the engravings) serves to raise or lower the bridge-tree upon which the shaft 2 rests, by which means the scouring-teeth and India-rubber scroll are brought to bear more heavily on the wheat, which may be done without danger of bruising the berries, as the spring-teeth and scroll are yielding.

I *claim* the construction and arrangement of the India-rubber scroll and spring-teeth regulated by the bridge-tree, for the purpose and in the manner substantially as described.

No. 13,103.—Harrison D. Reynolds.—*Improvement in Grain-Cleaners.*—Patented June 19, 1855. (Plates, p. 204.)

This improvement consists in the use of a conducting apparatus provided with openings and valves at various points in its length, whereby the grain is conveyed to any part of the scouring-cylinder that may be desired, in order to expose the grain to the scouring action for a longer or shorter time.

The inventor says: I do not claim the devices described, separately considered; but I *claim* the openings *q* in combination with the conductor *r* and scouring-cylinder *s*, arranged substantially as described, for the purpose specified.

No. 13,937.—Jonathan L. Booth.—*Improvement in Grain-Cleaning Machines.*—Patented December 18, 1855. (Plates, p. 204.)

The beaters J throw the grain as it passes out of pipe *h* against the corrugations on the inside of shell A, and thereby cause it to be scoured. The fan H causes a current of air to pass through wire-cloth passages *d*, down through the space between the cylinder and shell, and up through the interior of the cylinder into the fan-box D; and the pulverized smut and dirt will follow the blast or current, and be ejected from the fan-box D. The cleansed grain will fall upon the basin K, and pass through the holes *i* and out through pipe L. At this point the grain will be subjected to another blast, which passes into the lower part of shell A, through the holes *c* into the lower part of tube L, and up through cylinder G.

Claim.—1st. In combination with the fan-box D enclosing the fan H, and provided with the hollow shaft through which the grain is fed, the cylinder G, shell A, and conical basin K, arranged in the manner described, for the purposes specified.

2d. The inverted conical basin K, with the tube or pipe L, provided with apertures *i* attached, in combination with the shell A, cylinder G, and fan-box D, substantially as shown and described.

3d. Feeding the grain into the space between the shell A and cylinder G by means of the hollow shaft E and arms *h h*, arranged as shown; whereby the grain is evenly fed into said space without interrupting or obstructing the current or blast which passes up through the cylinder, and the machine also rendered compact and efficient.

No. 12,586.—William H. Elliot.—*Improvement in the Combination of Speed and Resistance Governors.*—Patented March 27, 1855.—(Plates, p. 204.)

b is the steam-box; *m* inlet, m^1 outlet-pipe, the inner end of the inlet-pipe being closed up; *o* cylindrical valve fitting over the end of the inlet-pipe, through each side of which there is an opening *n*, and through each side of the inlet-pipe there is also an opening n^1 exactly corresponding in size and shape with the opening in the valve. When these openings correspond in position, the valve is open and the steam escapes into the steam-box, and out of it at the outlet-pipe m^1; but the valve is made to close these openings by either of two motions: one by revolving around the inlet-pipe, which is controlled by the velocity-governor, and one by sliding longitudinally over the inlet-pipe, which motion is controlled by the resistance-governor, so that each governor has perfect control over the valve-opening, without being influenced by the other. Valve-rod *p* passes through the end of the steam-box, by which means the valve receives both its motions. It receives its longitudinal motion from a resistance-governor, through forked lever *k*. *g* is an arm secured to the valve-rod, through which pin *w* passes freely; as the pin projects from segment *r*, any motion of the segment is communicated to the valve by means of the pin *w*, the arm *g*, and the valve rod *p*.

The inventor says: I do not claim a centrifugal governor, or a resistance governor, when used separately; as I am aware that a governor of the latter character was patented by W. Gardner, June 10, 1851.

But I *claim* the combination of a speed-governor with a resistance-governor, in such a manner that each shall exert its own proper effect upon the motive-power, producing thereby a compound resultant regulation without either of the said governors interfering with the action of the other, as set forth.

No. 13,549.—JONATHAN NESBITT, JR., and THOMAS J. COSLEY.—*Improvement in Hominy-Machines.*—Patented September 11, 1855. (Plates, p. 204.)

The beater C has four faces—E E, F F. The faces E E are flat; the faces F F have screw-like projections G so arranged that if continued across the faces E E, these projections would meet, and by the action of their inclined sides propel the corn through the concave A, and beat it and break it. The teeth N stir and clean the corn, and prevent the machine from clogging. To break the corn more effectually than would be done with an entire screw-thread, the screw-threads F are interrupted by flat faces E.

We *claim* the construction of the beater, as set forth; the same consisting in a beater provided with four faces, two of which are plane or squared, and two provided with the inclined or screw-like projections, in the manner and for the purposes described.

We claim, in combination with such beater, the two rows of spurs in its plane faces, as set forth.

No. 12,731.—JOHN SIMPSON.—*Improvement in Horse-Powers.*—Patented April 17, 1855. (Plates, p. 204.)

The main driving-wheel A has no central bearing, and is kept in place merely by the pulleys B C and the suspension-band D. The driving-wheel rests upon the driving-pulley B, and the rim E on the side of the driving-wheel bears upon the check-pulley C. The object of this check-pulley is to throw the foot of the wheel back, as the wheel is drawn or pressed forward by the action of the horses upon the planks H of the suspension-band D. The planks H are laid across and hooked to each other by iron straps *k*. The lower or returning portion of the suspension-band runs on friction-rollers *m*.

The object of the whole arrangement is to simplify the construction and to avoid gearing.

The inventor says: I do not claim a driving-wheel without central shaft or bearing; but what I *claim* as my improvement in horse-powers is: 1st. The employment of the large or main vertical driving-wheel without central bearings, in combination with the suspension-band, in the manner and for the purposes herein set forth.

2d. In combination with the driving-wheel without central bearings, and the suspension-band, the inner rim E and the pulley C, so arranged as to throw the foot of the driving-wheel back, all in the manner as herein set forth.

No. 12,782.—CLEMENT RUSSELL.—*Improvement in Horse-Powers.*—Patented May 1, 1855. (Plates, p. 205.)

The box C for the axis A is made in two parts, D and D^1, which are inserted in the oblong slot E, the part D^1 from above, and D from underneath, until the flanges *a* bear against the ways *b* and b^1. The nut H on the lower end of the axis A forces all parts snugly together. The axis A is allowed to slide freely back and forth in slot E, and thereby to adjust the pinions to the irregularities in the cogged circumference of the driving-wheel B.

The inventor says: I do not claim having the axis of the main driving-wheel of double-geared horse-power movable, as this is common.

But I do *claim* providing a broad solid flanged box or centre C for the axis A to rest in when said box is made in two parts D D^1, and fitted and confined by the axis itself, and flanges *a a a* in an oblong slot E formed in a bridge F, as constructed and arranged in the manner and for the purpose set forth.

No. 13,167.—H. H. FULTZ.—*Improved Horse-Power.*—Patented July 3, 1855. (Plates, p. 205.)

The object of this improvement (the nature of which will be understood from the engraving) is to simplify the construction of horse-power.

Claim.—The application of the driving-wheel C in combination with the shaft A and pinion D, when constructed and operating in the manner described for the purpose specified.

No. 13,955.—SAMUEL PELTON.—*Improvement in Horse-Powers.*—Patented December 18, 1855. (Plates, p. 205.)

This construction is to prevent throwing out of their proper position any of the cogs, they being preserved by the perfect balance thereof on the central line of force. This effect is secured by making the under side of the wheels of a disc form, (see fig. 3,) thus shortening their bearings on the under side, and giving an equal length of leverage, which form gives an equality of pressure the full length of their journal and breadth of their cogs; *x x* represents the central line of force. It will be seen by reference to fig. 2 that the same balance is secured by extending its bearings as far below the centre line of pressure P against its journals as the journal H rises above line P. The four levers U, to which the horses are attached, are secured to the master-wheel N by bolts passing through the end of the lever, and also through a clamp 3 for preventing the lever from rising too high, yet allows of sufficient movement to prevent undue strain on the master-wheel. The four braces V are riveted to the levers by bolts 4. I G L *k a* are the wheels.

The inventor says: I am aware that triple-gear horse-powers, constructed and arranged upon the same general principles as mine, are not new. I therefore do not claim this arrangement.

But I *claim* the improvement fully described, consisting in centreing

the wheels and pinions upon their several axles and bearings by bevelling or dishing the wheels, and extending their bearings in the manner described, whereby the pressure is equalized on the journals above and below each pinion and wheel; thereby preventing the unequal wear of the axles and journals, and consequently avoiding every tendency of the gearing to twist and break.

I claim the mode of constructing and attaching the levers U U U U, and levers V V V V, substantially as described, for the purposes set forth.

No. 13,029.—Geo. L. Dulaney.—*Improvement in Mill-Brushes.*—Patented June 12, 1855. (Plates, p. 205.)

Disc D is situated in a recess in the bottom of shell B, where it is allowed to turn freely. The cheeks C occupy spaces of a similar shape in the shell, fit around spindle A, and rest upon the movable disc. The exterior side of each cheek is curved in such manner as to meet the inner curve at one edge, and leave it thick at the other edge, thus giving it a wedge shape. These cheeks fit into spaces in the shell B of corresponding shape, but having additional room not occupied at the backs thereof (see figs. 1 and 2). Between these spaces are wings *a* curving in from the outer portion of the shell to the spindle. The disc is provided with projections *b* equal to the number of cheeks. They bear against the backs of the cheeks respectively, so that as the disc is caused to turn in the direction of the arrows, the cheeks will move with it. One edge of wedge E (inserted into a concentric slot *d*) bears against the shell B, and the other edge acts against disc D or (as represented in the figures) against one of the projections *b* of the disc. The wedge by its weight causes the disc to move in the direction of the arrows, which causes all the cheeks to closely wedge in the spindle A as fast as it wears so as to allow them to do so. The spindle is thus kept steady.

Claim.—The wedge-cheeks C C C, moveable disc D, and self-acting wedge E, or their equivalents, combined and operating substantially in the manner and for the purposes set forth.

No. 12,431.—Chas. W. Brown, assignor to Geo. W. Banker and Geo. O. Carpenter.—*Improvement in Paint-Mill.*—Patented February 20, 1855. (Plates, p. 205.)

Claim.—1st. Attaching the trough N, which receives the ground paint or material, to the running-stone F, so that it may rotate therewith, for the purpose of obviating the difficulty experienced in paint-mills, whose lower stone is the runner, of keeping the paint from running over the sides of the stone, and settling between the stone and the curb surrounding it, where it soon makes a hard bed which produces a great friction, as set forth.

2d. In combining with a paint-trough, rotating with the runner, a fixed scraper *o* and guards *q* and *r*, to cause the paint to flow over and out of said trough, and be guided into any suitable receptacle, whilst the mill continues to run, substantially as described. (See engraving.)

No. 12,707.—David E. Paynter, assignor to Israel M. Bissell.—*Improved Paint-Mill.*—Patented April 10, 1855. (Plates, p. 205.)

The double cone *s t v* D runs with its part *s t v* within a stationary conical barrel A. The part *s* is smooth and fits the inner circumference of the smaller base of the barrel; the part *t* and *v* of the cone is provided with spiral grooves, which being deep on part *t* taper off on part *v* and stop a short distance off the large base of the cone so as to leave there a short smooth surface; from the large base the cone D slops down and terminates in pivot E. The frustro-conical surface, embracing the outer edges of the deep teeth on part *t*, is sunk a little below *s* and *v*. At the bottom edge of hopper B, where it meets barrel A, and at the side nearer to the large base of the cone, said bottom edge is provided with a series of deep notches. The barrel A has also longitudinal grooves, corresponding in depth with the grooves on the parts *t* and *v* of the cone. The material passes from the hopper and is ground by part *t*, this operation being assisted by the said deep notches. The portion *t* being sunk, as above said, a considerable quantity of the material is admitted into this space. The spiral teeth carry the material on, further triturating it, to the smooth end of part *v*, whence, after becoming further levigated, it is discharged on the cone D and scraped off by scraper M.

The inventor says: I am aware that mills with conical grinding surfaces are commonly used. I am also aware that many of the features described above have been used in connexion with other mills. I therefore do not wish to claim such parts individually; but what I desire to secure by letters patent is, the arrangement and combination of the whole of the parts contained in the foregoing specification; that is to say, I *claim* the double cone D, constructed as shown at *s t* and *v*, in combination with the barrel A, substantially as described for the purpose specified.

No. 13,161.—Julius C. Dickey.—*Improved Mill-Step.*—Patented July 3, 1855. (Plates, p. 205.)

By raising lever E, the roller D is forced up the inclined plane of lever E, and thus the spindle A is raised or depressed. The tube which contains the pot is secured to the tram-block foundation by means of cams F, the cams being pressed against the tube and uprights cast on the tram-block foundation, for the purpose of giving the spindle its lateral motion.

Claim.—The application of the roller D and lever E for adjusting the height of the mill-spindle, when the latter rests in the tube C, and said tube is secured to the tram-block, in the manner set forth.

No. 13,954.—Isaac N. Parker.—*Improvement in Mill-Spindle Steps.*—Patented December 18, 1855. (Plates, p. 206.)

B represents a spindle-step, secured in the frame A, for supporting the lower end of a spindle-shaft. The upper end of the step is provided with a recess, which receives the end of the spindle-shaft C; and around the recess is a secondary chamber F, which contains the oil. The passage G connects the recess with the secondary chamber, and permits the oil to flow through said passage to the lower end of the spindle C; and thus, when said spindle revolves with great velocity, the lubricating substance is not apt to be thrown out of the spindle recess.

I do not claim the step described in W. P. Coleman's patent, dated October 1, 1851, as such is well known.

I *claim* the formation in the step of the oil-reservoir F, surrounding but separated from the spindle, and communicating with it by the opening G, at its bottom, with the periphery of the spindle, substantially in the manner described and for the purposes fully set forth.

No. 12,408.—Chas. R. Barnes.—*Improved Mill-Stone Dress for Hulling Rice.*—Patented February 20, 1855. (Plates, p. 206.)

Figure 1 represents the runner, and figure 2 the bed-stone. The rice, passing in between the stones at the eye A of the runner, is carried by the velocity of the stone towards its outer edge till it strikes the furrows B, when, being turned upon its longest diameter, it passes on to the curved furrows C, when it is again turned upon its longest diameter; and then, coming in contact with the curved furrows E, in connexion with the curved furrows C and straight furrows D, they are made to rotate in all directions, and checked in their course towards the outer edge of, and prevented from leaving the stones too soon.

Claim.—The method described of dressing horizontal stones for hulling rice, the runner having curved furrows, in connexion with or separate from straight furrows, and the bed-stone having smaller curves draughted thereon, substantially as described and shown.

No. 13,115.—Geo. L. Dulaney, assignor to Reuben Allen.—*Improved Mill-Dress.*—Patented June 19, 1855. (Plates, p. 206.)

The nature of this improvement will be understood by reference to the engraving.

The inventor says: I *claim* the construction of what I call a compound-elbow mill-dress, by the divisional mode of calculation described, having main elbow-leads, gutters, or grooves, formed with secondary or branch elbow-leads or comeys, communicating directly therewith, instead of being a distinct or separate series.

The said compound elbow-dress being formed upon the face of a mill-stone, having an inward sloping or dressed surface, together with an outward sloping feed or supply circle, specifically as described and for the purpose set forth.

No. 13,384.—Robert Cochran.—*Improved Method of Hanging Mill-Stones.*—Patented August 7, 1855. (Plates, p. 206.)

It will be understood from the claim and engravings how the mill-stone will true itself, if, on being put in motion, it is not true.

Claim.—The movable cock-eye 2 placed in the recess 3 3 on the top of the spindle, to co-operate with the cock-head 4 fit in the balance-rine 5 5, or their mechanical equivalents, the whole being substantially as described, and for the purpose set forth.

No. 13,985.—Bishop J. Harris.—*Improved Mode of Dressing Mill-stones, for Scouring and Hulling Buckwheat, &c.*—Patented December 25, 1855. (Plates, p. 206.)

The nature of this invention consists in dressing horizontal mill-stones with a smooth dress and without furrows, by bosoming the stones, both runner and bed-stone, one-third the distance from the eye towards the skirt being bevelled towards the eye in a direct slant, making the slant of the bosom not less than three-sixteenths of an inch for each stone where the stones are two feet and a half in diameter.

I *claim* the smooth and bevelled dress of mill-stones for scouring and hulling buckwheat, by which method the buckwheat is longer retained within the bosom of the stones and more effectually scoured without injury to the kernel than by any other known mode.

No. 12,822.—A. Lempeke.—*Mode of Checking Wind-Mill.*—Patented May 8, 1855. (Plates, p. 206.)

The depression of foot-lever J will raise rod K; the screw M will catch with the fork *t*, and throw the rod L and sleeve D^1 outward towards the sails.

Claim.—Operating the sleeve or collar D^1, or moving said sleeve or collar on the shaft C towards the wings or sails *d* by means of the screw M on the shaft C, rod L, attached to the sleeve or collar D^1, and lever J, as herein shown; whereby the chains e^1 are slackened and the wings or sails allowed to turn edgewise to the wind, thereby presenting no surface to the wind, and consequently stopping the mill, as herein described.

No. 12,348.—John S. Griffith.—*Improved Corn and Cob Crusher.*—Patented February 6, 1855. (Plates, p. 206.)

The stacks are held on end upon the platform *p* and in contact with the holders *q*, while the revolution of the frustrum holding the knives produces the cutting of the stalk into pieces, which, dropping between the rotating frustrums and concave, are by the teeth thereof crushed and ground, and discharged at *m*.

Claim.—The combination of platform *p*, holders *q*, and knives *l*, arranged with the crushing frustums and concaves, as constructed and operating for the purposes set forth.

No. 12,356.—Joel Weigle.—*Improved Crushing and Grinding Mill.*—Patented February 6, 1855. (Plates, p. 206.)

The grinder *b* has coarser corrugations than the grinder *c*; the casing *d* is secured to the platform *k* of the frame of the machine by screws *m m*, and slots in the supporting-ears *l l*, which project from the casing so as to allow of a lateral adjustment. The casing *e* is permanently secured to the platform by means of ears *p* and screws *r*. The casings are combined by lateral ears *n n* and *t t* and bolts *s*, the ears *n n* having slots for the bolts to work in. By moving the casing *d* laterally upon the platform, a wider space can be produced between the descending side of the grinder *b* and its casing than there is between the opposite side of the grinder and its casing. Corn and cobs are fed through tube *g*, they are operated upon between grinder *b* and casing *d*, and the corrugations of *b* are such as to carry the stuff to the inner end of casing *d* and discharge it into the space between *c* and *e*, when it is carried forward and discharged into *i*. When shelled corn is to be ground, it is fed from hopper *h* into *f*. When it is desired to grind the meal finer or coarser, the set screw *v* is turned to move *c* longitudinally, and thereby to vary the space between *c* and *e*; and when it is desired to vary the fineness of the provender formed of cobs and corn, the casing *d* is moved laterally, as aboved described.

Claim.—Combining with the crusher *b* and the grinder *c*, the casings *d e*, in such a manner that the said crusher and grinder can be adjusted in a longitudinal direction, and the casing *d* of the crusher be adjusted in a lateral direction, substantially in the manner and for the purpose set forth.

No. 12,977.—Wm. D. Wilson.—*Improved Corn Grinder and Crusher.*—Patented May 29, 1855. (Plates, p. 207.)

The lower end of concave E is hinged at *b*, and the upper part can be adjusted by set-screw *c*. The platform F is provided for the reception of the corn and the attendant to stand upon, and it is placed over the main driving-wheel G, and supported by the parts B¹ of the frame of the machine. Thus the attendant will not be in the way of the horse as he travels around in a circle, and the corn to be ground can be dumped upon it, and thus be at hand ready for being fed into the machine.

Claim.—The general arrangement and combination of the crushing-rollers *c c*¹, grinding-roller D, adjustable concave E, platform F, and gearing G H I J K L M, substantially as and for the purposes set forth.

No. 13,476.—Daniel S. James, assignor to Himself, J. B. White, and J. W. McIntyre.—*Improvement in Corn and Cobb Mills.*—Patented August 21, 1855. (Plates, p. 207.)

The rotary shell A is supported upon shoulder *a* of spindle B by arch *b*, and steadied at the bottom by cogged-rim R, held concentric with the shell by screws *g*.

The inventor says: I make no claim to any of the parts of the machine, separately considered; neither do I claim the simultaneous rotation of shell and burr, nor the means by which the same is produced, as such is not new. I *claim* suspending the rotary-shell by an upper arch, upon a shoulder of the main spindle, when the said shell is connected at the bottom with the burr, as described, and the moving-power applied directly to the shell, whereby friction is greatly diminished, and consequent facility of operation attained.

No. 13,569.—Rensselaer D. Granger.—*Improvement in Corn and Cobb Mills.*—Patented September 18, 1855. (Plates, p. 207.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not desire to confine myself to any particular number of arms on the bridge-tree C, or pieces F and H, as that must be determined by the size of the mill; neither do I wish to claim any particular size or arrangement of breaking or grinding-teeth. But I *claim* the adjustable horizontal guide-rollers *i*, in combination with the bridge-tree G *e*, spindle D, and spring *d*, for the purpose of maintaining a uniform relative position of the shell with the burr, and at the same time allowing the former to yield from the latter.

No. 13,730.—Geo. Patten.—*Improvement in Corn and Cob Mills.*—Patented October 30, 1855. (Plates, p. 207.)

The object of this improvement is to remedy a defect existing in mills of this character, owing to the disparity between the supply of broken ear which passes to the fine-grinding portion of the machine and the grinding capacity of said portion. The crusher being double-surfaced in this machine, a double amount of breaking is constantly going on, the products of which unite below the breaker, and constitute a sufficient supply to employ the entire working capacity of the fine-grinding portion of the machine.

Claim.—The double-surfaced breaker and crusher D, between the upper portions of shell and burr, in combination with a shell A and burr B, constructed, arranged, and operating substantially as and for the purposes specified.

No. 14,002.—Thomas B. Stout.—*Improvement in Corn and Cob Mills.*—Patented December 25, 1855. (Plates, p. 207.)

The top D of the burr can be vertically adjusted by means of screws *e* and *f*, so as to regulate the rapidity and degree of fineness with which the grinding proceeds. The auxiliary burr I and shell H are intended for grinding corn and other grain into fine meal and even flour. The burr I is taken round by means of arms *p* of driver N (keyed to the shaft and vertically adjustable by nut *o*) abutting against projections *i* on said burr. Thus the burr can always adapt its position to that of its

shell. The spindle adjustment, by means of the rods and nuts P S *g h*, will be understood by reference to the engravings.

Claim.—The adjustable "regulator" D, regulated and operating in connexion with the burr G and shell F, substantially in the manner and for the purposes set forth.

Also, coupling the spindle to the burr and adjusting it therein by means of the recess and pin *d* and the radial regulating rods S S, substantially as described; and in combination therewith the adjustment of the upper end of the spindle in the frame by the rods P P, or their equivalents, so that the two adjustments may harmonize with each other, and no disarrangement of the burr in its shell may arise in the application of the power to the upper end of the spindle.

Also, the auxiliary loose burr I, dressed in the direction opposite to that of the main burr G, and so arranged that it may revolve nearly or quite in contact with and adapt its position to that of its shell H, unrestrained by the parts by which it is attached and driven, substantially in the manner and for the purposes set forth.

No. 12,278.—Wm. H. Harn.—*Improved Mill for Cutting and Grinding Vegetables.*—Patented January 23, 1855. (Plates, p. 207.)

A series of knives M M, on cylinder P, pass between a series of stationary knives N, so as to slice the fruit and let it fall on and pass between the fluted grinding-cylinders G G¹.

Claim.—A slicing or cutting apparatus, consisting of a cylinder armed with knives, and working in connexion with stationary knives, substantially as described, in combination with a crushing or grinding apparatus, substantially such as described, or the equivalent thereof, the whole being so constructed as to slice the fruit or vegetables, and then crush or grind them in the same machine, as described.

No. 12,487.—Samuel W. Powell.—*Improved Mill for Grinding and Bolting Sumac.*—Patented March 6, 1855. (Plates, p. 207.)

The sumac is placed in hopper *g*, and thence passes upon cylinder *b* and between it and the hollow slotted cylinder *a*. The cutters *c* reduce the article, and the coarse particles are carried along and pass out at *h*. The reduced leaves pass through the slots of the hollow cylinder upon a conducting shaft D, which carries them to the aperture *i* and into the final grinding apparatus (not shown in the engravings.)

Claim.—The slotted hollow cylinder having a shaft armed with spirally arranged teeth revolving within it, constructed and arranged in the manner and for the purpose set forth, and disclaiming all other parts not claimed.

No. 12,953.—Tobias J. Kindleberger.—*Improvement in Cider-Mills.*—Patented May 29, 1855. (Plates, p. 207.)

The scraper *h* extends across the box parallel to the axle of the knife-roller E, and is hinged to the box by means of rods *r*; it is made to

retreat (by means of cam D) as the knives *b* approach. The apple-tilter K consists of a forked rod, one end entering the hopper among the apples, the other being operated on by the cam D. The scraper *h* keeps the roller E clear without injury to the edge of the knives.

Claim.—So arranging the scraper *h*, in connexion with the roller E, that it shall perform its office without injury to the edge of the knives, by means of the cam D, operating substantially in the manner described, for preparing the fruit for the crushing-rollers G and H, in combination with the apple-tilter K, for the purpose set forth.

No. 13,448.—Z. Coleman Robbins, assignor to Anson Martin.—*Improvement in Mills for Compressing and Grinding Grapes and other Small Fruits.*—Patented August 14, 1855. (Plates, p. 207.)

The vertically reciprocating compresser *i* works in grooves in the sides of the hopper-frame *m*. The revolving cylinders A B draw the grapes inward, and the compresser forces the grapes down between said cylinders.

The inventor says: I am aware that a reciprocating knocker or compresser has been employed within the hopper of fruit-grinding machines, in combination with a concave and a grinding cylinder; also, that two cylindrical rollers have been employed in combination with a feeding-roller within the fruit-hopper. I disclaim both of these arrangements, also these devices separately considered.

But I *claim* the combination and joint action of the compresser *i* and the cylinders A and B for compressing and grinding purposes, substantially as set forth.

No. 13,558.—William Wilber.—*Improvement in Grinding Cotton and other Seed for their Oils.*—Patented September 11, 1855. (Plates, p. 208.)

The steam issues through long slotted nozzles *j j*, and acts upon the seeds as they fall towards the rollers, or after they are between the rollers, for the purpose of heating and moistening the seeds whilst being crushed, so as to prevent the gumming of the rollers.

I *claim* the application of jets of steam for lubricating the surfaces of cylinders for grinding cotton-seeds, to prevent their gumming up or being clogged by the ground material, substantially in the manner described.

No. 13,741.—Samuel Krauser.—*Improvement in Cider or Wine Mills.*—Patented October 30, 1855. (Plates, p. 208.)

The tumblers F F¹, which fit easily into the matrix of the screws on shaft S, are fastened to a shaft R, so that one of the tumblers will be in gear with its screw when the other is not. One of the tumblers being in gear with its screw, and shaft S (to which grinding disc x^2 is fastened) being revolved, the shaft and disc will move laterally until eccentric E or E¹ will strike its catch *m*, and remove its lip *e* from shaft

R. As soon as *m* is thus removed, the pin D¹ on flange D arrives at the projection H on the tumbler, and throws it out of gear, and the other into gear, when the lateral movement of the shaft and disc will be reversed. Thus the shaft and disc will have a rotary and at the same time a lateral reciprocating motion. By this means the pumice will constantly be worked through the sieves x^1 x^1 at the sides of the hopper. The sides of the skeleton concave W do not touch the sides of the sieves; the spaces thus left open afford an additional avenue for the escape of the confined pumice. The scraping-wheels *x* are to keep the sieves clean.

Claim.—1st. Communicating a reciprocating as well as a rotary motion to the grinding-disc x^2, in the manner and for the purposes described.

2d. The use of the grinding disc x^2 with its peculiar movements, in combination with the two stationary sieves x^1 x^1, for the purpose of pressing the whole or a part of the pumice through their meshes, and also causing them to assist in reducing the fruit to a pumice by providing their inner surfaces with sharp projections, as described and set forth.

3d. The arrangement of the skeleton concave W with reference to sieves, in the manner and for the purpose as described.

4th. In combination with operating the screw by means of two vibrating tumblers F F¹, as described, the use of the catches *m m*, in the manner and for the purpose described.

5th. In combination with the side-screws the application of the scraping-wheels *x x*, in the manner and for the purpose set forth.

No. 13,837.—Cornelius W. Van Vliet, assignor to Chas. Parker.—*Improvement in Mills for Grinding Coffee, &c.*—Patented November 20, 1855. (Plates, p. 208.)

A cast-iron shell envelopes the two grinding-cones C and D by an indented surface, leaving a narrow outlet channel *i* at the greatest circumference of the upper cone and the smallest circumference of the lower cone, and a similar channel at the lower portion of the greatest circumference of the grinding-cone D. The upper cone C, which makes only half the number of revolutions of the lower cone D, crushes the coffee coarsely; and the lower cone D crushes it to any desired degree of fineness, according to the adjustment of the set-screw E. The purpose of this arrangement is to grind all the particles of coffee to a uniform size, from which a more perfect and aromatic extract of coffee can be made than otherwise.

I *claim* the peculiar arrangement of the crushing and the grinding-cones, as described, and in combination therewith the passage *i* leading from the largest circumference of the upper cone to the smallest circumference of the lower cone, substantially as set forth and for the purposes specified.

No. 13,839.—W. O. Hickok.—*Improvement in Mills for Grinding Apples.*—Patented November 20, 1855. (Plates, p. 208.)

The object of the breakers *d* is to remedy a defect in "Powel's" mill, in which most of the small lumps which are torn from the apples pass from between the cylinders in a solid or uncrushed condition, whereby a large quantity of the juice of the fruit is lost, it being difficult to express it from the uncrushed lumps by the subsequent operation in the press.

The inventor says: I do not claim the cylinders on whose surfaces grooved and fluted helical ribs are formed, and which move with different velocities, as these were patented by Samuel W. Powel in 1849.

But I *claim* the breakers *d d*, constructed and applied substantially and for the purpose as described and set forth, whether the said breakers are used in combination with the helical ribs *c c* and the teeth *b b*, so as to produce a separate and distinct depression *e* around each tooth, as described and set forth, or whether the said breakers are used in combination with the teeth above, as shown.

No. 12,181.—Amory Felton.—*Improvement in Grinding-Mills.*—Patented January 2, 1855. (Plates, p. 208.)

The grain passes from a hopper through opening *b*, and is admitted between the cylinder and concave at one end. The grain as it is crushed is carried along to the discharge opening *f* at the opposite end of the concave by the spiral flanches *c*. The spiral flanches *c* of the concave and of the cap (when put together) form continuous curves, and there is a sufficient number of such flanches to cause the grain to pass over the cylinder and between the grinding surfaces several times before reaching the discharge end. As the flanches prevent the grain from passing twice between any portion of the grinding surfaces, the passage will always be left clear for that which follows, by which means, the inventor alleges, the mill can be fed very fast without clogging.

The fingers *e* (which are vibrated by means of rod I and cam J) operate at the discharge end of the concave opposite the opening *f*, to prevent the ground grain from clogging at that part.

The inventor says: I do not claim, separately, either of the parts herein described; but I do *claim* the combination of the cylinder B, concave C, cap H, and reciprocating teeth or fingers *e*, the concave and cap being provided with spiral flanches *c*; the above parts being constructed and arranged substantially as shown and for the purpose as set forth.

No. 12,223.—John L. Yule.—*Improvement in Flouring-Mills.*—Patented January 9, 1855. (Plates, p. 208.)

This invention is clearly represented in the engravings.

Claim.—Adjusting the parallelism of the upper stone to the lower by

means of the swinging frame K and pivots *d*, the height of the lower stone being regulated by the step C and screws *a a* acting on the spindle, the said spindle having a boss to give the shake-motion to the shoe O by means of the arm R and rod Q.

No. 12,461.—CHARLES LEAVITT.—*Improvement in Portable Grain-Mills.*—Patented February 27, 1855. (Plates, p. 209.)

The inventor says in his specification: My plan of casting the legs and other portions in one piece adds much to the steadiness and efficiency of the mill, while no single stick of timber can afford such strength and stiffness as the lever in two parts, without greatly increasing the weight. Fig. 2 is a section on an enlarged scale.

Claim.—The combination of the bed-plate *a*, the legs or supporters *b*, the breaker *c*, and the main pivot *d*, cast in one piece; and these parts, in combination with the lever *r*, attached to an external revolving concave, constructed and arranged substantially as described, and for the purposes specified.

No. 12,959.—HENRY MELLISH.—*Improved Shoe for Grain-Mills.*—Patented May 29, 1855. (Plates, p. 209.)

This improvement consists in arranging, inside the shoe, through which the grain passes into the mill, a barrier *e*, running obliquely upwards and backwards to a screw *f* with meshes sufficiently large for the grain to pass through. The grain passes in beyond the partition *g*, under the screen and up through its meshes and over the barrier, whilst the heavier and larger substances are arrested and retained in the shoe. The shoe can be emptied by drawing back the slide *l* and opening hole *i*. P is the mill-stone.

The inventor says: I do not claim the invention of a vibrating shoe, as such, through which to pass grain from the hopper to the mill.

I *claim* the separating shoe for grain-mills, as described, having an inclined barrier *e*, arranged and operating below the screen *f*, constructed substantially in the manner set forth.

No. 13,610.—D. S. WAGENER.—*Improvement in Flouring-Mills.*—Patented September 25, 1855. (Plates, p. 209.)

As the blower D rapidly revolves, a suction is created through tubes B and C, passing rapidly through the grain, as it falls from the shoe K through the tube into the eye of the stone, the air-tight chamber A excluding all dust from concentrating in the eye of the stone, as is the case with other mills; the whole force of the current of air passes undisturbed through the grain, cleansing it entirely of the dust and all light substances. A portion of the air escapes with the grain and ventilates the stones.

Claim.—The arrangement of tubes B and C, connected by the supplemental shoe K, within the air-tight chamber A, in the manner described, and for the purpose specified.

No. 13,996.—EZRA RIPLEY.—*Improvement in Mills for Grinding Grain, &c.*—Patented December 25, 1855. (Plates, p. 209.)

The end of the shaft of cylinder D is provided with cams *b b*, which act upon lever *d* attached to shaft *e* of cylinder E; partially wound around the shaft is a spring *f*, which, when the cams act upon the end of the lever, so as to partially rotate the cylinder E downwards, becomes extended. When the cam has passed the end of the lever, the spring, being at liberty to act, contracts to its original proportions, and at the same time partially rotates cylinder E upwards, thereby obtaining a partially rotating, reciprocating motion, so as to feed the substance to be ground in a regular, intermittent succession of quantities.

The inventor says: I do not claim the combination of two or more cylinders for grinding, when such cylinders have each of them a continuous rotary motion; but I *claim* combining with a continuous rotating grinding-cylinder D, or plates, one or more grinding-cylinders E, which have a partially rotating, reciprocating motion in opposite directions given to it or them by the cams, lever, and spring, as described, or by other analogous devices for the same purpose, the combination being substantially in the manner and for the purposes as set forth.

No. 12,870.—FRANCIS PEABODY.—*Method of Regulating Wind-Mills.*—Patented May 15, 1855. (Plates, p. 209.)

The disc A is secured to the shaft K, (which carries also the wind-wheel B,) and revolves with it. The wind-wheel is fitted to the shaft K with a spline, so that the two revolve together, while the wheel is allowed to move to and from the disc. *q* is a ring which slides freely upon the shaft K, and is adjusted to a greater or less distance from the disc by the screws R. The spiral spring P bears one end against the hub of the wind-wheel, the other against the ring *q*; the wheel is thus pressed constantly from the disc with a force adjustable by means of said screws R. When the force of the wind increases, the spring yields and the wheel approaches the disc, and the passage for the air between the two is contracted, and consequently the velocity of the wheel is prevented from becoming excessive; and *vice versa*, when the force of the wind diminishes.

Claim.—Regulating the action of the wind upon the wheel by means of the disc A, constructed and operating in the manner substantially as herein set forth.

No. 13,339.—JAMES MONTGOMERY.—*Improvement in Wrought-Iron Shafts.*—Patented July 24, 1855. (Plates, p. 209.)

Having rolled a number of separate iron bars 1 2 3, etc., of the form shown in cross section fig. 2, they are put together with thin wedge-shaped rolled iron placed between them at the two ends, and at such other part of the shaft as may be designed for the bearing. Strong iron withes are then firmly twisted around the bundle, the parts where the wedges are placed are exposed to a welding heat, and a conical

piece of cold cast-iron having been inserted in the central hollow to preserve the due shape of the same, the bars and wedges are welded together; the conical plug is then driven out. These shafts are lighter, more elastic, and (the component bars being rolled separately) of better quality than the common solid shafts.

Claim.—The construction of a hollow compound shaft by means of the bars and wedges, arranged and welded together only at the journals or bearings, as described, while the bars are separated by sufficient spaces at all other parts, in the manner and for the purposes substantially as described.

No. 12,839.—GRANT B. TURNER.—*Improvement in Smut-Machines.*—Patented May 8, 1855. (Plates, p. 209.)

The grain passes from hopper A through sieve C and over board *g* [illegible] to the screen H, where it is subjected to a blast from fan-blower K. [illegible] light impurities separated at this point pass out of the machine [illegible], whilst the heavy grain passes through M and N on to the scouring-disc *o*, and the lighter grain falls through the screen and passes out at L. The centrifugal force of the disc *o* throws the grain against the ribs *e d*, which breaks the smut-balls, and finally throws it off at its periphery against the ribbed cap R. The grain falls upon concentrator S, the smut passing through its perforations, whence it is carried out by the blast passing through between the inner concentrator S and the outer one *m*, and thus a separation of the smut from the grain is made as soon as the smut is loosened from the grain. The grain passes then through another similar scouring apparatus and over board *r* into the main blast, through which and out at *n* the heavy particles only pass, while the light wheat, white caps, etc., are carried up the trunk, and, striking projection T^1, are thrown out at L. The white-caps which may pass up with the blast, instead of choking the screen H, pass out at *u*.

Claim.—In combination with the scouring-disc or runner and outside concentrator, the inner perforated and partial concentrator, slightly elevated from the outer one, for the purpose and in the manner set forth.

Also, in combination with the screen H in the blast-trunk T, the opening *u* directly under said screen to allow the white caps which may have passed through the scouring-plates to pass out, instead of being held up against the bottom of said screen by the blast, as set forth.

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1856.

IN THE HOUSE OF REPRESENTATIVES, *February* 18, 1856.

Resolved, That there be printed, for the use of the members of the House of Representatives, fifty thousand copies of the Mechanical part of the Patent Office Report, and ten thousand copies of the same for the use of the Patent Office.

Attest: WM. CULLOM, *Clerk*.

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XIV.—LUMBER.

No. 12,318.—Russell Jennings.—*Improvement in Augers.*—Patented January 30, 1855. (Plates, p. 210.)

This instrument has a double-twisted pod A and two floor-lips B B; the latter project beyond the positions in which they have heretofore been placed, and the spur *a*, instead of being situated at the outer front corner of the cutting-edge of the floor-lip, where the latter from its necessary thinness is weakest, is projected from its hinder part or heel, where it is strongest. Thus is effected a new relation between the cutting-edge of the floor-lip and the spur, so that the one does not interfere with the operation of the other.

Claim.—So constructing the cutting-edges of a double-twist auger-bit that the vertical scores shall follow the chisel—*i. e.*, so that the cutting-edges of scores and chisel shall never intersect the worm or helix of the shaft at the same point.

No. 12,551.—Isaac W. Hoagland.—*Ship-Augers, etc.*—Patented March 21, 1855. (Plates, p. 210.)

The inventor says: I do not claim making the cutting portion of the auger detached from the screw portion, irrespective of the precise mode of attachment shown.

I *claim* attaching the cutting portion B of the auger to the screw portion, as shown and described, viz: by means of the dovetail notch formed by the shoulder *b* and inclined end *d*, dowel *f*, and screw *e*. (See engraving.)

No. 12,575.—Charles W. Cotton.—*Improvement in Attaching Augers to Handles.*—Patented March 21, 1855. (Plates, p. 210.)

Claim.—Attaching or securing augers to handles by having a metallic tube B placed around the centre of the handle, and having a transverse rectangular taper hole *a* made through the handle and tube, and a metallic band C placed around the tube B, and turning loosely thereon, said band having slots *c d* made through it, a part of the slot *d* being of taper form; the shank of the auger being placed in the hole *a*, and through the slots *c d* in the band, and secured in the handle by turning said band and causing the edges of the taper portion of the slot *d* to pass in the notches or recesses *f f* in the shank, as shown and described.

No. 12,583.—Ransom Cook.—*Improvement in Machines for Turning the Lips of Augers.*—Patented March 27, 1855. (Plates, p. 210.)

In using this machine, the cam-lever *e* is first raised to nearly a vertical position, thus allowing the clamps *b* to open. An auger or bit, with the lips shaped as shown in figure 5, being red-hot, is placed in one of the crimping-dies *a*, with the lips projecting beyond the die and towards the wrench, figures 3 and 4. The upper end of the cam-lever is then brought quickly down, thus forcing the other crimping-die against the auger, and firmly holding it between the two dies. A quick turn is given to the screw-shaft *f*, which brings the wrench in the hub of the wrench-wheel *d* into an embrace with the end of the auger, the centre of which enters the hole in the wrench, while the lips pass into the slots on its side. The workman then seizes one of the handles to the wrench-wheels and turns it towards himself, when the wrench, keeping the auger straight by means of its hold of the centre, turns or bends the lips into the desired position, both being turned at the same time and angle, while the shoulders of both are left in the same line.

The inventor says: I do not claim any of the several and separate parts of the machine described, except the wrench; but I *claim* the combination of the screw-shaft, or its equivalent, with the wrench and crimping or clamping dies, as substantially set forth, and for the purpose mentioned. I also claim the shape of the wrench, substantially as described, for the purpose of turning the lips of boring implements.

No. 12,868.—Ebenezer W. Nichols.—*Mode of Securing Brace-Bits in their Sockets.*—Patented May 15, 1855. (Plates, p. 210.)

The figure represents the bit R as being fastened in the stock S. To loosen the bit, the nut *a* is turned (thereby screwing down the screw-shank of the spring) until the projection B of the spring springs back into the recess *c* in the stock, when the bit can be drawn out. The pin *g*, entering a groove in the outside of nut *a*, serves to confine said nut to the end of the stock.

The inventor says: I do not claim the projection B *d* upon the spring *f*; but I do *claim* the burr-nut *a* (or its equivalent), in combination with the spring *f*, operating upon the wedge principle (by the use of the screw) the projections B *d*, for the purpose and in the manner herein described.

No. 13,261.—L. H. Gibbs.—*Expanding Auger or Bit.*—Patented July 17, 1855. (Plates, p. 210.)

The plate B is received into the slot D in the auger A; and by inserting the lower pin *g* into one of the series of holes in the plate B, the cutting-lip *j* on plate B can be set further out or in, so as to bore larger or smaller holes.

Claim.—1st. The adjustable plate B, with the rib *d*, the lip *j*, the index-holes *c c c c c* in it, combined with the auger A, with slot D, the tapering-pins *g g*, and set-screw *h*, as described and for the purposes set forth.

No. 13,925.—Guillaume Henri Talbot.—*Improvement in Auger-Handles.*—Patented December 11, 1855; patented in England August 25, 1855. (Plates, p. 210.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim the manner described of giving a revolving action in either direction to the auger-bit or boring-tool, by reversible pawls and ratchets, operating in connexion with a vibrating handle, apart from the relative arrangement and form of handle specified, as such is common to drill-stocks; but I *claim* in gimlet or auger-handles the arrangement substantially as specified, within the body of the said handle, which crosses the bit of the ratchets *a b*, and pawls a^1 b^1, with their reversing gear, for operation of the bit or bit-socket in either direction, either by a revolving or vibratory action of the gimlet-handle, on pressure of the hand applied on both sides of the axial line of the bit, and under the usual clutch of the hand on the handle, over the centre line of the bit, and whereby the actuating pawls, ratchets, and accompanying devices form no obstruction, and are protected from injury or derangement, substantially as set forth.

No. 13,943.—John Gourlay.—*Adjustable Crank-Brace for Augers.*—Patented December 18, 1855. (Plates, p. 211.)

The full lines represent the instrument when used as a single-crank brace, and the dotted lines as arranged when used as a double-crank brace.

The inventor says: I am aware of W. P. Barnes's invention, and therefore only *claim* the particular method of varying the length of leverage in handles, as set forth.

No. 13,998.—John P. Rollins.—*Improved Extensi -Bit.*—Patented December 25, 1855. (Plates, p. 211.)

The lower end of lip B and that of the cutting-spur C are pivoted at F to the centre-stock A. D is a hollow fine-threaded screw, screwing into stock A and turning in the cutting-spur C. E is a coarse-threaded screw fast in lip B, and screwing into the hollow screw D. The threads on E are twice as coarse as those on D. By turning screw D, the spur C and lip D will move the same distance, either towards or from the centre spur A, and thus the bit can be expanded or contracted.

The inventor says: I do not claim the invention of movable cutters; but I *claim* the manner in which the lip and cutter are set or secured for operation, when being adjusted, without the use of separate screws for that purpose, and in the manner described.

No. 12,452.—William L. Young.—*Machine for Cutting Barrel-Heads.*—Patented February 27, 1855. (Plates, p. 211.)

The different pieces of the barrel-head are confined between the face-plate 3 and the disc 4. The action of hand-wheel 7 brings the

projecting points (with which the circular row of elliptic springs 16 is provided, which springs are arranged in the disc 4) in contact with the different pieces of the barrel-head, pressing them firmly against the plane surface of the driving face-plate 3. 13 and 14 are the tools for cutting the barrel-head.

Claim.—The centrally pressing toothed-springs, as arranged; and als their combination, with a disc free to vibrate on its axle, for the purposes set forth.

No. 12,543.—Archibald H. Crozier.—*Machine for Cutting Barrel-Heads.*—Patented March 21, 1855. (Plates, p. 211.)

The disc H, which forms the lower part of the rotating clamp H K, has a shaft I, which is stepped in box *e*, the latter serving as a fulcrum when it (the clamp) is traversed towards or from the cutters *c c*^{1}, which is done by means of a lever J. Disc K is provided with spurs, which penetrate the heading when the disc is forced down by screw L, turned by hand-wheel M, so as to clamp heading *g*. Screw L is connected with disc K so as to allow it to vibrate upon the end of the screw, and the nut in which the screw turns is pivoted in bar P. Shaft I and screw L form the arms or links of a toggle-joint; that is, the clamp is carried from the cutters by lever J, and the pieces of heading are placed upon disc H, and screw L is turned so as to clamp them fast; they are then moved with the clamp towards the cutters by lever J until screw L is in line with shaft I, which movement forces the discs against the heading, the bar P having sufficient spring to prevent the breaking of any of the parts.

Claim.—The described machine for cutting out and forming the heads of barrels and other similar articles; first, in arranging and operating two rotating cutters *c c*^{1} so as to cut scores in the opposite sides of the rotated heading *g* at the same time—one cutter being arranged and operated so far in advance of the other that the latter cutter may cut so far into the heading and into the score made by the former without interfering with it (the first cutter,) so as to sever the superfluous portions of the heading from the head, at the same time that they cut it circular and bevel or form the edge to fit the croze in the cask, substantially as described. 2d. Traversing or vibrating the clamp edgewise after the heading is placed in it, to bring the heading in contact with the cutters, and to remove the head from the cutters after it is formed, so as to take it out of the clamp and insert material to form another head and bring it into contact with the cutters without stopping them (the cutters) during the operation or time occupied in making the change. 3d. The revolving clamp in combination with the rotating-cutters, arranged and operated substantially as described and for the purposes set forth.

No. 13,016.—Jos. D. Stiller.—*Bench-Rest.*—Patented June 5, 1855. (Plates, p. 211.)

The bench-rest consists of a bar A with a flat head B, and slides within case D. When the upper surface of one of the teeth of rack F

is bearing against the tooth on latch G, not only should the curved front part of escapement-pallet N rest against the angular corner of one of the rack-teeth, but the lower edge of the said curved part of the pallet should be a short distance below the corner of the next tooth below. By depressing thumb-slide I, the latch G will be turned on fulcrum H so as to move its tooth out of the rack, and the bench-rest will slide upwards by the action of spring E; the pallet N will then catch against the next tooth below. By pressing down the thumb-slide so as to remove the latch from the rack, and at the same time pressing down upon the bench-rest, this rest can be moved downward. The top B of the rest is provided with wedge-teeth *f* for the purpose of seizing and holding the end of a board when borne against it. When it is desirable to be used as a rest without teeth, the plate S can be moved out sufficiently to prevent the teeth on B from coming into contact with the board. (See figure 3.)

Claim.—Combining with a bench-rest mechanism, substantially as described, for not only elevating said rest with an intermittent rotary motion during successive pressure on a spring thumb-slide, applied to said bench-rest, as set forth, but for enabling said bench-rest to be moved downward whenever necessary, in manner and for the purpose as specified.

Also, combining with the serrated top plate of the bench-rest a plain slide-plate, combined and made to operate therewith substantially as specified.

No. 13,678.—A. Hotchkin.—*Bench-Hook.*—Patented October 16, 1855. (Plates, p. 211.)

Claim.—The construction of the bench-hook, as shown and described, viz: having the catch or stop C attached by a joint *b* to a plate B, said catch or stop being provided with a shank *d*, against which a spiral spring *g* acts, and also provided with a segment-bar D, having holes *h* in one side, in which a spring pawl E catches and retains the catch or stop in the desired position.

No. 12,437.—William B. Emery.—*Method of Adjusting Cylinders in Boring-Machines.*—Patented February 27, 1855. (Plates, p. 211.)

The hub *a* of dial-plate A projects both ways, and is fastened to the axle Q of the cylinder N by means of set-screw D; dial-plate B fits over the inner end of hub *a*.

To bore, for instance, four parallel spiral lines of holes around the cylinder N, the boring instrument is brought down, making a hole; the cylinder is then turned one-fourth of a revolution by the notches upon A, while B remains stationary, being held by catch G, and the second hole is bored; then another one-fourth of a revolution, and so forth, making four holes, each of which is the first of the spiral line of holes. The carriage P is then moved a sufficient number of notches of ratchet L to space the holes longitudinally; then by the notches on B the cylinder is revolved any required part of a revolution, when the cylinder is again ready for the boring of four more holes, as at first. This process

is repeated until the whole length of the cylinder has been successively under the boring instrument.

Claim.—1st. The dividing dial and its catch, in combination with the ratchet and pawl, or their equivalents, substantially and for the purpose as described.

2d. The compound dial-plate and catches, substantially and for the purpose as described.

No. 12,598.—URIAS KIMBLE.—*Tool for Boring Hubs to Receive Boxes.*—Patented March 27, 1855. (Plates, p. 212.)

This invention consists in constructing a shaft with about one-third of the upper end square, the remaining part round, and provided with a screw-thread, on which is run a nut *c* with spurs on the bottom of the nut, which rest on an oval-shaped box 5, which has a hole through it to receive the shaft. An adjustable gauge 3 is attached to the shaft, which is kept in its place by a set-screw. An adjustable knife 4 is also attached to the shaft, and held in its place by a set-screw. The shaft is turned by handle 2.

The object of this improvement is to cut a gane in the hubs of wagon-wheels of any desired size and depth. The gauge determines the depth, and the knife the size of the gane. The box 5, which is of the right size to fit in the hub when reamed out ready to set the box, is calculated to steady the shaft, and may be adjusted, as it is oval, so that the knife will start in the centre, whether the hub is reamed out true or not. Previous to cutting the gane, it is to be driven into the hub sufficiently tight to steady the shaft when in motion. The nut prevents the knife from going in too fast; the spurs on the bottom of the nut prevent its turning when the shaft is in motion.

The inventor says: I do not claim the shaft, the adjustable knife, or the adjustable gauge, as they have been known before.

I *claim* the oval-shaped box, with the nut with spurs on the under side resting on the oval-shaped box, in combination with the shaft, the knife, and the gauge, for the purpose set forth.

No. 12,677.—H. C. GARVIN and J. H. KING.—*Tool for Boring Hubs.*—Patented April 10, 1855. (Plates, p. 212.)

A, knife for boring out hubs; B, slide in which the knife is fastened; C, mortise for the reception of the knife; D, bolt that fastens the knife while in operation, to be firmly secured; E E, cross-heads, through which slide B passes; F, friction rollers fastened upon cross-heads E, with flanges to form a groove around the hub, before the apparatus is put to work, so that the knife, in performing the work, cannot throw off the apparatus; G G, rods and taps to regulate and fasten the apparatus to the hub, and keep it secure to its bearing while at work; H stay to keep the knife firm to its bearing during the boring; I, nut that feeds the knife while in operation.

Claim.—The apparatus for boring wagon and carriage hubs for reception of boxes, (narrow and through boxes,) as herein described,

using for that purpose the aforesaid apparatus, or any other substantially the same.

No. 12,776.—CHAUNCEY COWDRY, ORRIN TOLLS, and CHAUNCEY C. TOLLS.—*Wheelwrights' Boring and Tenoning Machine.*—Patented May 1, 1855. (Plates, p. 212.)

The inventor says in his specification: For boring a hub, place frame R into position fig. 3, fasten the hub upon the index G^7, adjust the graduated scale of sliding-tubes T, until the proper size is at the required height, by means of screw U; also graduate the height of frame C accordingly, place the index point upon the required number of spaces on the index plate, regulate the position of the movable stop L, so that the lever G will stop the forward movement of the auger; when the hole is deep enough, press lightly with one hand upon the lever G, turning with the other hand crank O, until lever G strikes the stop L; then draw back the lever G, raise the index point, turn the index and hub one space, and repeat the operation till the hub is bored.

After the spokes are driven in, place the hub into position fig. 2, fastening it upon the index as above; raise support B^2 so that the spoke will rest firmly in the notch (see fig. 6); operate with the hollow auger as in boring, placing the movable stop so that the shoulder of the tenon will be at the required distance from the hub. When the tenon is made, turn back screw D^1, and bring the support B^2 into position, shown by dotted lines in fig. 2, so that the spokes may pass over it when the index and hub are turned; turn to the next spoke, raise the support B^2, &c., repeating the operation as above.

Claim.—1st. The combination and arrangement of the frame R, with the scale of graduated and sliding-tubes T and screw U, as described.

2d. The combination of the hinged support B^2 with the sliding screw-clamp C^3, substantially as described.

3d. The combined arrangement of the several parts, substantially as described and set forth.

No. 12,808.—JAMES TEMPLE, assignor to ISRAEL WARD and JAMES TEMPLE.—*Machine for Boring Fence-Posts.*—Patented May 1, 1855. (Plates, p. 213.)

The bolsters FF^1 F^2 can be raised or lowered by bringing nearer together or by spreading out their bases, which are made adjustable by means of slots e and set-screws G. As the bolsters are raised or lowered, the spur-gears L L roll around the periphery of the pinion H, which lowers with the bolsters, but still remain in gear with said pinion, the distance between their respective journals and the journal of the long pinion not changing, all of which have their bearings in the bolsters. Lever M and cross-head N, working against the collars *c* upon the auger-shanks K, serve to force up the augers into the wood; the spur-wheels slide on the long pinion, but at the same time they are rotated by it.

Claim.—The supporting of the long pinion and auger-shanks in the

is repeated until the whole length of the cylinder has been successively under the boring instrument.

Claim.—1st. The dividing dial and its catch, in combination with the ratchet and pawl, or their equivalents, substantially and for the purpose as described.

2d. The compound dial-plate and catches, substantially and for the purpose as described.

No. 12,598.—URIAS KIMBLE.—*Tool for Boring Hubs to Receive Boxes.*—Patented March 27, 1855. (Plates, p. 212.)

This invention consists in constructing a shaft with about one-third of the upper end square, the remaining part round, and provided with a screw-thread, on which is run a nut *c* with spurs on the bottom of the nut, which rest on an oval-shaped box 5, which has a hole through it to receive the shaft. An adjustable gauge 3 is attached to the shaft, which is kept in its place by a set-screw. An adjustable knife 4 is also attached to the shaft, and held in its place by a set-screw. The shaft is turned by handle 2.

The object of this improvement is to cut a gauge in the hubs of wagon-wheels of any desired size and depth. The gauge determines the depth, and the knife the size of the gauge. The box 5, which is of the right size to fit in the hub when reamed out ready to set the box, is calculated to steady the shaft, and may be adjusted, as it is oval, so that the knife will start in the centre, whether the hub is reamed out true or not. Previous to cutting the gauge, it is to be driven into the hub sufficiently tight to steady the shaft when in motion. The nut prevents the knife from going in too fast; the spurs on the bottom of the nut prevent its turning when the shaft is in motion.

The inventor says: I do not claim the shaft, the adjustable knife, or the adjustable gauge, as they have been known before.

I *claim* the oval-shaped box, with the nut with spurs on the under side resting on the oval-shaped box, in combination with the shaft, the knife, and the gauge, for the purpose set forth.

No. 12,677.—H. C. GARVIN and J. H. KING.—*Tool for Boring Hubs.*—Patented April 10, 1855. (Plates, p. 212.)

A, knife for boring out hubs; B, slide in which the knife is fastened; C, mortise for the reception of the knife; D, bolt that fastens the knife while in operation, to be firmly secured; E E, cross-heads, through which slide B passes; F, friction rollers fastened upon cross-heads E, with flanges to form a groove around the hub, before the apparatus is put to work, so that the knife, in performing the work, cannot throw off the apparatus; G G, rods and taps to regulate and fasten the apparatus to the hub, and keep it secure to its bearing while at work; H stay to keep the knife firm to its bearing during the boring; I, nut that feeds the knife while in operation.

Claim.—The apparatus for boring wagon and carriage hubs for reception of boxes, (narrow and through boxes,) as herein described,

using for that purpose the aforesaid apparatus, or any other substantially the same.

No. 12,776.—CHAUNCEY COWDRY, ORRIN TOLLS, and CHAUNCEY C. TOLLS.—*Wheelwrights' Boring and Tenoning Machine.*—Patented May 1, 1855. (Plates, p. 212.)

The inventor says in his specification: For boring a hub, place frame R into position fig. 3, fasten the hub upon the index G^7, adjust the graduated scale of sliding-tubes T, until the proper size is at the required height, by means of screw U; also graduate the height of frame C accordingly, place the index point upon the required number of spaces on the index plate, regulate the position of the movable stop L, so that the lever G will stop the forward movement of the auger; when the hole is deep enough, press lightly with one hand upon the lever G, turning with the other hand crank O, until lever G strikes the stop L; then draw back the lever G, raise the index point, turn the index and hub one space, and repeat the operation till the hub is bored.

After the spokes are driven in, place the hub into position fig. 2, fastening it upon the index as above; raise support B^2 so that the spoke will rest firmly in the notch (see fig. 6); operate with the hollow auger as in boring, placing the movable stop so that the shoulder of the tenon will be at the required distance from the hub. When the tenon is made, turn back screw D^1, and bring the support B^2 into position, shown by dotted lines in fig. 2, so that the spokes may pass over it when the index and hub are turned; turn to the next spoke, raise the support B^2, &c., repeating the operation as above.

Claim.—1st. The combination and arrangement of the frame R, with the scale of graduated and sliding-tubes T and screw U, as described.

2d. The combination of the hinged support B^2 with the sliding screw-clamp C^3, substantially as described.

3d. The combined arrangement of the several parts, substantially as described and set forth.

No. 12,808.—JAMES TEMPLE, assignor to ISRAEL WARD and JAMES TEMPLE.—*Machine for Boring Fence-Posts.*—Patented May 1, 1855. (Plates, p. 213.)

The bolsters F F^1 F^2 can be raised or lowered by bringing nearer together or by spreading out their bases, which are made adjustable by means of slots *c* and set-screws G. As the bolsters are raised or lowered, the spur-gears L L roll around the periphery of the pinion H, which lowers with the bolsters, but still remain in gear with said pinion, the distance between their respective journals and the journal of the long pinion not changing, all of which have their bearings in the bolsters. Lever M and cross-head N, working against the collars *c* upon the auger-shanks K, serve to force up the augers into the wood; the spur-wheels slide on the long pinion, but at the same time they are rotated by it.

Claim.—The supporting of the long pinion and auger-shanks in the

adjustable-hinged pillar-blocks, such as described, so that the augers may be set to bore holes at variable distances apart, while the spur-wheels on their shanks shall still keep in gear with the long pinion, as described.

No. 13,158.—Adolph Brown and Felix Brown.—*Machine for Boring and Turning Wood.*—Patented July 3, 1855. (Plates, p. 213.)

Square pieces of wood are put through the square holes of wheels L and upon the centre-bits *g*, and the machine is set in motion. Wheel K, acting upon the wheels L, turns them and the wood round. Screw R, worked by wheels Q and P, moves support T, and consequently all the pieces of wood, towards the supports C and E, while they are revolving. The wood comes first in contact with the knives *h* attached to support C, by which the outside of the wood is turned off. The wood passes then through holes in support C, and is acted upon by boring-tools *b* fast on support E, whereby the wood is bored out the required depth for a box; then the wood comes in contact with the knives *n* fast on support E, which cut the neck for the reception of the cover. When the wood has been brought in thus far, the toothed portion of wheel P has left the pinion Q, and the screw R, with support T, remains stationary, and the wood will only turn without moving along. During this time the cam *x* acts upon projection *p* of ring F in such manner as to press the knives *m* fast to said ring against the wood, cutting thereby the wood through.

Claim.—1st. The manner of guiding and turning round the wood by passing said wood through suitable holes made through the wheels L, thereby allowing the wood to be fed up to the tools at the same time the same is turned round.

2d. The ring F, with the tools for cutting off the wood attached, arranged, and worked as specified.

No. 13,243.—John Young, of C.—*Machine for Boring Posts and Pointing Rails.*—Patented July 10, 1855. (Plates, p. 213.)

The driving-belt is placed on pulley W when the machine is to be used for boring; and when the augur is to be withdrawn, the belt is shifted to the loose pulley V, and the tightening pulley M is drawn on the belt on pulleys T G, which will enable the auger and chips to be withdrawn (without stopping the machine), as the belt will revolve the pulley X and its screw-shaft P, which will withdraw the frame R which supports the auger. When it is desired to bore posts, the four screws *c c c c* are withdrawn, and the saw-table O is removed. Preparatory to pointing, the screw *a* is withdrawn, when the boring part can be removed. Then the table O, with the circular saw C, is returned, and the four screws *c* are tightened. The driving-belt is placed on pulley J, the middle of the rail in the clamp H, the dog Q is drawn down the teeth of clamp H entering the rail, the carriage L is drawn out, and the rail and carriage run to the saw, which will then cut the straight side of the rail. Now the carriage is returned, the table with

the clamp and rail is pushed from over against pin 5, and then run up to the saw, at the same time depressing the treadle I, which throws up the gauge on the table marked *b*, which gauges the end of the rail.

The inventor says: I do not claim any of the separate devices set forth.

But I *claim* the reversible clamp and feed-carriage, in combination with the boring apparatus, substantially as set forth for the purposes mentioned.

No. 13,606.—A. Wyckoff and E. R. Morrison.—*Improved Boring-Machine.*—Patented September 25, 1855. (Plates, p. 213.)

Motion being given to the toothed wheel F, the auger D will rotate, and also the worm J, the augur turning in a reverse direction to the worm, which latter receives its motion by means of gearing E G and band and pulleys L K. As the bits *b* cut the wood, the chips pass within the auger, and the worm passes the chips out at the back end of the auger. B^1 represents the log fastened to carriage B.

Claim.—1st. The employment or use of the tubular or hollow auger, constructed as shown, for the purpose specified.

2d. The combination of the tubular or hollow auger D and worm or screw J, arranged substantially as shown for the purpose specified.

No. 12,149.—Louis Koch, assignor to Theo. Pincus.—*Machine for Manufacturing Wooden Boxes.*—Patented January 2, 1855. (Plates, pp. 214 and 215.)

In the illustration of this machine (which is designed to feed a number of pieces of wood simultaneously to the working-tools), there is represented only one pair of pieces of wood A^3 A^3, with the corresponding boring and cutting-tools *i* i^1, *g* g^1, *h* h^1, and *f* f^1. In the position represented, the wood A^3 on the left-hand side has been sufficiently far bored out, and the recess for the cover turned on; while on the right-hand side the wood is clear of the tools g^1 and h^1, and ready to be cut off, in which position the wood is now held stationary. The machine being then set in motion by means of driving-shaft I, the tool-holders and shaft O will be set revolving by proper gearing (indicated in the drawings). While O turns from 1 to 2, lever H^1 is acted on by projection o^2 *t* on cam D^1, and presses frame N^1, with cones M^1 attached, forward, thereby compressing the spring r^1. By this motion of the frame, arms n^1 are forced up the inclined surface of cones M^1, turning the spindles l^1, and consequently the knives f^1, so as to bring the latter towards the centre of the wood, cutting off the box. While O turns from 2 to 3, lever H^1 falls back to its former position; the springs r^1 force back frame N^1, which relieves arms n^1, the springs o^1 wing back the knives f^1 to the outside of the wood and out of action. The lower end of lever X^1 has come in contact with pin p^1, and thereby has been thrown out of one of the grooves on pulleys U^1, setting thereby the latter free to be turned. Spring r^1 of pulley W^1 fits also into one of the teeth on pulleys U^1, thereby locking the two pulleys together. While O turns from 3 to 4, projection d^1 w^1 on cam R^1 has acted on lever E^1, pressing thereby pin s^1 fast to pulley W^1 upwards;

and U^1 being locked to W^1, the shaft V^1 is partly turned, thereby advancing the wood towards and into tool-holder K^1 as much as the depth of the hole the wood has been bored out. While O has turned from 1 to 4, levers F and F^1, having rested on the concentric part of the surface of cam S^1, have remained stationary. While O turns from 4 to 1 lever F^1 is acted on by cam S^1, and moves, by its connexion with projection T^1, fast on frames R (said frames connecting the supports Q Q^1); then supports Q Q^1 from the right hand to the left, forcing thereby on the right hand the wood into tool-holder K^1 and against boring-tool g^1, and afterwards against tool h^1, whereby the wood is bored out and the groove for the cover turned on; and on the left hand the wood is brought out of the tool-holder K clear of g. While O turns from 4 to 1, cam R^1 acts still on lever E^1, giving to the same and therefore to pulleys U^1 W^1 (as those two pulleys are still locked together), and consequently to the wood between the ratchet-wheels e^1, a second motion, in combination with the one just described, and which said motion is equal to the thickness of the bottom of the box. These two motions which the wood receives from supports Q Q^1 and from upper shaft V^1, are together, equal to the whole length of the box. During this movement of the wood, the knives i^1 turn the out-side of it. The motion of Q Q^1 has brought the lower end of lever X^1 clear of pin p^1, and it is now through spring m^1 pressed against the periphery of pulley U^1, and falls, at the moment the motion of Q Q^1 is finished, into the next groove of U^1, holding thereby the same, and consequently the shaft V^1, stationary, until X^1 touches again pin p^1 in the backward motion of the supports. While O has turned from 3 to 1, lever E has moved down the incline on cam R^1. Pulley W is then acted on by weight Z, pulling it around so as to keep pin s always against lever E. During this interval, spring r slides over the back of a tooth on pulley U until it falls into the next tooth. The upper end of X is held by spring m in one of the grooves on pulley l, preventing thereby the same from turning, while pulley W is turning backwards, as just described. During the time O has made one half a revolution, as just described, the wood on the left-hand side has been brought clear of borer g, and the boxes on this side are ready to be cut off; while from the wood on the right-hand side one set of boxes have been cut off, the wood been again sufficiently advanced, and has been bored out, and the recess for the cover turned on. By the second half revolution of O the same operation as above will be repeated on opposite sides.

To make different sized boxes, cams R^1 S^1 D^1 must be changed for others differently divided as regards the space each projection occupies, and pulleys U U^1 must be changed for others having a greater number of grooves and teeth.

Claim.—1st. The mode of making different-sized boxes on the same machine by the mere change of the cams R^1 S^1 D^1 and the pulleys U U^1, corresponding to the size of the boxes, as described.

2d. Cutting off the boxes, when finished, by tools j or j^1, fastened to spindles l or l^1; said spindles being attached to the tool-holders, and worked by an arm n or n^1 fast on the end of the spindles, as described.

3d. The construction and application of the frames N or N^1, with cones M M^1 respectively attached, actuating through the arms n or n^1 the spindles l or l^1, and consequently the tool f or f^1; said frames being worked by cam D^1 and levers H or H^1, as described.

4th. The arrangement and connexion of the supports Q Q^1, provided with shafts and ratchet-wheels, between which latter the wood, out of which the boxes are to be made, is held; said supports being worked by cams S^1 and levers F or F^1 for feeding the wood to the tools, and releasing the same, as specified.

5th. The construction of the pulleys U and W or U^1 and W^1, worked by cams R^1 and levers E and E^1, as well as by weights Z or Z^1, as described; said pulleys, when connected, acting upon the upper shafts V or V^1, running in the supports Q or Q^1, for approaching the wood up to the tool-holders after the completion of each set of boxes.

No. 13,921.—Isaac M. Singer.—*Improved Machine for Carving Wood, &c.*—Patented December 11, 1855. (Plates, p. 215.)

The pattern B is secured to bench a. Block d is fitted to slide on rail c for adjustment, and can be held in place by screw e. To the upper part of this block is jointed a short spindle f, turning on pin g, and this spindle forms the axis on which the two systems of pentagraph-levers can turn horizontally, whilst the connexion of the spindle with the block d admits of the vibration in a vertical plane. h i is the horizontal, and a^1 b^1 the vertical pentagraph. k is the tracer connected to one angle of the pentagraphs. The table m, with the block to be carved upon it, is jointed to the opposite angle of the pentagraphs at n. The table slides in ways p p, on the top of a carriage q, which in turn slides in ways r r, at right angles to ways p, so that the block can be moved horizontally in any direction. The bed s, with the ways r r on it, is secured to a standard t, which slides in vertical ways u u, the whole being suspended by a link v and balanced by weight x, so that the bed, with the table m and block upon it, can be moved up and down freely by the pentagraph. The tracer k is directed over the surface of the pattern by means of a hand-lever jointed to the end c^4 of the pentagraphs, and not shown in the engravings. The revolving cutter i^1 is mounted in a stationary frame.

The inventor says: I do not limit myself to the special construction or arrangement of parts specified, as these may be varied without changing the mode of operation of my invention.

I do not claim the combination of the tracer with the bracer which carries the block of wood to be carved, by means of one system of pentagraph-levers, as this is described in a patent granted me on the 10th day of April, 1849.

But I *claim* combining the tracer with the table which carries the block of wood to be carved, by means of two systems of pentagraph-levers operating at right angles with each other, substantially as described, whereby the block to be carved will be directed and presented to the action of the cutter in such a manner as to determine the configuration, as well in a vertical as in a horizontal direction, as set forth.

No. 13,101.—Lovell T. Richardson.—*Socket-Handles for Chisels.*—Patented June 19, 1855. (Plates, p. 215.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim a die of any particular form; neither do I claim simply forming or constructing sockets by means of a die, for dies are used for analogous purposes.

But I *claim* constructing the sockets A with a die, so formed that a transverse partition or ledge *a* is left within the socket, said partition or ledge dividing the recess *b* which receives the handle of the implement from the recess *c* which receives the shank, so as to obtain a sufficient body or weight of metal at that part of the socket which is welded to the shank *d* of the tool or implement, for the purpose of forming a strong and durable connexion of the socket and shank, as set forth.

No. 13,734.—Aretus A. Wilder.—*Improved Lath-Machine.*—Patented October 30, 1855. (Plates, p. 215.)

The saw *k* is arranged with its plane of motion parallel to the vertical side *m* of the frame of the machine, and at a distance from said side of the frame equal to about one-half the usual thickness of planks to be operated upon. Close to the side *m*, and extending in rear of the saw, cutters, guide and feed rollers, there is an adjustable back-rest. It consists of a board *b*, which can be set at various angles with the vertical side *m*, by means of set-screws *c*. The plank *a*, during the time it is operated upon by the saw and cutters, is slid along the back-rest by means of feed-rollers *f f*, and it is pressed close to the back-rest by means of the flanges of the guide-rollers *d* at the lower edge of the plank, and by one guide-roller *i* at the upper edge of the plank. The roller *i* is arranged on a shaft *h*, between the cutter *g* and saw *k*. The rollers *d* (in vertical lines with the feed-rollers *f*) are loose on their shafts, and are pressed against back-rest *b* by means of springs *e*. The plank thus confined to the back-rest passes first under the cutter *g*, which planes its upper edge, and then it is operated upon by the saw. As the saw cuts vertically, whereas the plank has a certain inclination given by means of back-rest *b*, the outer sides of the plank will be oblique to the cut performed by the saw.

The inventor says: What I *claim*, in re-sawing and bringing plank to an equal width at the same time, is, the flanged head-rollers *d d*, with their springs, or equivalents, in combination with the adjustable back-rest, for the purposes before described.

No. 13,846.—Joel P. Heacock.—*Improvement in Cooper's Tool.*—Patented November 27, 1855. (Plates, p. 215.)

In using the tool the barrel is held in the ordinary way, applying the throat-side *e* of the blade *e e*^{1} to the stave as near the upper hoop as possible, and working from you, shaving down to the bilge. To finish the dressing, the tool is to be turned so that the drawing-knife edge *e*^{1} will be in contact with the barrel, drawing towards the hoop that is upward, and so continuing around the barrel.

Claim.—Constructing a cooper's tool in the manner substantially as described, for the purpose of over-shaving, as set forth.

No. 13,200.—John Power.—*Cork-Machine.*—Patented July 3, 1855. (Plates, p. 215.)

The nature of this invention will be understood from the claims and engravings.

Claim.—1st. Supporting the head of the knife-carriage near its centre upon a bearing-screw *h*, and applying adjustable-screws *i i* near its end, for the purpose of making it adjustable at different heights, and either level or at different inclinations, substantially as set forth.

2d. Giving rotary-motion to the mandrel D, or its equivalent, which revolves the cork by means of a band *l*, connected with the knife-carriage, and carrying a weight *o*, the weight serving to keep tight the bands and transmit motion from the knife-carriage to the cork during the cutting operation, and also to draw back the carriage after the cutting operation, substantially as described.

No. 13,714.—Wm. R. Crocker.—*Machine for Manufacturing Corks.*—Patented October 30, 1855. (Plates, p. 216.)

C is a rapidly revolving hollow shaft, with the cutters *t* at its front end. The shaft *d* slides in stands *b*, and a frame *h* is fastened to it by a set-screw *s;* so that the frame and the rod *m* (which latter is fastened to the frame *h* and fits loosely in the cavity of the shaft C) slide together with the shaft *d*. The piece of cork is held against plate *e*, and the shaft *d* slid forward against the cutter, until the hub *r* comes into contact with stand *b*, when the cutter will have cut through the cork. The shaft *d* is then drawn back, when the rod *m* will push the cork just cut out of the cavity of the cutter. The cutter-tube is slotted for cutting conical corks. The concavity being entirely cylindrical, the outside is slightly bevelled off to produce a knife-edge, which has a tendency while cutting to crowd the lips of the cutter inward towards the centre; and as these are made very thin and have a spring-temper, they are capable of contraction as they are forced into the block, cutting it gradually smaller or conical.

The inventor says: I *claim* the application of the revolving cylindrical cutters, to cut corks from a block or slab, as described, whether the cutters are slit to cut tapering or conical, or unslit to cut cylindrical corks.

I do not claim a cylindrical cutter; but this mode of construction, use, and application, allowing myself the privilege of arranging the same in detail, while the principle and distinguishing characteristics are retained.

No. 13,096.—Jonah Newton.—*Method of Securing Cutters to Rotary Discs.*—Patented June 19, 1855. (Plates, p. 216.)

Claim.—Securing the cutters *a* to the disc or plate A, as shown and described, viz: having the cutters with semi-circular form, with ledges or projections *d* on their back or convex sides, the ledges or projections being fitted in grooves *c* in the semi-circular edges of the projections *b* of the plate A; the front or concave sides of the cutters having grooves *e* in them, to secure the nuts or segment heads *f*.

The projections *b*, cutters *a*, and nuts or heads *f*, having screws *h* passing through them for the purpose of allowing the cutters to be adjusted properly, and also securing firmly the cutters to the disc or plate.

No. 13,169.—Isaac B. Hartwell.—*Machine for Cutting Cavities Spherical, Ellipsoidal, &c.*—Patented July 3, 1855. (Plates, p. 216.)

To the edge of the spherical shell *o* are attached the cutters *b c*. P is the driving-pulley firmly connected with gear-wheel Q, both P and Q revolving loosely on the axis of the rocking-frame J K, and (by means of intermediate gearing R T U) giving motion to the cutter-shell *o*. Wheel V, with hand-lever W, is fast on the axis of the frame J K. Lever W serves to set the frame J K. By means of shaft X, pulleys Y Z, and a small pinion on the axis of Z, a slow feed-motion is given to gear-wheel V, by which J K is brought forward and outward. The pinion and wheel V can be disconnected by hand-lever *i*. Dy these means a spherical groove *g* can be cut in block s^1, which is fast on sliding-table k^1. When the block is brought under the cutter-shell the machine is set in motion, when the shell (moving on two axes) cuts its way in the wood until axis *a* is brought to a horizontal position. The pinion is then disconnected from V, and J K brought back to a vertical position; the shell is raised by means of screw and crank H I, and the block is advanced, and the next groove is cut, and so forth. Finally, the block is brought under the circular saws K K, on shaft H, in the oblique frame D E, sliding in oblique grooves. The frame and saws are pressed down until the latter have made a longitudinal cut to the depth of *c* and *d*. The wood remaining between *c* and *d* is then split out, and the ellipsoidal cavity is to be smoothed and finished.

1st. I *claim* the spherical shell or cutter O turning at the same time on the axis of the sphere of which the shell is a part, so as to cut a spherical groove, or a convex and concave surface of less extent than a quadrant of the superfices of a sphere, yet corresponding in shape to the convex surface of a spherical section formed by two planes passing through the sphere at right angles.

2d. I claim the method of giving a compressed motion to the spherical shell or cutter, by means of the tight-gear wheel V, figure 1, and the loose-gear wheel Q revolving on the axes of the rocking-frame J K, so as to be in connexion with the pinion R in all necessary positions of the rocking-frame J K.

3d. I claim the use of circular-saws set in an oblique sliding-frame, in connexion with the spherical cutter, for the purpose of cutting straight grooves to connect with the spherical grooves at each end of the block of wood.

No. 12,122.—Thomas H. Burley.—*Dovetailing-Machine.*—Patented January 2, 1855. (Plates p. 216.)

Figure 1 represents a top view, and figure 3 an end elevation of the machine. There is a guage-table with two inclined fronting-guides *c* c^1 corresponding to two sets of saws *a* a^1; so that when the piece to be mortised is laid on the table, and with it brought up to the edges of the saws *a*, they will cut obliquely into the piece, (illustrated in figure 3,) and also cut a straight edge *e* on the bottom of the mortise. The piece being then brought to the saws a^1, the other oblique side and the bottom edge of the mortise are cut. In tenoning, the piece is slit to the proper depth by the common saw *g*, then carried to the inclined table *h*, passed under the chisels *k*, and held fast by bar *m*. The chisels have two cutting edges at right angles to each other, and these are inclined so as to be parallel to the inclination of the table *h*. The chisels *k* having cut one side of the tenon, the piece is removed to the side h^1 of the table, where chisels k^1 complete the other side.

Claim.—1st. The inclined fronting-guide, in combination with the oblique cutting-edges of the saw-teeth, in the manner and for the purposes set forth.

2d. The double-inclined tables, in combination with the series of vertical chisels, in the manner and for the purposes set forth.

No. 13,522.—John J. Haley. — *Dovetailing-Machine.* — Patented September 4, 1855. (Plates, p. 217.)

Upon the sliding-frame D the guides E E are raised, for giving obliquity to the cut of the chisels, requisite in forming the dovetail. The front guide for the set of chisels is for directing them in cutting the right side of the mortise, while the guide immediately behind directs the chisels at an opposite angle and side. F F are the chisel-stocks, sliding the guides E E; *a a* the chisels, secured to said stocks. Power being applied to pulley G, it moves pinion *d*, spur *e*, shaft e^1, and pinion *f*, in whose face the crank-pin *g* is affixed, which moves the pitman *h* in elevating the chisel-stock; this pinion drives another by its side on shaft H, in whose face the other crank-pin *i* is secured, which raises the other chisel-stock. The cam I upon shaft H works between jaws *l l* projecting from sliding-bar *m*. The horizontal chisels *o* are secured to a cross-piece *n* at the end of bar *m*, and thus receive a reciprocating motion for the purpose of removing every chip or cut.

I *claim* the forming of a dovetail, either as a mortise or a tenon, at a single operation, by angularly placed reciprocating chisels *a a*, in combination with horizontally placed chisels *o o*, arranged substantially as set forth.

I claim giving a reciprocating motion to the chisels *o o*, by the snail cam I on shaft B, in combination with chisels *a a*, gear *d e f*, and pit-

man-rods *h h*, for the purpose of actuating the chisels in unison with each other, in the manner described.

I claim the arrangement of the angular guides E E, in combination with the guides E¹, for the purpose of effecting the under-cut or sides of the dovetail.

I claim the arrangement and combination of the angular guides E E, and chisels *a a*, on stocks F F, with the horizontal chisels *o o*, and guides *m*, and snail I on shaft H, for producing the dovetail and completing the mortise, in the manner set forth.

No. 13,574.—Amos P. Hughes.—*Dovetail Key-Cutter.*—Patented September 18, 1855. (Plates, p. 217.)

The wood is thrust through the tube B against and past the edges *a* of the dovetail-cutters C C. The size of the tube is to be determined by the size of the dovetail keys which are to be cut.

b represents one of the dovetail keys.

I *claim* the combination of the two angular V-shaped and adjustable cutters with the guiding-tube, or its equivalent, substantially in the manner and for the purpose specified.

No. 13,696.—John Bell.—*Improved Dovetailing-Machine.*—Patented October 23, 1855. (Plates, p. 217.)

A number of boards *r* are set in box E, and clamped by means of screws *d*. The box is then set on the inclined plane D in such a manner that the tongues *h* will fit into grooves *g*. When the cutting-chisels A are set in motion, they strike the edges of the boards in a direction which is oblique to their sides, and thus the grooves and tongues cut into said boards are oblique in two different directions; and though all the corresponding sides of the tongues are parallel to each other, and thus form a parallelopiped, still none of its angles are right-angles, but all oblique ones. The object of this is, that when two boards *n n* are fitted together by dovetails, as described, it will be impossible to separate them in any horizontal or vertical direction; they can only be separated in a direction parallel to the lines *p*, and this separation is prevented by nailing a bottom-board *o* to the sides *m n*. The distance between each two chisels A is equal to the width of the chisels, so as to cut the tongues and grooves to fit into each other. It is obvious that the depth of each groove and the height of each tongue must be equal to the thickness of the boards, to form a finished surface when fitted together. For that purpose it is necessary that the distance of the inclined planes D from the centre of shaft B can be regulated.

Claim.—The combination of the box, clamp, or frame E, or its equivalent, for holding the pieces to be dovetailed or tenoned, with the series of rotating cutters, substantially as described.

Also, in combination with the double inclined tables, the double set of rotating cutters, having the planes of the edges of the cutters working parallel with said tables, substantially in the manner and for the purpose set forth.

No. 13,180.—Paul Peckham.—*Machine for Dressing Conical Tapering Surfaces.*—Patented July 3, 1855. (Plates, p. 217.)

The object of this improvement is to dress a tapering stick of wood so that, while it has one flat surface, the rest of it, in transverse section, may be in the form of a segment of a circle. The flat side of the stick rests on support C, its smaller end foremost. The support is then elevated, to raise the stick up to the cutters *a* attached to revolving tubular cutter-stock B.

I *claim* the arrangement and application of the depressing rest C, with respect to the hollow tubular cutter-stock, substantially as described, so as to enable a person to dress or round a tapering stick of wood, in manner as specified.

No. 13,568.—Thomas Durden.—*Machine for Felling Trees.*—Patented September 18, 1855. (Plates, p. 218.)

The machine having been placed in position, the jaws of the dog (turning on fulcra *c c*) are forced into auger-holes formed in the tree, and confined by means of projections *b* at the front ends of the jaws, and a wedge *x*. Motion being communicated to shaft J, the cutters will be revolved by means of gearing L, M, H, G, and fed forward by means of the screw-thread K on shaft J, working through a female screw in carriage D. The cutters C act first, and cutters C¹ follow after and prepare the way for each new cut.

I *claim* the employment of cutters C C C¹ C¹, of the peculiar form shown, in combination with the feeding arrangement K L M, substantially as and for the purpose set forth.

I likewise claim providing each of the jaws of the dog with a projection *b*, and arranging and operating them as shown, for the purpose set forth.

No. 12,174.—Warren Wadleigh.—*Improved Machine for Cutting Irregular Forms.*—Patented January 2, 1855. (Plates, p. 218.)

Arbors H H¹ H are passed through the front rail G, and corresponding dead-centres J through the rear rail G¹ of a carriage F G F G¹, which carriage slides on rails C C¹. The two outside arbors and dead-centres support the patterns I I, and the middle arbor (or middle arbors, as there may be any desirable number of them) and dead-centre support the material to be operated upon. The worm-gear K L serves to revolve the arbors, and with them the patterns and material. The cutter *h*¹ is mounted on a cutter-bar *e*. The ends of this bar are square, and slide through boxes *i*, and one of these ends beyond its box *i* is connected to a revolving crank by means of a connecting-rod *f*. Thus the cutter-bar and cutter receive a reciprocating motion. The boxes *i* are fitted to pieces *j*, which slide vertically in brackets *h h*,

which brackets are fastened to the rails C C¹ of the main frame of the machine. The top parts of the boxes *i* rest against the patterns I I, and are kept in continuous and close contact with them by spiral springs, the lower ends of which are attached to the sliding supports *j*, and the upper ends to the stationary brackets *h*. Thus the boxes *i*, the cutter-bar, and the cutter will be vibrated vertically, corresponding to the shape of the patterns I. The wedge-shaped ends *n n* of a bent rod m^1 pass between the boxes *i* and the square ends of the cutter-bar *c*. The screw *o* is so attached to rod m^1 by means of a washer and pin *p*, that it can be freely turned; its threaded part passes through a female screw *q*, which is fitted to move up and down in the stand *k*, which is fastened to the rail C. By means of turning this screw *o*, the operator causes the wedge-shaped ends *n n* of rod m^1 to traverse between the cutter-bar ends and the boxes, thereby elevating or depressing the cutter-bar and cutter, (while the machine is in operation,) so as to cut the article larger, the same size, or smaller than the patterns.

Claim.—1st. A reciprocating cutter with one or two edges guided or governed by one or more patterns, so as to cut the rough blocks or pieces of wood, or other material, into the form required, substantially as described.

2d. The wedges *n n*, or their equivalents, so constructed and arranged as to enable the operator to vary the distance between the pattern and cutter-bar while the machine is in motion, for the purposes set forth, substantially as described.

No. 12,192.—Wm. J. Casselman.—*Improved Machine for Turning Irregular Forms.*—Patented January 9, 1855. (Plates, p. 219.)

When the work-tables D (two or more) and the pattern-table D¹ revolve, the tracer *d* and the tools *e e* are caused, by the movement of the carriage G on the slide F, to move slowly across the face of the pattern and work, and the tracer, as it ascends and descends in tracing over the undulating surface of the pattern, gives by means of the levers J J K K a corresponding movement to the cutters, and causes them to cut the work to the form of the pattern.

The inventor says: I do not claim the suspension of a tool from a lever which transmits to it a movement given to the tracer by passing over the undulating surface of the pattern; neither do I claim the employment of a tool thus suspended above a revolving work-table; but I do *claim* the particular mode, herein described, of arranging and combining a pattern-table, two or more work-tables, a tracer, and a number of cutting-tools to correspond with the number of work-tables; that is to say, the work-tables and pattern-table being arranged with their axes in the same plane, and the tracer, cutting-tools, and the levers connecting them being all attached in such a way to a carriage, which has a movement in a direction perpendicular to the axes of the revolving tables, but parallel to the plane of the said axes, that the points of the cutters and tracer stand in the same plane, or in a plane near to and parallel with the plane of the axes of the tables, and will all bear at all times the same relation to each other and to the pattern and work.

No. 12,884.—J. S. Barber, assignor to Robert J. Marcher.—*Machine for Cutting Irregular Forms.*—Patented May 15, 1855. (Plates, p. 219.)

To insert a blank, the table C is lowered by releasing lever E; the blank of the general form of pattern F is secured to this pattern, so that as the rollers *q* bear upon the periphery of the pattern, the cutters *r* shall operate upon the blank. The table is then raised, the driving pinion *t* thrown into gear with the cogged circumference of the table, and the blank slowly rotated, while the cutters are operating upon it, (one upon the inside of the blank, the other upon its outside,) completing the oval during a single revolution of the table.

The inventor says: I do not claim the revolving cutters with rollers upon their shafts, when the latter revolve in fixed bearings; neither do I claim the forms or patterns to which the blanks are secured. But I do *claim* the within described machine for turning ovals, consisting essentially of the sliding cutters *r*, in combination with the table C and pattern F, connected together, and operating in the manner substantially as herein set forth.

No. 13,076.—Avery Babbett.—*Machine for Cutting Irregular Forms.*—Patented June 19, 1855. (Plates, p. 219.)

The bearings B of the cutter-shafts *c* are vertically adjustable. Crank H, shaft I, and pinion J serve to move carriage G along on ways F. Shaft L (to which index W is fastened) extends upwards and terminates in two horizontal pivots, on which the frame M vibrates. M can be set horizontal or at any desired angle by means of index N. The material is secured between the points S and R. Index U is keyed fast to shaft Q, and extends through the bearing towards R; and from the lower side of said shaft is projected plate V, on which the material is rested to prevent it from turning or changing its position relatively to shaft Q, except by altering the position of index U. The cutter-shafts *c* carry knife-discs D, of which, however, the engraving represents only one on shaft c^1. By means of using on the various knife-discs knives of proper shapes, and properly altering the positions of the indices, forms similar to the one represented in fig. 2 can be produced by the successive action of the knife-discs.

Claim.—The machine specified, for the purpose of producing angular irregular forms, substantially as set forth.

No. 13,386.—Daniel Dunlap.—*Improved Cutter-Head for Irregular Forms.*—Patented August 7, 1855. (Plates, p. 219.)

The lower end *a* of each cutter E is received in an angular recess *b* in the head B, while the conical ends of screws *c* press against the bevelled upper edge *a* of the cutter.

The inventor says: I do not claim merely applying to a plane-iron a continuance to gauge its depth of cut; nor do I claim the combination of knives in any manner with a rotary cutter-head, so that said head shall serve as a guide or directrix to the form or pattern carrying the material to be dressed.

But I *claim* combining with or arranging in connexion with the rotary guide B, and each of its knives, in manner as described, the cylinder crescent-gauge D, whereby, while the pattern or former is borne against the guide-head, the material will not only be reduced by successive cuts, until brought down to its proper depth, but the danger of accident diminished, as specified.

I also claim the described improved mode of applying and securing each of the cutters to its stock or supports, whereby, by a force acting longitudinally on them, they are not only held in such direction, but at the same time are pressed laterally against the curved inner faces of the gauges D D, in manner and for the purpose as specified.

No. 13,511.—P. H. Wait.—*Machine for Cutting Irregular Forms.*—Patented August 28, 1855. (Plates, p. 220.)

The pieces of stuff S S are secured at the upper part of each frame *a*. The pinion *m* gives rotary motion to the two pieces S S, screw-shaft G, and pattern H; and the screw-shaft G (when clamped by nut F) slides the rollers C and cutter-disc D along on their shafts. As the rollers C bear against the pattern in consequence of spring I, the pattern, as it rotates, will move the lower ends of the frames out and in, according to its shape, and the pieces at the upper ends of the frames will be moved in a corresponding manner towards and from the cutter-disc, so as to be cut to the shape of the pattern.

The dotted lines in fig. 1 represent the circles of the various gear-wheels.

The inventor says: I do not claim the pattern H, nor the means of turning irregular-formed articles by means of a pattern; for this has been done in various ways.

But I *claim* the employment or use of two vibrating or oscillating frames placed upon a rod or shaft B, and operated by means of the pattern H bearing against the sliding rollers or discs C—said pattern, as it rotates, moving the stuff at the upper parts of the frames towards and from the cutter-disc L, the cutter-disc and rollers, or discs, being moved by means of the screw-rod or shaft G and nut F as shown.

No. 13,897.—Chester C. Tolman, assignor to James Sargent and Daniel P. Foster.—*Gimlet.*—Patented December 4, 1855. (Plates, p. 220.)

The nature of this invention will be readily understood by reference to the claim and engraving.

I *claim* constructing the lower or outer of the two screw-threads or flanches B B of the gimlet in rounded or curved parabolic form, and having the sides of said portions of the threads or flanches brought to a sharp or cutting-edge, the screw or worm *c* being used or not as desired.

No. 12,429.—Jacob Pierson.—*Machines for Manufacturing Hoops.*—Patented February 20, 1855. (Plates, p. 220.)

The log is placed between the centres c^1 and E^1, the former being adjusted so as to make the top of the log nearly level; the carriage D being traversed so as to bring the head-stock E under the cutter g^3, the carriage L is lowered by the rack *d* so as to let the rest *x* bear upon the log, and the machine set in motion, when the log will traverse under the cutter g^3, which will form and plane a hoop which is severed from the log by the saw *o*. The crooked rest X is fastened to carriage L, and is bent so that each end may rest and traverse on the log operated upon, and support the carriage L; and it is intended that the carriage shall have full liberty to rise and fall, and accommodate itself to the curves in the log, so as to cut the hoops as near parallel with the grain of the wood as possible. Besides, the saws and cutter pass entirely beyond the end of the log in each direction, so that the weight of the carriage is supported alternately by the opposite ends of the rest X.

Claim.—1st. A vibrating or traversing frame, carrying a rotary-cutter, so constructed and arranged that the cutter may be made or allowed to plane or cut its full depth, or a proper depth, in crooked as well as straight logs, so as to make the hoop or other article formed by the cutter parallel, or nearly parallel, with the grain of the wood, substantially as described.

2d. In combination with the frame and cutter, mentioned in the first claim, the circular-saw O, so arranged and operated as to separate the hoop or article formed by the above-mentioned cutter from the log, substantially as described.

3d. In making the rests or guides *x* which govern the position of the traversing-frame, rotating-cutter, and saw O, to traverse on the log, substantially as described, so as to cut the hoop or other article parallel, or nearly parallel, with the grain of the wood.

No. 13,097.—Royal Parce.—*Machine for Cutting Locks and Tapering ends of Wooden Hoops.*—Patented June 19, 1855. (Plates, p. 220.)

The bed-piece A (on which the hoop rests) has an opening E, the front of which has the shape of the lock to be cut in the hoop; B is the cutter-jaw, which works between guides D, and is attached thereto by rod G passing through the guides, said cutter forming a hinge; C C are the cutters, with which the front and side of B are faced, corresponding with the shape of E, the knife at the side cutting the hoop transversely, and the other longitudinally.

The handle F of the jaw passes down through the opening in the bed-piece, so as to be out of the way of the hoop.

The inventor says: I do not claim the use of gauges for obtaining the length of hoops between the locks, but only as used in connexion

with my machine; but not being aware that there is in use any device or machine for cutting locks, other than the edge, saw, or knife—

I *claim* the whole combination as described, and especially the principle of cutting locks in wooden hoops by means of knives, or other cutting apparatus, having substantially the form of the lock required to be made, and cutting both transversely and longitudinally by the same movement, no matter in what other combination found.

No. 13,746.—ANDREW BLAIKIE and WALTER CLARK.—*Lath-Machine.*—Patented November 6, 1855. (Plates, p. 220.)

The block from which the laths are sawed is placed upon the feed-table I, and its end is placed or pressed between the lower pair of feed-rollers E E¹ by the attendant. The lower feed-rollers feed the block to the saw D, which cuts a lath from the block, and the block passes between the upper feed-rollers, the plate J entering the saw-kerf. When the lath is sawed from the block, it is directed or guided (by means of inclined-planes *j*) into the receptacle L, and the block falls upon the inclined-table B and descends by its own gravity to the bottom of said table, where the attendant stands, and is again placed upon the feed-table I, and another lath sawed from it, and so on till the block is entirely sawed into laths.

The stuff is represented in strong broken lines.

The inventors say: We do not claim separately the feed-rollers, for they are in common use; but we *claim* the arrangement of the saw D, feed-table I, return-table B, separating-plate J, deflecting or guide-plates *j*, and feed-rollers E E¹, for the purpose specified.

No. 12,224.—LUTHER WENTWORTH.—*Lathe for Turning Fancy Handles, etc.*—Patented January 9, 1855. (Plates, p. 221.)

The dotted lines represent the collar E and cutter *c* (the latter ready for cutting) after they have been moved by means of the connecting-rods F and cam I.

The inventor says: I do not claim the revolving mandrel, carrying cutters to revolve around the work while the cutter is stationary; but I do *claim*, 1st. The within-described mode of arranging and operating the cutters *c* and *d*; that is to say, attaching them to arms D and D¹ which revolve with the mandrel, and are attached to collars E and E¹, which are allowed to slide upon the mandrel C, but not permitted to turn with it, and so guiding the said arms by the inclined slots *i* and studs *j*, or their equivalents, that the sliding-movement of the collars upon the mandrel, produced by cams I I¹, or pattern-wheels, will move the cutters to and from the centre of the work, for the purpose of turning mouldings or grooves at intervals, or giving an irregular profile to the article being turned, as herein fully set forth.

I do not claim hanging a rotary-saw in a swinging-gate, nor allowing the saw-spindle a longitudinal movement, under the control of a spring; but I do claim, 2d. A saw S, arranged as described upon the lathe in

a swinging-gate U, which is weighted at W opposite the saw, to throw the saw to an inoperative position, but which is tilted to throw the saw into operation at the proper time to cut off the finished articles from the stick by means of a lever X, actuated by a wiper *v* on a wheel Y, which is attached to one of the feed-rolls, or otherwise so driven as to make one revolution while the stick moves the length of one of the articles to be turned, as herein set forth.

No. 12,423.—WILLIAM STEPHENS.—*Improved Slide-Rest for Lathes.*—Patented February 20, 1855. (Plates, p. 222.)

Claim.—Attaching the puppet-head J to the lathe, as shown and described, viz: by having a sector-frame I attached to the socket or collar H, and having an arm K at the lower part of the puppet-head, the lower end of the arm being secured to the lower end of the sector-frame, and the puppet-head fitting or working on the arc *b* of the sector-frame. The puppet-head being operated or moved by a screw-rod N, or its equivalent, and secured at any desired point on the arc by a set-screw L, by which the puppet-head may be so adjusted as to allow articles to be turned between the centres of the spindle and mandrel as in ordinary lathes; or the puppet-head be used as a slide-rest for facing or cutting plates on a chuck, as described. (See engraving.)

No. 12,662.—WARREN ALDRICH.—*Improved Lathe.*—Patented April 10, 1855. (Plates, p. 222.)

The splined-shaft A, which extends the length of the table, is driven from the head-stock and gives motion through pinion *a*, attached to the carriage, to the gears B B¹. The gear B¹ turns loosely on the end of the hollow screw *b*, and carries the same by friction, being clamped at will by the nut *d*, worked by a screw on the end of the rod *c* within the hollow screw *b*. (The left end of screw *b* is represented in section in order to show said rod *c*.) The apparatus for supporting the tool-post consists of three portions. A block E traverses the carriage in the direction of the screw *b*; a block F revolves upon the upper surface of the block E and around the central spindle D, being secured in any position by two bolts held in a circular dovetail groove in the block E. Another block G, holding the tool-post, traverses the block F in any direction determined by the amount of circular motion of the latter around the spindle D, which, if equal to half a revolution, will reverse the motion of the cutting-tool. The gibs, inserted where these blocks bear against their respective sides, may be tightened by the screws *i* and *h*, so as to prevent any traversing motion.

Suppose the gear B¹ to be clamped by the nut *d*, and the screw *b* to be in revolution; the screw tightened at *i*, in the lower block, to prevent motion, the screw *h* being loose. The spindle D, having worm-gears at each end, will revolve by the action of the screw *b*, and, by means of the upper worm-gear working in the screw *n*, will traverse the block G in any direction allowed by the adjustment of the block F

upon the block E. If the screw *h* be tightened, and the screw *i* be loosened, the spindle D cannot revolve, and the block E, carrying with it blocks F and G and the tool, will traverse the main carriage in the direction of the screw *b*.

Figure 1 represents a side view; figure 3 a cross-section of carriage; and figure 2 a horizontal section of the same on line A B.

The inventor says: I do not claim a combination of a tool-rest or carriage, a rotary-carriage, and a sliding-carriage together, and with a mechanism of such character or combination as will impart to such tool-post carriage an automatic traverse motion in whatever position its supporting or turning carriage may be disposed and fixed on the carriage by which it is sustained; nor do I herein claim the peculiar mechanism connected with the three carriages, and described in the specification of my letters patent, dated March 15, A. D 1853, such combination being composed of what are therein exhibited as the splined-shaft U, the movable bevel-gear V, the vertical shaft and its bevel-gears W Y Y, the horizontal shaft X, gears *c g*, and screws I and its female screws, affixed to the tool-rest carriage H.

Having invented a simpler combination of mechanical parts for such purpose, and which, although an equivalent to an element or device in the combination wherein it is employed, is by no means analogous to such device or element, and is much superior in many respects,

I herein *claim* such combination, when used in connexion with the three carriages, as described; the same consisting of a long screw *b*, a vertical shaft D, two worm-gears H^2 I^2, and a screw *n*, arranged, applied, and made to operate together, substantially as specified.

No. 12,742.—C. A. Noyes.—*Improved Slide-Rest for Lathes.*—Patented April 17, 1855. (Plates, p. 222.)

No description required.

Claim.—Constructing the slide-rest as herein shown, viz: having the top H of the sliding-box C rest upon a shaft I, and inclining or tilting said top by means of the screw E, toothed-wheel F, pinions L L G, screw-rods K K, and nuts J J, substantially as herein shown, whereby the edge of the cutting-tool, which is secured on the upper surface of the top H, may be raised or lowered as desired, and presented in a proper position to the article to be turned.

No. 12,747.—Chester Van Horn.—*Improved Slide-Rest for Lathes.*—Patented April 17, 1855. (Plates, p. 222.)

No description required.

The inventor says: I do not claim the carriage B, nor any mode of operating the same; neither do I claim the transverse movement of the tool-block C on the carriage B, for these are common to most slide-rests; but I do *claim* forming the tool-block C of two parts *c d*, and connecting said parts together by a dovetail or its equivalent, so that the upper part *c* may slide or work on the lower part *d*, the faces of

the two parts *c d* that are connected being oblique or inclined, as herein shown, and the part *c* being moved or operated by a screw E, or its equivalent, for the purpose of elevating or depressing the tool G, as herein described. (See illustration.)

No. 12,874.—E. K. Root.—*Improved Slide-Lathe.*—Patented May 15, 1855. (Plates, p. 223.)

The tool-carriage *a* receives its longitudinal motion from shaft *b* and worm *c*. The arbor of wheel *g* passes through the front of the carriage and there carries pinion *i*, which engages wheel *j*, the cogs of which engage the cogs of an auxiliary rack *k*, fitted to slide longitudinally in a recess in the carriage. Wrist-pin *l* projects from the top of said rack, and is fitted to block *m*, which block slides in groove *n* in the under face of circular-plate *o*, fitted to turn accurately in a recess in the bottom of the tool-post slide *p*, which latter slides between ways *q q* on top of the carriage, and at right angles to the motion of the carriage. This plate *o* can be turned, and consequently groove *n* set at any desired angle to the line of motion of the carriage, by means of worm-gear *r*. It is secured in the desired position by a set-screw *s*. The bed-plate *u* of the tool-post *t* is connected with the slide *p* by a wrist-pin *w*, so that in turning said bed the proper angle can be given to the tool.

If the groove *n* has an inclination to the line of motion of the carriage, a motion will be given to the tool-post slide *p* towards or from the line of the axis of the mandrel, and by a proper inclination of said groove any desired taper can be turned. When the groove is set parallel with the line of motion of the carriage, the lathe will operate like the ordinary slide-lathe to turn cylinders.

The inventor says: What I *claim*, as my invention for turning tapers on slide-lathes, is giving to the tool-post slide a motion towards or from the line of the axis of the mandrel, by means substantially as herein described, or any equivalent therefor, in combination with the longitudinal feed-motion of the carriage, and derived therefrom, or bearing a certain relation thereto, substantially as described.

No. 13,787.—Eli Horton.—*Lathe-Chuck.*—Patented November 13, 1855. (Plates, p. 223.)

The nature of this improvement will be understood from the claims and engravings.

Claim.—In combination with the opening H on the front plate for the introduction of the solid jaws, the hub L on the back plate for closing said opening and retaining the jaws in their respective slots, substantially as described.

Also, the locating of the circular rack G in the deep recess or groove formed between the flanges F Z, which not only form a tight casing to protect it from chips, filings, &c., but also support it, as well as the shanks of the screw-bolts, substantially as set forth.

No. 12,580.—Chas. F. Bauersfeld.—*Clamp and Mouth-piece for Lumber-jointing Machines.*—Patented March 27, 1855. (Plates, p. 223.)

a a^1 are a pair of clamps connected to the same handle *b* by means of levers *c* c^1 and links *d* d^1. *f* is a gauge, forming at its front edge a mouth-piece for the rotating-cutter *g*. This gauge is, by means of a pair of parallel arms, held in a longitudinal or other desired direction, whether moved towards or from the stuff; its position being adjusted to suit the particular cutter, and worked by means of bridle *i* and hand-screw *j*.

Claim.—1st. Two or more clamps so arranged and connected, as described, as to be simultaneously and equally applied to or withdrawn from the different parts of a portion of furniture to be jointed by the means of a single handle.

2d. The parallel motion fixed in any desired position by means of the bridle and screw, as described.

No. 12,861.—Francis P. Hart.—*Gauge for Slitting Lumber.*—Patented May 15, 1855. (Plates, p. 223.)

In gauging obliquely for articles of tapering form, one of the wheels *b* is clamped by nuts *c* c^1 tight up to the shoulder *i*; and the binding screw C in the stock A is loosened, to allow the screw-shaft B to turn in the stock. The shaft is adjusted in the stock by a scale *d*, so as to bring the teeth of the wheel *b* at a distance from face *e* of the stock equal to the width of one end of the article to be gauged. The gauge is then run along the stuff, and the wheel, receiving rotary motion through the bite of its teeth on the stuff, turns the screw, and, according to the direction of its revolution, either increases or diminishes the distance between wheel *b* and face *e*, thus scribing obliquely to the grinding edge. By changing the size of wheel *b*, the taper will be greater or less. In gauging parallel, the wheel *b* is left free by the nuts *c* c^1, and stock and shaft are secured together by binding-screw C.

The slider D and scriber *f* are for the purpose of gauging mortises. Fig. 3 represents the scriber *f* (when not required for use) as being folded down within the groove in the shaft B. When thrown outwards, the scriber is kept at right angles by the square shoulder *g*, and when cutting is kept up by reason of its edge being bevelled on the opposite side to the shoulder. In gauging curved work, the guide-piece F is screwed out by means of screw *j*, and its rounded end forms the bearing, and allows the gauge to follow any curved line.

Claim.—1st. The employment of a rotary cutter secured to the shaft of the gauge, when the said shaft screws into the stock, and is made capable of turning freely therein, as described, for the purpose of gauging taper-work.

2d. Attaching the adjustable scriber *f* by a hinge-joint constructed with a shoulder *g*, substantially as described, to the slider which carries it, so that it may be rigid when extended for mortising, but may fold into the recess in which the said slider works when the gauge is used for other purposes than mortising.

3d. The employment of a round-faced guide-piece F fitted to slide within the stock of the gauge, so as to be withdrawn into it when the gauge is to be used for straight work, but to be protruded from it when required to serve as a guide for gauging curved, circular, or irregular work, as herein fully set forth.

No. 13,342.—Albert Walcott.—*Machine for Dressing Lumber from the Log.*—Patented July 24, 1855. (Plates, p. 223.)

The nature of this invention consists in planing, tonguing and grooving, matching, or otherwise dressing in the solid timber before sawing, or in connexion with sawing after the logs have been sawed into cants or thick plank of the desired thickness to make the width of the desired dressed stuff; or, in other words, the dressing and sawing at the same time, the dressing only preceding the sawing by the distance between the dressing-machinery and the saw as the cants or plank are moved forward past the dressing-machinery first, and then the saw. In the engraving, C represents the plank on carriage A travelling on ways B; D, dressing-cylinder; E and F, cutters for tonguing and grooving; G, saw for sawing off the dressed stuff.

The inventor says: I do not claim sawing lumber into cants or planks, the carriage, or any particular construction of carriages; the cylindrical cutters, or any particular construction of cutters or planes, for surfacing, or for tonguing, grooving, matching, rabbetting, beading, or moulding; neither do I claim the circular saw: as they have all been used before in other various modifications.

I do not limit myself to any precise form or arrangement of parts, nor to any particular device for moving or operating them; for these may be varied to an almost unlimited extent without changing the principles of my invention, as set forth.

I do not limit myself to the rotary cylindrical cutters for surfacing; as cutters in the face of a wheel may be used, or even stationary knife-stocks used for surfacing.

Neither do I limit myself to the use of the circular saw for sawing off stuff; as a reciprocating saw may be used, and many other similar variations may be made by any competent or skilful machinist, without essential or substantial variation from the character of my invention, as set forth.

I *claim* the particular arrangement and combination of mechanism for manufacturing and dressing out lumber from the log, cant, or plank, as the case may be, by successive operations, and in manner substantially the same as set forth and described; not confining myself, however, to any particular arrangement of mere mechanical details or devices to effect the desired result—that is a piece of lumber finished or partially so, as the case may be, for building, and other purposes.

No. 13,142.—Joseph Sykes.—*Wheelwrights' Guide-Mandrel.*—Patented June 26, 1855. (Plates, p. 223.)

The journals are allowed to turn freely on the bearings on frame F, and the spokes S are driven truly in the hub, because it is truly centred on the mandrel, in consequence of the flanches *d* on the plates H being fitted in the V-shaped recesses *c*.

In case of iron hubs, cones I may be used instead of plates H, the cones being fitted on the mandrel and forced into the ends of the hole in the hub by turning nut D.

Claim.—The combination of the mandrel A with its permanent and loose journals B E, and the circular plates H H, or cones I I, either plates or cones being used as circumstances require; the above parts being arranged as shown, and for the purpose as set forth.

No. 12,276.—Louis Francis Groebl.—*Improved Marquetry.*—Patented January 23, 1855. (Plates, p. 224.)

This invention consists of composing floors of thin and small pieces of wood of variegated shape, so as to form various patterns. The pieces are all fitted together by tongues and grooves around their whole outline. This is an extremely durable, cheap, and highly ornamental floor, as the forms, colors, and grain of the pieces admit of infinite diversification to represent the various ornamental devices. As these floors are from time to time varnished or waxed, they always look as if new, and they are much easier cleaned than carpets. The engraving clearly represents the manner of joining the pieces together—*a* being the tongue on the piece A, and *b* being the groove on piece B.

The inventor says: I *claim* the marquetry described, in which the different pieces of which it is composed are firmly united at their adjoining edges, so as to secure the advantages described.

But I make no claim to the invention of tonguing and grooving, nor to forming an ornamental design or style of decoration, by making combinations of wood of various forms or colors.

No. 12,297.—Leopold and Joseph Thomas.—*Match-Machine.*—Patented January 23, 1855. (Plates, p. 224.)

The fluted rollers *d d* which are mounted in a sliding carriage *b b*, gradually draw in the block of wood from which the matches are to be cut, and which is placed between them. The carriage moves the block against a row of cutters *j* (which have the form of hollow cylindrical punches). These cutters cut the matches out, and those matches which are being cut push the matches previously cut through the holes in the stationary brass block *l*, (which holes are opposite and correspond with the holes of the cutters,) and through corresponding holes in the wheel *m*. This wheel *m* receives (by means of pawl and ratchet-wheel *t*) an intermittent motion, so as to present a new row of holes to every new row of matches. The carrier-wheel *m*, with its holes, revolves in lose contact with a roller *n*, the surface of which is supplied with phosphoric preparation, so that the roller will deposite small portions of the preparation in the holes as they pass by the roller. The matches, in being pushed through these holes, carry with them the phosphoric substance deposited there, and the ends of the matches, when passed through the wheel, are covered with the said substance. The matches fall then on a sliding shelf *o*, which carries them laterally towards a concave semi-circular stop v^1, until the corresponding concave semi-circular lip *v* on the shelf closes against the stop, thus holding the matches in a round bunch, ready to have the box and lid placed over them. A number of boxes are placed in the vertical guide *w*, and a number of lids in the vertical guide w^1, opposite to guide *w*. As soon as the bunch of matches is ready to be boxed, the plungers *x* x^1 move towards each other, press a box and a lid through cylindrical openings at the lower end of the guides, and push them over the bunch of matches and close the box.

The shoving-head c^1 which works in a groove in the table *a* of the machine, is connected with the end of the sliding shelf by a bolt d^1, which, having a spiral spring e^1 around it, ordinarily keeps the end of c^1 in contact with the extremity of shelf *o* with so much force that the motion of the lever drawing the shoving-head back also withdraws the shelf without separating its contact with the shoving-head. When, however, the sliding shelf is arrested in its progress by the closing of *v* v^1, the stroke of the moving-cam not being exhausted, the shoving-head is drawn still further back, the spiral spring e^1 being compressed, and the shoving-head being drawn away from the end of the shelf. The effect of this independent motion of c^1 is to press between and against the short arms of the levers *y* y^1 which causes the ends of the long arms of these levers to press inwards, thus forcing the plungers *x* x^1 through the guides. As soon as cam *z* causes lever a^1 to return, the shoving-head is drawn back by spring e^1, and again comes in contact with the end of the shelf; and the springs s^1 s^1 cause the plungers to fly back, and the lever a^1 returns the shelf to its original position before wheel *m*.

Claim.—1st. The use of the sliding carriage, with the feed-rollers, for the purposes described.

2d. The combination of sliding shelf, shoving-head, levers, and plungers, for the purpose of packing the finished matches in boxes.

3d. The carrier-wheel and roller, for applying the phosphoric composition to the matches by machinery.

No. 12,482.—F. A. Gleason.—*Machine for Cutting Mitre and other Joints.*—Patented March 6, 1855. (Plates, p. 224.)

The operation of this machine is as follows: The tonguing stock (fig. 2) is taken off, the carriage *m* brought forward, and the bed *s* moved so near the mitre-saw F, that the dovetail groover G shall cut through the desired portion of the work. The machine is then set in motion and the work carried past the saw, which cuts the mitre; the clearing-knife *b* cuts away the part running back of the saw, which would otherwise run against the chuck, and the groover cuts a dovetail groove

through. The carriage is then placed opposite the saw, and the bed is brought back (by means of adjusting screw *o*) so far that the piece just grooved, laid loosely upon it, shall drop down to the position shown in fig. 3, which determines the position of the tongue.

The groover is fixed in the centre of the chuck, and is provided with two cutting-blades, on the ends of which are lips for cuting off the chip. The saw F is fastened by turning a shoulder angular, or under cut, (see fig. 3 at *a*,) and then cutting away sections of it (see fig. 5). The saw is turned out and cut to correspond with it, then placed on and turned a little backwards, which fastens it. The tonguing stock is attached to the head-stock B, by shank H being placed in stirrup I, (see fig. 4,) and fastened by set-screw *f*. The bed *s* may be set at any angle by means of a set-screw and slotted arm *t*.

Claim.—1st. The rotary dovetail groover, as described, or its equivalent.

2d. The mitre-saw F, with the clearing-knife *b*, fixed upon the same chuck, and concentric with the groover; also the manner of fastening the saws, as described.

3d. The tonguing-stock, with its saw and bevel-cutter, or their equivalents; also the manner of attaching it to the head-stock.

4th. The carriage, with its movable bed, which may be adjusted to any angle required.

No. 12,796.—Mathew Spear.—*Mitre-Box.*—Patented May 1, 1855. (Plates, p. 225.)

The two supporters *a a* and a^1 a^1 turn about a common pivot, in combination with a saw-guide *d* attached to the same pivot. The stuff to be sawed is laid upon these supporters, so as to extend through the saw-guide, and made to rest against one or both of the edge-supporters H H, as the case may be. The lower surfaces of these edge-supporters, which are placed one on each of the supporters *a a*, a^1 a^1, are provided each with a lip I, which lip is to be placed in either one of the grooves a^2 b^2 c^2 e^2 f^2. When so placed, the edge-supporter is confined in place by a clamp-wedge g^2, which may be passed in and through either of the holes h^2, so that the wedge will operate against the side of the groove.

To saw stuff at a right-angle, it should be borne against the inner edges of the edge-supporters when their lips are confined in the grooves c^2, the machine being entirely opened, as represented in the figures. In order to mitre stuff to a right angle, the machine is to be closed entirely, while the lips are in the grooves c^2. A piece may also be sawed at a right-angle, with the machine being so closed, by placing the lips in the grooves f^2, these grooves being in line with one another, and at right-angles to the saw-guide when the machine is closed. For mitreing at a greater angle, the lips may be placed in grooves b^2, the angle being determined by opening the machine and setting it at the angle required, and then clamping it to the arch beam A by means of wedge-clamps D D^1. The arc A (clamped to the saw-guide *d* by a wedge E) slides in recesses B C^1 in the two supporters. The supporters being clamped

to the arc, the saw-guide is then moved so as to bisect the angle formed between the two clamp D D^1.

Each of the grooves e^2 is at right-angles with the saw-guide, when this is placed in contact with the supporter *a* or a^1, of the opposite groove, and the two outer edges of the movable edge-pieces K K are set at a right-angle to each other. These edge-pieces K K, arranged on the outer edges of the supporters *a* a^1, can be slid towards or away from one another, and fixed in position by clamp-screws i^2.

In order to cut stuff at any angle to which the outer edges of the machine may be placed, the edge-supporter is fixed in one of the grooves e^2, and the saw-guide moved up against the lumber-supporters *a* or a^1; then if the stuff be placed with one edge against the inner edge of the edge-supporter, and so as to project through the saw-guide, it will be sawed to the angle required, (corresponding with the angle of the outer faces of pieces K K,) by the saw running in the saw-guide.

The commencement of the inner scale N is placed where the inner edge of the clamp D^1 intersects the arc A, when the machine is closed. The termination of this scale is where the said edge of the clamp intersects the arc, when the two outer faces of K K are arranged at an angle to each other, which is the supplement to that which they make with one another when the machine is closed. The middle of this scale is marked zero.

In order to mitre to the supplement of any angle which the outer faces of K K make with one another, first observe the distance on scale N from the zero to the inner side of D^1, then move the lumber-supporter a^1 until said side of D^1 is at the same distance from the zero on the opposite half of scale N, the saw-guide being moved into bisecting the angle formed between the two edge-supporters placed in grooves b^2.

a^4 are flanges on the under-side of the pieces K K. The dovetailed feet c^4 are made to slide into the lower parts of the lumber-supporters, and to project from the lower surfaces. On recovering these feet from their dovetailed sockets, the flanges a^4 may be used for obtaining the angle of the edges of any piece of board that may be placed between them, the same being to adapt the machine for cutting at such angle or the mitre of it.

Each edge-supporter has an adjustable gauge L, with a bent or right-angular head k^2, which, when the machine is used for mitreing to the supplement of an angle not contained in the scale N, may be turned down into position fig. 5, so as to serve to increase the bearing surface against which the stuff is to be placed that is to be mitred, it being understood that such stuff is to be supported against the inner end of the edge-supporter, and to project through the saw-guide. The support-block m^2 has a projection i^2, which may be inserted in either of the holes h^2, and then the gauge may be used to regulate the length of the piece to be cut, such piece being made to abut at one end against the head of said gauge, while the other is made to overlap the saw-guide. The rod of gauge L slides in support-block m^2, and is fastened in position by clamp-screw n^2.

Claim.—The additional improvement, viz: The sliding index arc

A, as combined with the lumber-bearers, or supporters a a^1, and the saw-guide, and made to operate therewith, essentially as specified.

Also, the combination of the extra grooves f, with the lumber-supporters, the same being for the purpose as above set forth.

Also, the combination of the grooves e^2 and said lumber-supporters, such being for the purpose as set forth.

Also, the combination of the adjustable gauge with the edge-supporter, the same being to determine the length of the stuff to be operated upon.

Also, the above described mode of constructing the head k^2 of the adjustable gauge, so that it may serve to increase the bearing for the stuff during the operation of mitreing the supplement of an angle, as described.

Also, the movable edge-pieces K K, in combination with the lumber-bearers.

Also, combining with the curved arc A the inner index scale, for the purpose of enabling a person to adjust the machine for the purpose of mitreing to the supplement of any angle required, as specified.

Also, combining with the movable pieces K K the projecting lips a^4 a^4, the same being for the purpose above specified.

No. 12,862.—Lorton Holliday.—*Mitre and Bevelling Machine.*—Patented May 15, 1855. (Plates, p. 226.)

The two discs D D^1, turning on a common pivot E, can be set at any angle in a horizontal plane by means of pointer E^1, scale C, slot a, and set-screw b. These discs carry an upright frame G, which revolves together with the discs. The saw-guide I is hinged to the lower end of said frame, and can be secured in any position, forming any angle with a vertical line, (for instance, in the position indicated in dotted lines in fig. 2,) by means of set-screw H.

Claim.—The manner herein described and shown of arranging and combining the several parts constituting the mitre-box herein described. This arrangement and combination rendering the saw-guide capable of being adjusted in the path of a horizontal circle, as well as in the path of a vertical circle, to any angle desired, and enables the saw to cut a bevel lap on the strip or board simultaneous with the sawing of the mitre or angle, and also indicates the angle cut, substantially as set forth.

No. 12,956.—Geo. W. La Baw.—*Mitre-Machine.*—Patented May 29, 1855. (Plates, p. 226.)

The material Z or z is secured to bench A by gauges B and lever D, or by gauges K. A depression of the treadle I will force the heads F down, and the knives X H H G will cut four different parts of joints, as represented in fig. 2.

Claim—The combination and arrangement in the manner described, or in any other manner equivalent thereto, of the several specific parts, or their equivalents, of the described mitre and cutting machine, without limiting myself to any particular arrangement of parts, for the purpose set forth.

No. 13,127.—Jonas S. Halsted and Cornelius J. Ackerman.—*Carpenter's Mitre and Bevel Square.*—Patented June 26, 1855. (Plates, p. 226.)

In order to lay out or mark the joint, the ends of the pieces are first squared. The side-pieces or stiles D are marked or laid out by getting the point e on the moulding d by actual measurement; the flanch or ledge b, on the inner edge of the handle A, is then fitted in the groove or kerf formed by the bead or moulding d; and the handle is moved till the point e touches the upper edge of the handle. The two lines f g are then drawn, f being a mitre or an angular line of 45°, and the line g a horizontal one. The vertical line h is obtained without marking, as it is on the shoulder i of a recess in the face of the stile. Thus by a single application of the implement, the side-pieces or stiles are marked. The head-pieces E are marked or laid out as shown in figures; the point e being obtained, the inner edge of the handle is placed against the shoulder i of the recess, and the blade C is adjusted in line with the bevel at the upper end of the handle A, and the implement is moved till the point e touches the upper edge of the blade C. The mitre-line j across the bead or moulding, and a point k on the shoulder i, are thereby obtained; and by reversing the implement, the line l is obtained at right-angles with the shoulder i.

Claim.—The construction of the implement as shown and described, viz: having a ledge or flanch d project on each side of the inner edge of the handle A, the upper and lower ends of said handle being cut or bevelled at an angle of 45°; the handle being provided with a blade B, which is attached at right-angles to it, and also provided with an adjustable blade C, as shown, and for the purpose as set forth.

No. 12,287.—R. P. Benton.—*Improvement in Feeding Mortising-Machines.*—Patented January 23, 1855. (Plates, p. 226.)

The stuff q is secured in slide X by set-screw p; and as the slide R, together with the slide X and with the stuff q, is fed towards the revolving-cutter b, the slide X receives a reciprocating motion by means of crank Q, and the stuff is consequently moved back and forth in a direction lengthwise of the mortise; and the length of this vibration can be so adjusted by adjusting crank Q, by means of set-screw c, as to cut the mortises the required length. A small plate k, arranged on the under side of slide R, fits between the threads of screw S, and thus the slide receives its motion. When the stuff has been fed towards the cutter the required distance, the bent-lever W, (against which slide R then strikes,) lever N, spring r, and bar V, serve to raise the plate k from screw S, and to draw back the slide R to its original position.

Claim.—Feeding the stuff to be mortised to the cutter b, in the manner substantially as shown, viz: by means of a rotating screw-rod s operating upon a slide R and an adjustable crank Q, which gives a

reciprocating motion to the slide X; the above parts operating conjointly as shown, and for the purpose as set forth.

No. 12,563.—Elihu Street.—*Mortising and Tenoning Machine.*—Patented March 21, 1855. (Plates, p. 227.)

l is a plane-iron for cutting tenons; *h* another plane for smoothing the ends of boards; S a saw; C a chisel; and all these tools are attached to the sliding-frame *b*.

Claim.—The improvement on a machine for mortising, tenoning, sawing, and smoothing, by combining certain tools together, used by carpenters in the manufacture of doors, sash, and blinds, as described.

No. 12,691.—Benjamin T. Norris.—*Machine for Mortising Blinds.*—Patented April 10, 1855. (Plates, p. 227.)

A frame B (carrying the racks *h* h^1 and detents *d e*) slides in proper ways on the stationary frame A. Projections R S, extending from frame B, serve to attach one end of the stock C (which is to be mortised) firmly to frame B. Friction-rollers *a a*, supported by frame A, serve to guide the stock in its way. (Figure 1 exhibits only one stock and one pair of friction-rollers, the other being left out to show the cutting instrument in full view). Rack *h* is firmly attached to frame B; rack h^1 is allowed (by means of slots and screws) sufficient longitudinal motion to either depress or raise the detents *d e*, with which it is connected by levers, as apparent from the illustration. Lever D, which has its fulcrum in frame A, carries two pawls *g* and *c*. Lever D being moved backwards from its position in figure 1 towards its upright vertical position, the pawl *c* will push the rack *h*, and with it frame B and stock C, backward. At the same time pawl *g* follows lever D, and rack h^1 is allowed to follow the impulse of a spring which draws rack h^1 backward sufficiently far to depress detents *d e* till they stop the backward motion of frame B, by coming in contact with the upper end of the next one of the index-rods E. Now moving lever D forward to its original position, pawl *g* pushes forward rack h^1 the length of its longitudinal play, thereby elevating the detents *d e*, and draws the frame B and stock C forward the length of the distance between each two mortises. The stocks of the cutters or drills *n n*, which are rapidly revolved, by means of pulley J and band O, are separate from each other, and are made to slide within pulley J with which they revolve. The detent being stopped by the index (as above described), the cutter-frame is drawn up the inclined ways H H to the highest point of the mortise to be cut, the drills *n n* are thrown out on both sides into the stocks C C, the depth of a mortise (which is done by turning screw L, whereby levers P P are depressed, the lower arms of said levers throwing out the cutters), then the cutters are allowed to descend (being drawn down the ways H H by the weight of the cutter-frame), and when the mortise is cut, the cutters are thrown back by unscrewing L.

Claim.—The manner of constructing and operating the parts carrying the machine, viz: the hollow pulley and spindle within the same, arranged as described, together with the levers attached, operated by the means described, or other suitable device. I also claim, as new, the manner of operating and guiding the stock by the combination of the lever with the racks and the movable detents, as herein described; but do not claim the index constructed of bars, as described, that having been in use before.

No. 13,184.—Edward Q. Smith.—*Method of Cutting Straight or Curved Mortises.*—Patented July 3, 1855. (Plates, p. 228.)

The clamp-apparatus 15 on table B holds the piece to be mortised, and the table slides on ways 9. The pitman *i* gives lateral movement to the frame J and *n* that carries the spindle *k* and chisel 18. The crank-arm *m* is adjustable, so as to produce different lengths of mortises. The two ends of pieces 6 6 (which give the curve to the mortise) are attached to frame *n* by thumb-screw 21 in slot 22; the outside ends of said pieces 6 6 work in guides 12 12, which guides are stationary with the exception of revolving around their centres.

In order to make a curved mortise (see 6, fig. 5), the segment-pieces are to be placed at an angle (see figs. 2 and 3); and when a reverse curve (see 8, fig. 8) is required, the segment-pieces are placed in a reverse position (see 8, fig. 3). When a straight mortise is required (see 7, fig. 5), the segments are placed in a right line (see 7, fig. 3). The mandrel and chisel receive their rotary motion by means of belt 13.

Claim.—The two segment-pieces 6 6 placed at an angle to each other, or straight, so as to direct the lateral movement of the mortising-chisel in a curved or right line, and thereby form a curved or straight mortise, as mentioned, all substantially for the purposes set forth.

No. 13,271.—Joseph A. Peabody.—*Machine for Mortising Window-Blinds.*—Patented July 17, 1855. (Plates, p. 228.)

The nature of this invention consists in making all the angular mortises in stiles to window-blinds to receive the slats at one operation, by providing the machine with a swinging bar, to which the stile is properly secured, and a horizontal sliding-carriage B, to which a series of revolving mortising-chisels E F, sufficient to mortise the whole length of the stile, are adjusted.

Claim.—The bar or carriage N which carries the blind-stile, and which is moved by lever or otherwise, and the changeable and adjustable arms *o o*, or their mechanical equivalents, one end of each of them being connected to the bar N, while their opposite ends are so connected by pins, or otherwise, to the machine, that these arms are changeable and adjustable so as to impart any desired angle to the mortises, essentially in the manner and for the purposes set forth.

Also, the carriage B, or its equivalent, which may be vibrated or moved by lever, or otherwise, for carrying a series of revolving mortising-chisels; this carriage, and the chisels attached to it, being so

moved that the chisels will form or cut all the angular mortises in one window-blind stile at one operation, essentially in the manner and for the purposes set forth.

No. 13,594.—Ezra Gould.—*Improved Method of Regulating Length of Stroke in Mortising-Machines.*—Patented September 25, 1855. (Plates, p. 228.)

The chisel is attached to arbor D. If the lever F be so operated that the part of the lever below its fulcrum bears upon the collar *w* of the plate *t*, said plate will clamp the pinion *s* between itself and the pinion *r*, and pinion *n* on shaft *a* will give motion to shaft *o*, which will be slower than shaft *a*; the pinion *q* turns pinion *k*, and arm E will consequently be turned, and draw plate *e* from the centre of the pulley to the outer end of the slots *j* and *c*, and arbor D will then have its greatest throw or length of vibration. By moving lever F in the opposite direction, pinion *l* will be clamped between pinion *n* and plate *m*, and pinion *l* will then turn pinion *r*; and as the pinion *l* is larger than *r*, the shaft *o* will rotate faster than shaft *a*, and arm E will consequently be moved in the opposite direction, and plate *e* will be moved to the inner end of the slots *j* and *c*, and arbor D will be stationary while A revolves. By this variable throw the stuff may be adjusted upon and taken from the bed-piece without stopping the driving-pulley A, and the chisel may also be turned without stopping the pulley.

Claim.—Attaching the connecting-rod C to a curved slotted arm E by means of the plate *e* and pins *f i*; the plate *e* working in a slot *c* in the pulley A, and the arm E operated by means of the gearing *l n p s* and *q k*, arranged as shown, or in an equivalent way, for the purpose specified.

No. 13,663.—Hezekiah B. Smith.—*Mortising Machine.*—Patented October 9, 1855. (Plates, p. 299.)

The timber is placed upon bed F^2; then pressing lever N^2 down by the foot, the clutch K^2 is moved so as to clutch with and revolve pulley W, shaft J^2, and (by means of bevel-wheels I^2 H^2) screw-shaft G^2, which will move the carriage B and chisel Y^2 down until the chisel penetrates to the proper depth into the timber, when the pulley Q (previously set at the proper height in slot *i*) will come in contact with the bent part *j* of lever O^2, which will push off the lever and unship clutch K, so as to stop the downward motion of the chisel-carriage. The upward motion of the carriage is stopped by pulley P^2 coming in contact with the part *j* of the lever O^2.

The inventor says: I *claim*, 1st. Moving the chisel-carriage B to and from the wood to be mortised by power, essentially in the manner and for the purposes set forth.

2d. I claim, in combination with bent lever O^2, clutches K^2, *a*, *b*, *c*, and *d*, pulley-stops P^2 and Q^2, or their mechanical equivalent, by which the said chisel-carriage B will stop its own motion at or near any desired point, substantially in the manner and for the purposes set forth.

No. 13,759.—Loomis E. Payne and Orris Pier.—*Mortising-Machine.*—Patented November 6, 1855. (Plates, p. 229.)

The carriage *c* which supports the cutter *g* receives a reciprocating motion by means of pitman *v* and the double-plated eccentric (with the adjusting and tightening-screw *u* at its centre) at the end of shaft *x x*. The table d^1 which carries the timber is moved forward on ways by means of rack h^1 attached to the under side of the table and pinion *i* at the head of shaft j^1; l^1 is a ratchet at the bottom of shaft j^1. Just above the ratchet, a flat arm m^1 passes from the shaft on to a supporting-rod n^1. About midway of shaft j^1, a lever t^1 passes out; this lever encircles the shaft, and when pushed to the left engages the pinion with the rack, and is held in this position by a bent rod u^1, which is also drawn to the left at the same time. and catches against the lef end of the piece v^1. As soon as this rod is pushed out, the spring *w* draws the arm t^1 and disengages the pinion and rack. A slotted piece x^1 is secured to the under side of the table d^1. This has, at its inmost end, a projection extending downwards; and when the rod u^1 is forced into the engaging position, its upper end is brought in a line with this projection. The object of this arrangement is to act as a gauge to the mortise.

Claim.—A double semicircular mortise-bit or gauge, arranged so as to clear itself thoroughly in its action, and this in combination with the double-eccentric plate, to regulate the motion to and fro of said mortise-bit; the whole being combined and operating substantially as set forth.

No. 12,243.—Geo. M. Ramsay.—*Moulding-Machine.*—Patented January 16, 1855. (Plates, p. 230.)

The piece *x* to be operated upon is placed against the side-rest *b*, and is carried past the cutter head *f* by means of the feed-rollers *h i*; the front end of the piece comes in contact with the spring *n* and brings it (together with the feed-roller *m* attached to its end) into the position represented in fig. 1 in dotted lines. As soon as the rear end of the piece has passed the guide-roller *l*, the spring *n* throws the piece over against the side-rest *c* into position *y*, when the roller *m* (whose cog-wheel m^1 is now thrown into gear with cog-wheel m^2) commences to revolve, and feeds the piece back to and past the cutter-head. Thus the piece is operated upon on both its sides by once passing through the machine. Above the cutter-head there is placed a hollow cone *z* containing within it a fan *g* attached to and revolving with the shaft of the cutter-head. The wings of the fan are placed at such angles as to produce a current of air downwards, for the purpose of blowing the shavings underneath the machine.

The inventor says: I do not claim the mere fact of working the two opposite sides of the same piece of stuff by once passing to and through the machine. But I *claim* the automatic reversible feed, or its equivalent, whereby the two opposite sides of the same piece of stuff are worked, as described, by the double action of one cutter-head, by once passing the stuff to and through the machine; also the arrangement of the cone

and fan, as operated and operating substantially in the manner and for the purpose set forth.

No. 12,248.—C. B. Morse.—*Moulding-Machine.*—Patented January 16, 1855. (Plates, p. 230.)

The nature of this invention is plainly stated in the claims, and fully illustrated in the engravings.

The inventor says: I disclaim constructing a cylindrical rotating cutter-head with a separating joint athwart its middle, as such is not new. I *claim* constructing the cutter-head of two flanged discs, with slots or openings *g* through one of the discs to admit of cutters *e* being attached to the other part, and partially marked by the flange of the perforated disc, as described, in combination with cutters *f* and *l* in openings through the rim or flanges, and secured respectively to each disc, so as to present a cutting edge over the whole space caused by the opening or closing of said discs, by means of nut E and set-screws *j*, said combination favoring a current inward from the edges of the cutters to fill the partial vacuum formed in the interior of the head by the rotation of the same, thereby causing a speedy inward removal of the shavings from the cutters, and admitting of the double action of the same, as set forth. Also, the adjustable shields *s* in combination with the feed-rollers F, for preventing the said rollers from lifting the piece operated upon against the cutters, when the feed is not continuous and the extremity of the piece reaches the roller, as set forth.

No. 12,916.—Robert J. Marcher.—*Tool for Grooving Mouldings.*—Patented May 22, 1855. (Plates, p. 230.)

The nature of this improvement will be understood from the claim and engravings.

The dotted lines in fig. 1 represent the position when the tool-stock D stands vertical, and the cutter *b* is raised from the moulding out of the groove *g* just made, when the instrument is ready to be moved along by hand or otherwise the proper distance to commence the next groove.

Claim.—Forming or cutting transverse and parallel grooves *g* in concave portions *f* of mouldings B, by means of a tool-stock D attached to a plate C by a pivot E, which is at the centre of a circle of which the concave forms a part. The cutter *b* being attached to the lower end of a slide E^1, which is operated or pressed down when the cutter acts upon the moulding by a spring H, and elevated upon the return motion of the cutter by raising the lever G, the cutter *b* having a stop or guard *c* adjoining it for the purpose of regulating the depth of the cut, as herein shown and described.

No. 12,917.—Robert J. Marcher.—*Tool for Grooving Mouldings.*—Patented May 22, 1855. (Plates, p. 231.)

When the cutter *e* has cut the groove, the lever L is raised by the hand, and the cutter is raised out of the groove, and the frame H is then drawn back by the hand, the slot *d*, in consequence of the pin *c* fitting in it, causing the lower end of the tool-stock to clear the face of the moulding. The slot *d* gives an arbitrary motion to the tool-stock, and causes it to rise and fall so as to conform to the face of the moulding; but the spring K forces the slide J down independently of the motion of the tool-stock, and compensates for any variation in the regularity of the slot or moulding.

The broken lines represent the position of the cutter and other parts when raised out of the groove.

Claim.—The reciprocating tool-stock I, slide J, with cutter *e* (one or more) and stop or guard e^1 attached to its lower end, and having a spring K acting upon its upper end, and the slot *d* in the plate F, the above parts being arranged substantially as herein shown, and for the purpose as herein set forth.

No. 13,602.—H. Schevenell and Richard S. Schevenell.—*Improved Machine for Cutting Ornamental Mouldings.*—Patented September 25, 1855. (Plates, p. 231.)

N are the strips to be operated upon, and are fastened to carriage B; spring I presses the cutters K upon the strips, and the ends of plate J (which is attached to the gate F) upon the peripheries of the patterns L L. Thus, as the carriage moves along, the gate and cutters will be moved up and down by the inequalities in the periphery of the pattern-wheels, and the strips will be cut in a waved manner. When the ends of the strips have passed the cutters, the projection *g*, on the carriage back of the gate, will strike the wedges M, and the gate will be forced upward beyond the reach of the patterns L. The finished strips can then be removed, others inserted, and the carriage moved back to its original position. During the latter movement the stop *g*, at the opposite end of the carriage, will strike the wedges and again force them out from underneath plate J.

The inventors say: We do not claim the reciprocating gate or slide F, with cutters attached, for they have been previously used; but we *claim* the combination of the reciprocating gate or slide F, rotary patterns L L, and the inclined planes or wedges M M, the above parts being arranged substantially as shown, for the purpose specified.

No. 12,234.—William C. Hopper.—*Bench-Plane.*—Patented July 16, 1855. (Plates, p. 231.)

The chisel *c* is placed in front of its wedge *e*, and rests against the front shoulders *d* in the cavity of the plane, in combination with the use of a mouth-piece *a* on the face of the plane, in front of the edge of

the chisel, to serve as a rest for the chisel, and to confine the throat of the plane.

By this means the chisel is to be held firmly in its place throughout its whole length, which prevents its having any spring and causes it to work smoothly.

Claim.—The constructing of planes with the chisel or bit set in front of its wedge, in combination with the use of a mouth-piece, substantially in the manner and for the purpose described.

No. 12,787.—George E. Davis.—*Bench-Plane Stock.*—Patented May 1, 1855. (Plates, p. 231.)

The body of the plane is made of metal, which, being very thin, presents little or no impediment to the shavings passing out, as they are cut from the wood. The lip I fills the recess caused by the bevel on the edge of the plane-iron in the ordinary plane; thereby preventing its catching and filling with portions of wood as it is used, and presenting a smooth surface to the wood.

Claim.—The metal plane-stock, having a formation of a lip I in the back part of its throat, so as to fill the recess which would otherwise be below the level of the cutting-irons, so as to present a continuous smooth surface to the plane, excepting the edge of the cutting-irons, and throat forward of them for the outward passage of the shavings, essentially in the manner and for the purposes set forth.

No. 13,174.—M. G. Hubbard.—*Method of Hanging Plane-Stocks and their Mouth-Pieces.*—Patented July 3, 1855. (Plates, p. 231.)

The nature of this improvement will be easily understood from the claims and engravings.

Claim.—The construction and attachment of the plane-stock and pressure-bar (*b*) to the bed-frame of the planing machine, by which the pressure of the bar is regulated, and the bar and plane-stock can be turned back to sharpen the plane, (see figure 3); also, jointing the floating or front plane to springs or bars turning on a pivot to rise or fall, as above set forth, over the inequalities of the boards, as above specified.

No. 13,381.—Leonard Bailey.—*Plane-Scraper.*—Patented August 7, 1855. (Plates, p. 231.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Combining the scraper, or plane-cutter, with the stock, by means of the movable holder and its adjusting mechanism, substantially as specified.

No. 13,575.—Horace Harris.—*Improved Plane-Bit.*—Patented September 18, 1855. (Plates, p. 232.)

A is the plane-iron, and B the bit.

I *claim* the adjustment of the cap and bit, with the grooves at each side, and of the thumb-screw at the top of the cap and bit for the regulation of the cut of the bit, while the iron is held fast in the stock by the wedge-fastening.

No. 13,626.—Hiram Taylor and John C. Taylor.—*Cooper's Crozing-Plane.*—Patented October 2, 1855. (Plates, p. 232.)

The stock 2 (cast in one piece) serves as a guide for the bit 3, and is provided with a groove for the reception of said bit and the wedge 4; the object of which arrangement is to simplify and cheapen the construction.

The inventors say: We do not claim adjusting a bit by a wedge;

But we *claim* casting the stock in one piece, as described, and combining therewith a wedge, for the purposes set forth.

No. 13,745.—I. Henry A. Bleckmann.—*Bench-Plane Iron.*—Patented November 6, 1855. (Plates, p. 232.)

The cutting-iron D is placed between two iron plates A B, and can be regulated by means of set-screws J and slots M. To keep the plates more firmly together they are provided with screws C. By this means well-tempered steel plates can be used, which have not been injured by welding them to other plates.

Claim.—The placing of a piece or a plate of steel between plates of iron, forming a plane-iron, for the purpose and in the manner above described.

No. 13,757.—William Nixon.—*Improved Cutter-Head for Rotary Planers.*—Patented November 6, 1855. (Plates, p. 232.)

The cutters *a* a^1 are attached to the cutter-stock *g*, and are provided at their cutting-edge with a double bevel *a c* and *a b*. In front of the cutting-edge, and at the termination of the bevel at *b*, the cutter-stock rises abruptly, thereby throwing the shavings back and preventing the cutter from entering deeper into the material to be planed, so that it supplies the place of a cap-iron and a firm support for the cutter.

Claim.—The double bevel of the cutter in combination with the bevel on that part of the stock or cylinder which is in front of the cutter, so that the stock may act as a cap-iron to the cutter, and to clear the shavings, as set forth.

No. 13,957.—John P. Robinson.—*Plane for Finishing Grooves in Patterns, &c.*—Patented December 18, 1855. (Plates, p. 232.)

By having the plane-stock of a triangular form, and the cutting-iron of corresponding shape, rounded grooves D can be cut, as will be understood from the engravings.

Claim.—Constructing the plane-stock A of triangular or three-sided prismatic form, the two lower sides forming a greater or less angle with each other, and the plane-iron B fitted in the stocks as shown for the purpose set forth.

No. 12,162.—M. G. Hubbard.—*Improved Mode of Hanging the Knife in Planing-Machines.*—Patented January 2, 1855. (Plates, p. 232.)

This improvement consists in hanging the front knife *b*, which is to remove the surface of the material to be planed, (that contains the grit, &c., which would dull the succeeding knives.) on the ends of two arms *a* that are atached to the permanent frame a considerable distance in front of the knife, so as to allow the knife a play up and down, without much deviation of the inclination of the edge of the knife.

Claim.—Hanging the first knife on arms projecting from the stock, horizontally, or nearly so, by which it is attached to the frame, substantially in the manner and for the purpose set forth.

No. 12,211.—Cyrus B. Morse.—*Rotary Planing and Matching Machine.*—Patented January 9, 1855. (Plates, p. 233.)

The board (in the condition in which it leaves the saw-mill) is placed on its edge by the side of the belt *m*. The divisions on the scales *k*, to which the upper edge of the board reaches, are then noted. Should the ends be unequal in width, the lever *o* is moved until it points to the same number on arc P, which is shown by the narrowest end of the board on one of the scales *k*, and secured there by letting the pin p^1 drop into the corresponding hole of the arc. The other end of lever *o* will then have moved the carriage M the proper extent to permit the cutters J to operate on said width of the board. The machine being in motion, the cleat *n* will carry the board forward beyond the facing-wheel A, and between the two sets of cutters J, which will cut the grooves.

As the board leaves the tonguing cutters, the cleat *n* on the opposite portion of belt *m* comes in contact with the small stud m^2 on rock-shaft T, slightly turning said shaft and thereby expanding spring O^2; which spring, by its contraction when the stud slips from the cleat, causes the hammer n^2, on an arm of shaft T, to strike the ball U, and thus announce the finish of the board.

The inventor says: I do not claim any particular form, size, or number of the mechanical devices; neither do I limit myself to any exact combination or arrangement of the same, so long as the objects are obtained without changing the principle of operation. But I do *claim* the combination and arrangement of the following mechanical elements for the purpose of preparing, or reducing and tonguing plank or boards, whether in combination with planing or grooving the same or not; that is, the adjustable cutter-carriage H, carrying the reducing and tonguing cutters J, graduating lever O, segmental scale P, and scales *k k*, with the indicating apparatus T, U, n^2, or their equivalents, when arranged and combined for the objects herein set forth.

No. 12,438.—Wm. B. Emery.—*Method of Adjusting Stuff in Planing-Machines.*—Patented February 27, 1855. (Plates, p. 233.)

B are the teeth projecting from the bed-plate A, and the pieces D to be planed are fastened between the said teeth by wedges *c*. The whole is then passed under the cutters of any planing machine which will reduce the surfaces of the pieces D to one common plane, and all the pieces to a common width and a common angle. By turning the pieces the several sides may be successively planed.

Claim.—1st. The bed-plate A, of iron or other suitable material, provided with teeth projecting from it, and adjusted at suitable angles, together with the wedges, or their equivalents, constructed substantially as described.

2d. The bed plate and wedges, substantially as described, in combination with any suitable planing-machine.

No. 12,880.—Leonard Tilton.—*Device for Adjusting Planing-Machinery.*—Patented May 15, 1855. (Plates, p. 233.)

The lower feed-rollers D run in fixed bearings. The bearings *a*, of the upper feed-rollers D^1, are movable. The upper ends of the vertical sliding-rods *b* have short horizontal arms *c* attached to them, which arms pass through the bearings *a* above the journals of the rollers D^1, so that the bearings can turn on said arms. Thus, by raising or lowering the rods *b*, the distance between the feed-rollers can be regulated so as to suit different thicknesses of board; and one bearing can be raised higher than the bearing on the other end of the feed-roller, so as to give it an inclination (as shown in dotted lines in figure 2) to correspond with boards which are thinner at one side than at the other.

The cutting-cylinder B is raised or lowered by turning shaft M, both ends of the cylinder being operated upon at the same time; and by turning the rod O, the clamps N are made to bind against the rods *i i* and secure the cylinder at the desired height, all which is apparent from the figures.

The cutters R and R^1 cut the tongue and groove. R works in stationary bearings. The bearing *p r*, of the axis of cutter R^1, is sufficiently elongated to allow a guide-rod T in front of the cutter, and a screw-rod S in rear of it, to pass through said bearing *p r*. By turning the screw-rod, the cutter R^1 can be moved nearer or farther off the cutter R, so as to suit different widths of boards.

The inventor says: I do not claim any of the parts of the within described machine, irrespective of the devices herein shown, for admitting of the adjustment of the feed-roller and cutters, with the exception of these devices. The parts described are substantially the same as the Woodworth and other planing-machines. I do not claim the feed-rollers and cutting-cylinders for planing planks or boards, for they have been previously used.

But I do *claim*, 1st. Hanging the axes or journals of the upper feed-rollers D^1 in suspended bearings *a*, attached to the rods *b*, in the manner and for the purpose as herein shown.

2d. Adjusting the cutting-cylinder B, by having its bearings *h h* attached to vertical slide-rods *i*, operated by the bevel-wheels *m l* and screws *j*, and securing the cylinder at the desired height by means of the clamps N N and rod O, as herein shown and described.

3d. The employment or use of the guide-rod T and guide *r*, arranged as shown, for the purpose of keeping the adjustable cutter R^1 firm and steady while operating, and causing it to be adjusted with facility.

No. 13,345.—Nelson Barlow.—*Improved Method of Feeding Planks to Planing-Machines.*—Patented July 31, 1855. (Plates, p. 233.)

E and F are the feed-rollers; M the plank; D the cutter-cylinder. The under feed-roller E is attached to the main frame of the machine in an unyielding position; the upper feed-roller F has its bearings in the frame B, its under side being in true line with bearing-plate *b;* frame B is attached to stands C, which latter can be swung forward or backward, the cutter-cylinder shaft serving as a fulcrum; adjusting-screws and guides allow the frame B to be depressed or raised to suit planks of different thicknesses. The plate *b*, at the lower part of frame B, extends from side to side between the stands, and bears upon the upper surface of the plank. After the plank passes the cutter cylinder, it rests upon, and is supported by, roller G. As this roller is connected with the stands, and they are fulcrumed on the cutter-cylinder shaft, it follows that the roller occupies a fixed relative position to the under side of the plank and to the cylinder, no adjustment of this being necessary when changes are made for different thicknesses.

Claim.—The self-adjusting frame B, connected by axles, or any equivalent means, to the main frame, when combined with the cylinder and fixed rollers, as specified.

No. 13,536.—Solomon S. Gray, assignor to Himself and S. A. Woods.—*Improved Universal Dog for Planing-Machines.*—Patented September 4, 1855. (Plates, p. 234.)

This clamp can at any instant be converted into a stationary clamp without in the least limiting its capabilities as a swivelling or pivoted clamp. Figure 2 represents the clamp when arranged for planks of different lengths.

By arranging the screw F, which forces the dogs against the ends of the planks, above the bed I of the machine, and of the dogs which hold the planks, the dogs are forced down upon the bed, and the plank is prevented from rising.

I *claim*, 1st. The arms *f* f^1, in combination with a pivoted clamp, whereby it is rendered rigid when desired, as described.

2d. I claim placing the screw, which forces up the clamp, above the level of the dogs, for the purpose set forth.

No. 13,618.—Seth C. Hurlbut and Westel W. Hurlbut.—*Improved Feed-Motion for Planing-Machines, &c.*—Patented October 2, 1855. (Plates, p. 234.)

The spur-wheels 10 are fast to the shafts of the vertical feed-rollers A^1 A^1, B^1 B^1, and are moved by worm-wheels L. Thus it will be seen the feed-rollers can move sideways so as to accommodate various thicknesses of stuff, without getting out of gear.

The inventors say: We *claim* the application of the worm-wheels in connection with the spur-wheels attached to the shafts of the feed-rollers, to effect their proper revolution, and to admit of their opening apart to receive various thicknesses of lumber, as above described.

This application we claim as novel and as our invention, in connexion with the feed-rollers of a planing-machine.

No. 13,808.—James A. Woodbury.—*Improvement in Planing-Machines.*—Patented November 13, 1855. (Plates, p. 234.)

b c d are the pressure and guide-rollers; *e* e^1 are the edge-cutters, placed upon the shafts *f; g h* the bearings of said shafts. The edge-cutters can be moved either towards or away from the board, or from one side of the machine to the other, by means of the horizontal screw-shafts *i k* which pass through the bearings *g* g^1, the upper screw-shafts *i* working in a female screw formed in bearing *g*, and the lower *k* in a female screw formed in bearing g^1. *l l*, *m m*, are the guides against which the board bears as it passes through the machine, one guide being provided on each side of the machine. Thus the board can be fed in upon either side of the machine, the edge-cutters being changed from one side to the other, as may be desired, by applying a winch to the ends of the screw-shafts by which they are actuated.

Claim.—Making both of the edge-cutters adjustable, in such manner that the board can be fed in from either side of the machine, double guides being provided for the purpose, as specified.

No. 13,947.—William W. Johnson.—*Machine for Planing Felloes.*—Patented December 18, 1855. (Plates, p. 234.)

The arms E and F are hinged at O, and graduated and constructed as seen in the engraving; by which means the centre upon which the plane C performs its arc is kept concentric with the radius of the required felloe.

Claim.—The combination of the lever E, sliding in the arms A, graduated as shown, with the graduated lever F and hollow cylinder or barrel G, E and F being hinged for the purposes set forth, or any device which is substantially the same.

No. 13,237.—Charles M. Swany.—*Gauge for Stair-Rails.*—Patented July 10, 1855. (Plates, p. 234.)

The two tubes B^1 B^1 are set the required distance apart by means of set-screws *b*, and the front of the guide F is placed against the side

of the stair-rail. By moving the tool along, two lines are described at the same time at equal distances apart. In consequence of the guide F yielding, it will conform to the variable inclination of the side of the rail, it being understood that at the curves or "wreaths" the position of the side varies in a somewhat spiral manner. Thus the workman can square or dress the rail without making the guide-lines from the centre as heretofore

The inventor says: I do not claim the adjustable spring-pencils separately; for they, or their equivalents, have been previously used.

But I *claim* the combination of the yielding or movable gauge F and adjustable spring-pencils D D, arranged as shown and for the purpose set forth.

No. 12,891.—George B. Ambler.—*Improvement in Wooden Saddle-Trees.*—Patented May 22, 1855. (Plates, p. 234.)

The object of placing the gullet-hook D, with its flat part *c*, within the slot B, and securing it by a screw E and screw-thread b^1, (as shown in the figures,) and having its flat part form, as it were, part of the tree-head itself, and its top and bottom stand even with the *upper* and *under* surfaces of the tree-head, instead of placing the gullet-hook *under* the head and confining it by a nut, is to make the appearance of the front part of the saddle more symmetrical, and to lessen the liability of the gullet-hook to work loose and turn.

Claim.—Providing the slot B in the centre of the head of a wood saddle-tree, and the screw-thread in the top strap C^1; said slot serving to receive the end *c* of the gullet-hook, and the screw-thread serving to firmly hold the screw, substantially as and for the purposes set forth.

No. 12,797.—Solomon P. Smith.—*Machine for Clamping Sash, etc.*—Patented May 1, 1855. (Plates, p. 235.)

The sash J to be clamped is laid horizontally upon the upper part of the frame A, two adjoining sides of the sash being against the heads or bars B B. The outer end of the lever H is then depressed by the foot, and the head F, underneath the frame A, is raised, and the levers e^1 e^2 force outward the lower ends of the clamps D, and cause their upper ends to press against two sides of the sash, which is consequently firmly secured between clamps and heads D and B. The heads B, by being secured to studs C, may be adjusted nearer or farther from frame A, so that different sized articles may be clamped with the same apparatus. The studs C rest upon cross-pieces *a* of the frame, and are adjustably secured to them by bolts *b* passing through plates *c*, attached to the slides C, and through holes a^1 in the cross-pieces *a*.

The inventor says: I do not claim separately the adjustable heads B B, neither do I claim operating the clamps D by a toggle-joint, irrespective of their connexion with the adjustable heads and the arrangement herein shown; but I do *claim* the employment or use of the clamps D D D D, operated by levers e^1 e^2, connected to a head F, and forming what is commonly termed a toggle-joint, in combination with the adjustable heads B B, the above parts being arranged and operating in the manner and for the purpose as herein shown and described.

No. 12,126.—Thomas J. Flanders.—*Construction and Mode of Driving Circular Saws.*—Patented January 2, 1855. (Plates, p. 255.)

Driving-shaft H revolves face-gear D, which drives spur-gear B C, the teeth of which gear between the saw-teeth or into holes N in the saw-plate A^2. Thereby the saw-plate is revolved without being provided with a central shaft, and it is steadied by means of guide-rollers *c c*. The saw-plate A^2 is provided with projections to which the teeth are riveted, which teeth are fitted to recesses made alternately in each side of the plate, to one-half of the thickness of the latter, the projections and teeth being only one-half the thickness of the plate also.

Claim—1st. Supporting a circular saw edgewise, and operating it at the same time by means of two spur-gears, or their equivalents, arranged and operated at right-angles to the saw, so that the said gears act upon the plate of the saw between the teeth or through holes in the plate to propel and support it edgewise at the same time, as described, thereby dispensing with the shaft, or its equivalent, heretofore used to propel and support the saw (see figures 2 and 3).

2d. Crimping or corrugating the plates of saws, substantially as described, (see figure 1,) so that they will require little or no setting, and to make them stiffer; also, that the bands may run in contact with the sides of the score-cut, and support and steady themselves so as to be less liable to be swerved by knotty, cross-grained, or hard places in the wood or material sawed, and at the same time run with less friction and power.

3d. Making the teeth of crimped or corrugated saws separate from the plate, and fastening them into the recesses formed by the crimping or corrugating, or between the bends in the plate of the saw, so that the saw may be supported and steadied by roller-guides, or otherwise, substantially as described.

4th. Making the teeth of saws one-half the thickness of the plate, or less, by taking off the side of the tooth and the opposite side of the next tooth, as described, so that they will cut one-half, or less than one-half, the thickness of the saw-kerf, so that the saw will run at a higher speed without heating, and execute a given quantity of work with two-thirds or less of the power heretofore required, substantially as described.

No. 12,170.—M. A. Taplin.—*Improved Method of Flanging a Path-finding Saw.*—Patented January 2, 1855. (Plates, p. 235.)

The upper end of the saw D traverses a vertical slit *m* in a pendulum block U, secured by a pivot *n*, immediately over the saw, and in the same plane. This block extends downwards as far as it can, and clear the top of the largest logs; and it has also a vertical slot *s* at right-angles to the slit *m*, in which a cross-head *w*, secured to the upper end of the saw, traverses, to keep the saw vertical in one direction, while the slit keeps it so in the opposite direction. If the

saw should at any time tend to run slightly to one side, as all saws do occasionally, the block U will yield by turning on its pivot *n* to allow the saw to move aside, or to assume a curve in the log. By this means the binding and heating of the saw is to be avoided.

Claim.—The pendulum block to support and guide the upper end of the saw, substantially as described.

No. 12,176.—Lysander Wright.—*Sawing-Machine.*—Patented January 2, 1855. (Plates, p. 236.)

The saw Q is confined between two cross-heads P and T. The lower cross-head T is vertically reciprocated by the usual means of pitman, crank, etc. The upper cross-head, which slides in ways L L, is constantly drawn upwards, in consequence of its being connected with a pulley U by means of a strap I¹, and said pulley (by means of a smaller pulley H, on the same axle, and straps I I) being connected to a spring C. The spring is attached to, and the axle of the pulleys is supported by, the stationary frame F G. The ways L L are fastened to a bed K, which is pivoted to a shoe 10, which latter is adjustably attached to the frame F. The hold-fast M, together with the guide-block O, is supported by rod M¹, the upper screw-threaded end of which passes through the threaded hub of pinion N, which can be revolved by means of gear-wheel N¹ and nut E, thereby raising or lowering the hold-fast. The set-screw J, which works through a vertical slot in the frame F, serves to place the shoe, bed, and slides higher or lower, so as to suit different lengths of saws. The rake is given to the saw by throwing out the bed, (see figure 3), which is pivoted to the shoe, and fixing it in this position by means of set-screw A¹.

The considerable difference between the diameters of the pulleys U and H, to which are respectively connected the spring and the upper cross-head, is the reason that, even during a long way described by the cross-head and saw, the way described by the front end of the spring will be comparatively a short one, and thus the spring will never be over-strained.

Claim.—The two pulleys, varying in size, for the purpose set forth; also, the arrangement and combination of the guides, cross-head, hold-fast, and guide-block, shoe, and screw, for the purpose of raising and lowering, and to give the rake, all substantially as set forth.

No. 12,197.—Wm. B. Emery.—*Mode of Arranging and Driving Circular Saws.*—Patented January 9, 1855. (Plates, p. 236.)

The axis F is guided by the arm N, so as to keep axis F at its proper distance from the main driving axis J, while vibrating to accommodate the motions of the saw-mandrel B, which mandrel B is sustained by a carriage D, which is allowed to slide on rods E. The dotted lines represent the two extreme positions of the mandrel and other parts.

Claim.—The combination of the three axes B F and J with the frame M, and the guide N, arranged substantially in the manner and for the purpose described.

No. 12,337.—Pinney Youngs.—*Improvement in Sawing-Machines.*—Patented January 30, 1855. (Plates, pp. 236 and 237.)

The log to be sawed is secured between the dogs Y Y on the bar X, and motion is given to saw-shaft C; the saw B and shaft E are made to rotate, and the carriage W moves on (see arrow), the belt *o* being over the fast or working-pulley J on the shaft I. When the log has passed the saw B, the lower end of pawl w^1 strikes against the stop y^1, and the upper end of said pawl clutches the projection v^1 on the face of the toothed wheel A^1, which is consequently turned, as is also the opposite wheel A^1, in consequence of connexion d^1 e^1 f^1 h^1. The screw-shafts *z z* are turned, and the bar X and log are moved or set to the saw at a distance corresponding to the distance the wheels A^1 were moved. A pin a^2 in the carriage now acts against the slide *x*, and the belt-shipper L is moved; the belt *o* is thrown off the working-pulley J and on one of the loose pulleys K, the cross-belt *p* being at the same time thrown on the working-pulley J; and the carriage moves back. The slide *x*, when moved, acts against the button O; and the belt-shipper, being connected to the button, is operated accordingly. The position of the rods *g g* is also changed at the same moment, as the sliding-plate *j* is connected to the button by arm z^1, and the levers D D are shifted or changed, and the guides which were previously in contact with the saw are thrown out from it, and the opposite pair brought in contact with it at its opposite end; one pair of guides being at all times against the cutting edge of the saw.

On the outer end of each shaft B^1, and between the outer surface of the side-piece of the carriage and the toothed wheel A^1, there is secured a lever l^1. The upper ends of these arms bear against pins m^1 m^1, which are attached to slides n^1 n^1, which work on segments o^1 o^1 attached to the outer side-piece of carriage W. The spiral springs j^1 j^1 keep the levers l^1 l^1 against the pins m^1 m^1. On the extreme end of each shaft B^1 there is secured a collar p^1, having an arm q^1 provided with a slot r^1 at its lower end, in which slot r^1 a pin s^1, attached to the outer surface of a small plate t^1, fits; this plate t^1 has a projection u^1 on its inner face, which fits over the circular projection v^1; on the outer surface of wheel A^1, and directly below projection u^1, there is a pawl w^1, the upper end of which bears against the outer edge of the projection v^1 when said pawl w^1 is in the proper direction.

Claim.—1st. The employment or use of two pairs of guides *e e* secured to the ends of levers D D, and arranged as shown, or in an equivalent way, so that said levers will be operated by the movement of the carriage, and each pair of guides brought alternately in contact with the saw near its cutting edge; the levers D D being operated simultaneously with the reversing movement of the carriage, for the purpose of allowing the saw to be properly guided or stayed while cutting in either direction, as set forth.

2d. The combination of the toothed wheels A^1 A^1, arms or levers

l^1 l^1, g^1 g^1, and pawls w^2 w^1 attached to plates t^1 t^1; the arms q^1, plates t^1, and pawls w^1 forming a clutch, and so arranged as to operate the wheels A^1 and rotate the screw-shafts z, as shown and described, for the purpose of properly setting the log or timber to the saw; the movement of the wheels A^1 being regulated by adjusting the pins n^1 on the segments o^1, or in an equivalent way, so as to give the required set to the log or timber.

No. 12,412.—George P. Ketcham.—*Method of driving Pairs of Reciprocating Saws.*—Patented February 20, 1855. (Plates, p. 237.

The two positions represented in fig. 1 (one in full and the other in dotted lines) are the two extreme positions of lever E.

Claim.—Operating the saw-sashes B B by means of the inclined wheel or cam D and lever E, with its pendents or projections *b b*; the parts to be operated being connected to the ends of the lever E by rods or pitman G; the above parts being constructed and arranged substantially as shown. (See engraving.)

No. 12,493.—Linus Stewart.—*Improvement in Mode of Constructing Saw-Plates and Setting Teeth therein.*—Patented March 6, 1855. (Plates, p. 237.)

a a are two thin steel plates, between which are fastened plates *b b* at equal distances apart; in the space or mortise between the plates *b b* is put the bit *c*, which is secured by means of key D; the bit *c* is made with flanges on the sides E E, which project slightly over the thickness of the plate to give clearance to the saw.

Claim.—The improved mode of constructing saw-plate and fastening of the bits therein, as described; that is, the bits shall be so made and arranged with projections on each side equal to the set of the saw, and fastened therein with a key or other known modes of securing the same.

No. 12,664.—Nelson Barlow.—*Saw-Teeth.*—Patented April 10, 1855. (Plates, p. 237.)

A recess D is formed on the front angle of the tooth, extending inwards as far as the roots of the teeth, if desirable, and parallel with the side of the saw; the shape of which being concave or angular, gives acute edges upon the sides of the teeth; to give the best effect to which improvement, the back angles of the teeth are rounded in a form corresponding with the other, so as to enlarge the cutting-surface of the points, and to render each tooth so formed a perfect cutter on the different angles presented to the wood.

The inventor says: The advantage of this improvement is, that the portion of wood removed is retained between said cutting-edges, and carried forward; the tendency being to draw inward from the cutters, the wood at the same time being cut smoothly upon its sides.

Claim.—The within described improvements, consisting of the recessed space D and combined cutters upon the sides of saw-teeth, and also the rounded form given to the outer points of the teeth, when arranged, formed, and operating substantially as herein described.

No. 12,679.—Charles B. Hutchinson.—*Mode of Guiding Reciprocating Saws.*—Patented April 10, 1855. (Plates, p. 237.)

G is a guide-plate of the thickness of the saw-plate, and firmly secured at each end to the stationary cross-timbers H. The saw C slides through guide-straps E projecting from plate G. Straps D, attached to the saw-plate, pass around the guide-plate, to hold the saw-plate snugly to its place in front of the guide-plate. B is the pitman.

Claim.—The use of a thin guide-plate for holding and guiding the saw, placed immediately behind and in the same plane with it, and following it through the log, whether the same be used by itself or in connexion with any other means of holding and guiding the saw.

No. 12,705.—Hiram Wells.—*Device allowing Circular Saw-Spindles to yield.*—Patented April 10, 1855. (Plates, p. 237.

This improvement consists in providing the saw-spindle A in its boxes B with an angular frustro-conical groove *a*. A spring-guide *b*, sliding freely in hole *c*, bears with its upper part *f* against the central part of groove *a*. This arrangement allows the spindle a slight lateral movement, by one of the sides of the grooves slightly depressing the guide. The guide, however, having a tendency to again assume its central position in the groove, will draw the spindle back to its proper position. The shoulders *k* prevent an excess of lateral motion by eventually abutting against the sides of the projection *f* of the guide.

Claim.—Arranging within the box or bearing, and combining with it and the saw-spindle, substantially as specified, the guide, its spring, and the compound frustro-conical grooves provided with shoulders, as described; the whole constituting a device of great simplicity of construction, and of much advantage in not only allowing a circular saw while in operation to move laterally, but to limit such movement of it, and subsequently restore it to its normal or original position.

No. 12,809.—Elias A. Tubbs, assignor to E. A. Tubbs and H. T. Croxon.—*Machine for Sawing Fire-Wood, &c.*—Patented May 1, 1855. (Plates, p. 238.)

Starting with the saw elevated, as seen in fig. 4, and the shaft O and lever T in the relative position seen in fig. 3, the log is thrown on and secured in the movable clamp C, and power is applied to the main shaft E. The finger Q, upon the shaft O, having already closed the clutch L, the drum K feeds the log into the machine; and as the crank g^1 is in its highest position, the stationary clamp C^1 is open, the lever D^1 being raised clear of the bent ends of the jaws a^1 b^1. The log is thus permitted to feed through this clamp until it strikes against the stop Z,

by which means the shaft X is revolved; and the arm B^1, being thereby depressed, presses the lever T out of the notch *i*, and into one of the teeth of the wheel R, which clutches the shaft O, with the cog-wheel N, and this shaft is caused to make a semi-revolution, by which it is brought into the position shown in fig. 2, the lever T being disengaged from the wheel R, and entering the notch *h* of the plate U. While this is taking place, the shipping finger Q has opened the clutch L, by which means the feed is stopped, and the pin q^1 has depressed the rod r^1, permitting the crank Q^1, which supports the saw, to escape from the catch S^1, and the saw descends upon the log and commences to operate; the crank g^1, also having descended to its lowest position, depresses the lever D^1, and closes the clamp C^1 upon the log, by which it is held firmly until the cut is made. While the saw is operating upon the log, the parts remain in the position seen in fig. 2, the crank Q^1 not being raised sufficiently high by the descent of the saw to bring the teeth of the wheel R^1 into gear with those upon the wheel P. So soon, however, as the cut is finished, the weight of the saw causes it to descend so as to raise the crank Q^1 to its highest position, whereby the wheels R^1 and P engage, the former being driven by the latter a semi-revolution, and the saw and its frame are raised into the position seen in fig. 4, the crank Q^1 resting against the stop S^1, as before. While this is taking place the shipper U^1, in revolving, presses the lever t^1 against the lever T, by which means the shaft O is again set in motion; the shipping finger, striking against the prong *g*, closes the clutch for the purpose of operating the feed, and the clamp C is opened as already explained; when the whole log is thus sawed up, and the rod *m* striking against the apparatus opens the clutch L, and stops the feed.

Claim.—1st. The method, substantially herein described, of bringing the saw into operation by the pressure of the log upon the stop Z, as set forth.

2d. The method, substantially herein described, of causing the weight of the saw, after it has passed through the log, to bring into operation the mechanism which raises it out of the way preparatory to making another feed.

3d. The method, herein described, of operating the clamp C^1 by means of the spring-bar D^1, whereby the clamp is rendered capable of holding logs of varying thicknesses without constant re-adjustment, as set forth.

4th. The device, herein described, for the purpose of stopping and starting the feed at the required moment, consisting essentially of the combination of the shaft O, the lever T, the wheel N, and the shipping-finger Q, constructed and operating in the manner substantially as herein set forth.

No. 12,821.—Simon Ingersoll.—*Machine for Sawing or Felling Trees.*—Patented May 8, 1855. (Plates, p. 239.)

Motion is transmitted from shaft and crank I to lever H J, and from it, by the link K, to the saw-frame C *a* C, which turns on pivot E, secured in slide F. At the same time that the saw has this circular motion, the weight M, through the cord and slide, gives the saw a parallel forward motion, and thus feeds it up to the tree as fast as the sawing is performed.

Claim.—The manner, herein described, of giving to the segmental saw its reciprocating action during the forward feed of the same by means of the pitman H, connected by link-rod K to the saw-frame, and by joint or link-rod J to the side carrying the saw or saw-frame, and giving forward feed thereto, substantially as and for the purpose set forth.

No. 12,843.—Francis A. Wolff.—*Method of Sawing a Log by its own Weight.*—Patented May 8, 1855. (Plates, p. 239.)

The back of the framing A, between the bluff and the saws, is planked up to form a bearing for the logs to slide against in their descent. The log, slightly slabbed on one side to prevent its rolling on the ways, is lowered down till its top end is about level with the upper chain-wheels *r r*. It is then secured to the endless chains *p p* by the dog *k* near the top, and its weight puts the saws in motion in a manner apparent from the figures. When the dog comes nearly down to the saws, another dog is attached below, and the weight taken off the upper one, so that it may be removed. As soon as the log is clear of the upper saws *h*, the mill is stopped by means of brake *d*, the log is turned on its side, and secured at its upper end to the chains, as before, and another log attached above as at first, and the saws again put in motion. The lower log is then operated upon by the lower saws *f*, whilst the upper log is acted upon by the upper saws.

The inventor says: I do not claim the principle of sawing the timber by machinery driven by the weight of the log in itself; but I do *claim* the method herein described of making the weight of a log or logs of timber propel the saws which saw them, by suspending them on endless chains, working around chain-wheels, which drive the saws, substantially as set forth.

No. 13,028.—Charles M. Day.—*Feed-Motion for Saw-Mills, &c.*—Patented June 12, 1855. (Plates, p. 239.)

An eccentric communicates a rocking motion to shaft G and rack H, and this motion is communicated to lever E by arm F; and as the lever E vibrates, the clamps *e* bind against the rim *d*, during its forward movement, and rotate the pulley D; and as the pinion *c* gears into rack *b*, the carriage B is moved a certain distance. Upon the backward movement of lever E, the clamps *e* do not bind against the rim *d*, but slip upon it. The carriage is gigged back by releasing the clamps from the pulley by operating levers K.

The inventor says: I do not claim the clamps *e e*, separately; but I *claim* the clamps *e e* attached to a lever E, and working upon a pulley D, in combination with the rack H and pinion *h*, attached to the arm F, all arranged, constructed, and operated as shown and described.

I also claim the levers K attached to the pivots *f f* of the clamps,

and connected by the pin *j* and slot *k*, at their inner ends, for the purpose of relieving the clamps from the pulley D when the carriage is gigged back.

No. 13,040.—Isaac M. Newcomb.—*Sawing-Machine.*—Patented June 12, 1855. (Plates, p. 240.)

Reciprocating motion being given to frame D E F, the saw being raised above the log *c* and retained by the arm W and catch-rod X, the tongue K is in the notch of the slide N, which, following the oblique tongue, receives a transverse motion, which is communicated through lever L to pawl *o*, which operates ratchet-wheel P, and thereby gives a rotary motion to the pinions S S (one not shown in the figure) which gear into racks T, thereby causing the carriage to move along the ways until finger Z comes in contact with a pin *a* and is brought into a line with catch-rod X, when it unlocks X from arm I, and allows X and arm W to fall into the position shown in dotted lines in figure 2, and the saw to rest upon the log. When the cut is made, the hook J catches the ortward end of X, and, by its backward motion, lifts the saw from the log, when the hook at the back end of X locks upon arm I, and retains it until finger Z comes in contact with the next pin, when X is again unlocked, and the saw let again to operate upon the log.

Claim.—The bar F, secured to the arms E of the vibrating frame by a hinge-joint, and its connection with the saw-shaft G, combined and operating substantially as described.

Also, the guide-arms of the carriage H, combined and operating as described; and also the lifting-arm W and catch-rod X, combined with the hook J of the saw-shaft G; also the oblique tongue K and notched slide N, combined and operating substantially as described.

No. 13,043.—Andrew S. Rice and Guy Tozer.—*Saw-Mill Dog.*—Patented June 12, 1855. (Plates, p. 240.)

The teeth *c* of the head B take into the log. In each end of the movable head B are chambers in which the sectional nuts N move up and down (by means of the screw-shafts K taking into screw-threads in the nuts). These nuts, one at a time, are let down into their corresponding threads in the screw A; and as the carriage is gigged back, the wheel D on the end of the screw takes into corresponding cogs lying on a movable piece of timber by the side of the carriage, and turns the screw, moving the head B, together with the log, on towards the saw.

The inventors say: We do not claim the cog-wheel D on the screw A, or the cogs by which the wheel is moved;

But we do *claim* the combination of right and left hand screw A in connection with the movable head B, together with the sectional nut N, and the manner of operating the same, substantially in the manner specified.

No. 13,055.—Selden Warner.—*Curvilinear Sawing-Machine.*—Patented June 12, 1855. (Plates, p. 240.)

The nature of this improvement will be understood from the claims and engravings.

Figure 4 represents the stuff Y half cut.

Claim.—1st. Placing the saws J J in frames E F, which are allowed to move laterally in the saw-frame or sash B, and having said saws so attached to the frames F F as to be allowed to turn therein, said saws being turned by means of the rods *k n* attached to transverse bars *l* on the vertical rods *f*, these rods being turned by the rods *n* and levers *p*, the outer ends of the rods bearing against the pattern D, and operated as said pattern moves, as shown and described.

2d. I claim straining and attaching the saws J J to the frames E F, by having bows *h* attached to the ends of the saws and screws *i* passing through them, the ends of said screws resting upon the top and bottom strips *c* of the frames E F, as described.

No. 13,227.—F. A. Parker.—*Improvement in Saw-Sets.*—Patented July 10, 1855. (Plates, p. 240.)

The bed B is to be confined to a bench, and has a bevel *b* over which the saw-teeth are to be bent, the angle being regulated by the end of spring C, which comes down upon the saw with the hammer or jaw J when it strikes the tooth. By a pressure upon the handle of lever L the hammer is brought down upon the tooth by means of arms R and piece A, with sufficient force to fix it at the angle desired. S are stops of soft metal, which may be adjusted to accommodate teeth of different length. A can be moved by a set-screw, so as to adjust the space between the hammer and bevel to the thickness of the saw.

The inventor says: I make no specific claims on the several parts of the saw-set;

But I *claim* the arrangement of the circular spring C, the adjustable bar A, and the connecting-rods R, substantially as specified.

No. 13,351.—Frederick Field.—*Cross-Cut Sawing-Machine.*—Patented July 31, 1855. (Plates, p. 241.)

The walking-beam *b*, which supports the two saws *e d*, has its fulcrum in axle *c*. Motion is transmitted from pulley *k* to pulley *l*, and from *l* to the saws. *g* is a balancing weight. The feed-shaft *p* has a loose pulley *q* and clutch, and receives motion (when the pulley is in gear with the clutch on the shaft) from the driving-shaft by means of the belt on the pulley. The clutch and belt are not shown in the engravings. When the saws have descended below the under surface of the log, arm a^1, projecting downwards from the walking-beam, comes in contact with one side of lever c^1 pivoted at b^1, and connected at the other end with the fork that moves the clutch on shaft *s*, withdraws this clutch from pulley *y*, (which latter, by means of the clutch, revolved together with shaft *s*, and drew the walking-beam down by means of a rope r^1,)

and the walking-beam and saws rise by the action of weight *g*. When the walking-beam rises, the lever *w* is caught in a notch in spring-bar j^1, (attached to the walking-beam,) and, in being lifted and removed from upright bar *r*, allows the clutch *q* to throw the feed-pulley into gear. The log then advances until it strikes an adjustable lever in front of it, which throws the spring-bar j^1 back, by means of which movement *y* will be thrown into and *q* out of gear.

Claim.—The arrangement of the two circular-saws, hung in a vibrating frame, and operated substantially in the manner set forth, in combination with the mode, substantially as described, of throwing the feed-motion in and out of gear.

No. 13,277.—Matthew Ludwig.—*Machine for Sawing Down Trees.*—Patented July 17, 1855. (Plates, p. 241.)

In order to adjust the jaw for standing trees, the bar H is withdrawn from socket N, turned, and replaced in the socket. In this case the bar I and saw J rest upon bar H, (see fig. 2,) but the friction-roller of the lever L still bears against the bar I, and keeps the saw to its work, the saw cutting in a horizontal direction.

Claim.—Attaching the connecting-rod F to a sleeve G, which works upon a bar H attached to the framing A, the bar I of the saw J being attached to the sleeve G, and the bar H having an arm K attached to it, which arm has a lever L attached, one end of which is provided with a friction-roller, which bears against the bar I and keeps the saw to its work, in consequence of the cord *e* and weight M attached to the opposite end. The bar H being arranged as herein shown, so that it may be turned and allow the saw J to cut in a vertical or horizontal position.

No. 13,305.—Benj. Fulghum.—*Sawing-Machine.*—Patented July 24, 1855. (Plates, p. 241.)

The circular saws being set in motion, and the saw-frame G being drawn along between the guides of frame G^1, the two saws cut a strip out of the log, leaving a vertical shoulder a^1 on the log. (See fig. 4.) When the saws have reached the end of the log, the clutch *i* is closed and the saw-frame is moved back by the operation of shaft V. Just previous to this, the plate N^1 is moved in consequence of the frame G operating rod O^1, and lever M^1 is moved thereby, and the bar *s* turns wheel K^1, and the log Y is turned a suitable distance, and frame G^1 is also lowered by the bevel-gear B^1 D^1 E^1 H^1 I^1 and screw-rods C^1 I^1. These movements of the log and frame G^1 prepare the log for the succeeding cut, and cause the log to be cut in a spiral form (see dotted lines in fig. 4). As the saws approach the centre of the log, the feed-motion that turns the log must be increased, in order to have the stuff sawed of an equal thickness. This is effected by having lever M^1 pass through the slotted plate N^1, which plate is attached to frame G^1, and, of course, at every stroke of the saw-frame and depression of the frame

G^1, is brought nearer the pin *w*, and thus the length of movement of the arm L^1 is gradually increased.

The inventor says: I do not claim the arrangement of swinging frames shown, for giving a horizontal reciprocating motion to the saw-frame G, for that has been previously invented, and was formerly patented by me.

But I *claim*, 1st. Placing the reciprocating saw-frame G, provided with a vertical circular saw H and a horizontal circular saw J, within a frame G^1, and placing or centering the log Y to be sawed between shafts X X^1, the frame G^1 being lowered at every stroke or vibration of the saw-frame G, and the log Y turning simultaneously therewith a gradually increasing distance at every stroke or vibration of the saw-frame G, for the purpose of cutting the stuff an equal thickness direct from the log and in a spiral manner, substantially as shown and described.

2d. I claim operating the log Y and frame G by means of the bar *s* attached to the wheel K^1, as shown, said bar being attached to the arm L^1, which is secured to the lever M^1, when said lever M^1 is passed through a slotted plate N^1 to the frame G, attached for the purpose of gradually increasing the feed-motion of the log, and causing the stuff to be sawed of an equal thickness, as described.

No. 13,354.—Liveras Hull.—*Machine for Sawing Ratan.*—Patented July 31, 1855. (Plates, p. 241.)

The screws C serve to set the bearer D at an angle with B, which of course will cause the stick of ratan R to be sawed in a diagonal line, so as to enable it to be used in the manufacture of whip-stocks. After a stick of ratan has been cut, the broadest ends of the two pieces are laid together, which will form a whip-stock of regular taper. (See fig. 3.)

The inventor says: I am aware that machines have been contrived for splitting a ratan longitudinally with one or more knives, the ratan having been supported between a series of rollers. I am also aware that timber, attached to a rectilinear moving carriage by dogging contrivances applied to its end, has been cut diagonally by means of a saw. I am aware, also, that it is not new to use an adjustable gauge-bar in connection with a movable carriage and saw. I am also aware that pressure-rollers are used in planing-machines, for maintaining a board against a movable carriage or bed during the operation of planing or dressing it.

The employment of such parts in a machine for sawing ratan requires a specific arrangement of them, or one which differs essentially from their arrangement in various other kinds of mechanism, such an arrangement having been before explained.

I therefore *claim* the above described arrangement of the rectilinear moving-carriage B, the adjustable holding-bearer D, the groove pressure-roller, and the saw, whereby, when a stick of ratan is clamped to the adjustable bearer, and the carriage B is moved forward so as to carry the said stick endwise against the saw while the latter is in evolution,

such stick shall be sawed in a diagonal direction, in manner and for the purpose as specified.

No. 13,357.—Fielding H. Keeney.—*Circular-Saw Mandrel.*—Patented July 31, 1855. (Plates, p. 241.)

The saw B can be set at any angle by means of the set-screws *a a*, as will be understood from an inspection of the engravings.

Claim.—The mode of making a mandrel, as set forth, not confining myself to exact size or shape as described, but to the principle of the machine as herein set forth, or any other equivalent device to produce the same effect.

No. 13,390.—A. F. Gray and J. C. Fincher.—*Gauge Attachment for Hand-Saws.*—Patented August 7, 1855. (Plates, p. 241.)

This gauge serves to regulate the depth of the saw-cut.

Claim.—Attaching to one side of the blade of a hand-saw, a gauge formed of two strips *a b* and lugs *c*, having slots *d* made in them, through which slots set-screws *e* pass, the screws also passing through the saw-blade, substantially as shown and for the purpose set forth.

No. 13,399.—B. E. Parkhurst.—*Machine for Sawing Lumber.*—Patented August 7, 1855. (Plates, p. 242.)

The teeth of the pinion and rack moving the lumber-carriage I, when the latter were rigidly attached, would be liable to be stripped when suddenly thrown into gear. To prevent this, the rack is attached to the carriage by means of projections passing from the under side of the carriage through mortises in the rack-bar, the mortises being somewhat longer than the projections, so as to allow the rack-bar a slight longitudinal motion before it starts the carriage. Dogs P R serve as bearings for one end of each of the transverse shafts *a b*, which carry the pinions for moving the carriage back and forth. The dogs are pressed upward by springs; by shipping-handle N and bar O, one of the buttons *s* and *t* upon the stops will be brought beneath one of the recesses *u r*, when the stop will rise and the pinion engage with the rack-bar. The dogs B^1 C^1 slide upon bar F^1, and are provided with bolts f^2 drawn up into one of the notches g^1 of bar F^1, by springs e^1. When it is desired to move the dog, the bolt b^2 is depressed out of notch g^1, when the dog may be moved and secured to another notch of the bar. The dog G^1 is connected with guide P^1 by joint f^1, which permits the dog to be thrown out and in by hand-wheel Q^1 and gear d^1, without disengaging the rack H^1 from wheel I^1. Thus the dogs may be extended to a greater or less distance from each other, to accommodate different lengths of logs, by operating the hand-wheels L^1, at the same time that they may be moved out and in by hand-wheels Q^1. When the logs are short, an additional central dog S^1 is used, which can be made to protrude by means of hand-wheel U^1 and screw T^1. To hold the logs,

when long, with sufficient steadiness near the centre, the points of screws V^1 are forced into the rear of the log after it is dogged to the carriage.

The saw-guide H^2 is pivoted at q^9 to a standard G^2 projecting from the main frame, so that when the log should be of more than usual size it will strike the guide and move it around pivot q^9 out of the way. (See dotted position of H^2 in figure 2.)

Claim.—1st. The method described of connecting the rack-bar to the carriage, so that the bar may have a slight motion, independent of the carriage, for the purpose set forth.

2d. The dogs P R, constructed and operated as described, in combination with the notched bar F^1, whereby they may be instantly moved, and set to accommodate them to different lengths of log, as set forth.

3d. The described method of connecting the dogs with their sliding guides P^1, whereby they may be operated longitudinally and transversely, in the manner set forth.

4th. The pointed screw-dogs V^1 V^1, operating in the manner substantially as set forth.

5th. The saw-guide H^2, so constructed as to be thrown out of the way by the log, in the manner set forth.

6th. The double dog S^1, which, when out of use, may be sunk flush with the surface of the head-block, and may be run in and out in the manner described, for the purpose of sawing the butt and point of shingles.

No. 13,422.—A. Brown and Abel Coffin, Jr.—*Mode of Straining Saws by Atmospheric Pressure.*—Patented August 14, 1855. (Plates, p. 242.)

The valves *a* a^1 do not operate with every reciprocating action of the saw, but only when it is necessary to clear the cylinders of air; and as these valves operate freely, and when no cut is on the saw, and only reciprocating the saw slowly to clear the cylinders, the saw will not be buckled by the operation of clearing the cylinders, while, when once cleared, the pistons in them will, by the atmospheric pressure on their exposed faces, strain the saw.

The inventors say: We claim nothing new of itself, in the arrangement of the cylinders and straining-pistons in relation to the saw, and straining the latter by atmospheric pressure, produced by a vacuum maintained between the pistons and cylinder-head, as such has before been done; and steam and compressed air have likewise been similarly employed.

But we *claim* providing the closed ends or heads of the cylinders B B^1 with snifting-valves *a* a^1 opening outwardly, as described, and freely hung or operating when the said cylinders, with their pistons, are arranged in relation to the saw, and the pistons and valves operate together as specified, whereby the reciprocating action of the saw is made to clear the cylinders without the aid of a separate exhaust pump, as set forth.

No. 13,444.—Samuel R. Wilmot.—*Portable Steam Sawing-Machine.*—Patented August 14, 1855. (Plates, p. 242.)

The cylinder B is pivoted to the main frame in b^1 b^1; F is the boiler, and G a flexible steam feed-pipe; the rear dogs *a* of the frame are inserted into the ground, and the front dogs *b* are inserted into the log. The weight of the cylinder and saw are sufficient to feed the latter.

Claim.—1st. The attachment of the opposite ends of the steam cylinder to that at which the saw works, by a pivot, to the main frame or bed-piece A of the engine; so that the cylinder may swing to and from the said frame or bed-piece, for the purpose of allowing the saw a proper range and feeding it, substantially as described.

2d. Furnishing the main frame or bed-piece A of the engine with dogs *b b*, to drive into the tree or log on opposite sides of the saw, substantially as described, whereby greater stability is given to the engine and saw when in operation, without making the engine or its frame of great weight.

No. 13,531.—Elias Strange and Thos. B. Smith.—*Machine for Sawing Hoops.*—Patented September 4, 1855. (Plates, p. 242.)

The arrangement of saws serves to saw strips of equal thicknesses throughout at opposite sides of the poles in the process of sawing barrel-hoops from poles.

Vertical reciprocating motion is given (by means of pitmans N) to the sashes F E and the saws G G, and the pole S fed in between friction-rollers Q H. As the pole increases in thickness from its point towards the butt, the movable sash F is forced outward in consequence of the pressure against the feed-roller H attached to the movable sash. The spring K causes the roller H attached to F to bear at all times against the pole.

We *claim* the employment of two reciprocating saws G G, arranged as shown, viz: one saw being secured in a laterally sliding sash, and the other in a permanent sash, or one which only has a reciprocating motion in a vertical direction.

No. 13,544.—Robert S. Eastham.—*Improvement in Saw-mill Carriages.*—Patented September 11, 1855. (Plates, p. 243.)

The nature of this improvement consists in providing the carriage of a saw-mill with steadying strips 4, which are forced up against the log 22 by means of wedge-blocks 3 and rods 5, and held in place by a catch 8 and ratchet 6, thereby preventing the log from springing. Each wedge-block, being clamped to the rod 5 by spring 7, will move with the rod until the strip 4 has been sufficiently raised to come into contact with the log, when the block will remain in place and the rod 4 will slide through the block until all the strips have been raised into contact with the log. Then the face-side of the ratchets 6 is turned up, when the catches 8 will fall into the teeth of the ratchet and hold the strips up to the log.

I *claim* the wedge-blocks 3 3 3 3, worked by the rods 5 5 and springs 7 7, for elevating the steadying strips 4 4 up against the log, for holding it steady while being sawed; the whole being operated by the machinery described and represented, for the purposes stated.

I also claim the combination of the catches 8 8 attached to the bottom of the wedge-blocks and ratchets 6 6, for holding the wedge-blocks to their place after elevating the strips against the log, for the purposes stated.

No. 13,554.—O. S. Woodcock.—*Improved Method of Operating Reciprocating Saws.*—Patented September 11, 1855. (Plates, p. 243.)

The upper end of the saw B is attached by a stirrup C to the upper rail *a* of the sash. The lower rail *b* is connected permanently to the pitman D a short distance below its upper end, and the ends of the rail *b* are connected to the lower ends of the stiles *c* of the sash by journals *d*. The lower part of saw B is attached by a pin *e* to the upper end of the pitman; and as the pitman extends a short distance above the rail, the pin *e* that connects the saw and pitman will be a short distance above the pins *d*. Consequently, as the sash is moved up and down by the pitman, the saw will be thrown in and out from its work, (in during the descent, and out during the ascent,) so as to afford ample room for the saw-dust to escape during the ascent of the saw.

I *claim* attaching the lower end of the saw B directly to the upper end of the pitman D by a pin *e*, which forms a joint connection, the pitman working on a suitable fulcrum or bearing *d* below the pin *e*, substantially as shown, for the purpose specified.

No. 13,573.—Dean S. Howard.—*Improved Sawing-mill.*—Patented September 18, 1855. (Plates, p. 243.)

On the carriage A are attached two setter-blocks L, which support the log C to be sawed. Fig. 4 is a side view of one of the setter-blocks. Fig. 2 is a front view of the same in two positions on the inclined plane, same scale as fig. 4. *f* is the foundation secured to the carriage, having four vertical racks *g*, one at each corner, over which the base-frame *h* slides. On the upper side of this frame *h* is fitted the vertical piece *k*, whose base k^1 has a sliding motion in a dovetail groove transversely to the carriage, and is constructed with two vertical sliding-dogs n^1, which may be moved up or down by pinions and racks, so that when the log is laid upon the base-frame *h*, these dogs secure it above and below; the under side of the frame *h* has a friction-roller *l* attached to it in such position, that that on one of the setter-blocks shall pass over the inclined ways *m*, whilst that on the other passes over the inclines *n*; these inclines are pivoted to the stationary framing of the machine at one end, and rest on movable supports *o* at the other when elevated; the friction-rollers ascend their respective inclines immediately after a board has been severed from the log, and during the passage of the end of the log by the saw the distance of its diameter, thus elevating the setter-blocks, and with them the log, to any given height, which may be regulated by the pitch of the inclines; during its rise the elbow-

lever *p*, which is attached at its angle, by a link or jointed-rod *q*, to the under side of the frame *h*, and at one of its arms, by a bracket *r* and link r^1, to the foundation *f*, changes its position and assumes that represented in dotted lines in fig. 4; the vertical arm slipping one or more notches in the under side of the base k^1 of the sliding vertical piece *k*, according to the height it is raised by the pitch of the inclined plane; when at the top of which, the roller *l* touches support *o* and forces it back, and, liberating the top of the inclined plane, allows it to drop, when the setter-blocks, by the weight of the log upon them, settle down to their original position, in doing which the elbow-lever *p* re-assumes its former position, its vertical arm carrying forward the dogs by being locked in a notch further back in the under side of the base k^1 than that occupied by it before rising, and thus carries the log forward the thickness of the board to be cut, both of the blocks operating as above, simultaneously. The circular saw D is so hung that its position can be changed from that shown in the engravings to that represented by dotted lines in fig. 3, for the purpose referred to in the second part of the claim.

I *claim* the method of setting the log forward after each board is severed, by mechanical devices operated by the weight of the log, substantially as specified.

2d. The method described of cutting from either end of the log with a circular saw, by hanging the saw in a vibrating frame, or its equivalent, so that the axis of the saw may be above the log when cutting from one end, and beneath it when cutting from the other end, so as to cut either way against the grain of the wood.

I claim the self-setting arrangement described, whether in connexion with the circular saw, or the single or double edged reciprocating saw, as equally applicable to either.

No. 13,670.—George W. Worden.—*Gauge Attachment for Sawing-Machines.*—Patented October 9, 1855. (Plates, p. 243.)

The stuff to be sawed (represented by dotted lines in figure 2) is placed upon platform A, one side of the stuff bearing against the face of gauge E. The stuff, by being held against gauge E, will press within its slot *e* the arm *d* at the outer end of lever G, and force out from its slot *e* the other arm *d* at the inner end of the lever. The stuff is pressed towards the saw C, and the arm *d* at the inner end of lever G will throw the stuff out from the face of the guide E, and present it obliquely to the saw. When the saw has entered the stuff a short distance, the back end of the stuff will be past the arm *d* at the outer end of lever G, and the lever then swings free, and the stuff is pressed towards the saw, and a strip of wedge-form sawed from the block.

Claim.—The vibrating gauge, formed of the lever G, with arms *d d* attached to its ends, the lever working on a pivot *c* attached to one of the arms F of the sliding-gauge E, and the arms of the lever G working horizontally through the gauge E, substantially as shown, for the purpose specified.

No. 13,715.—Luther B. Fisher.—*Improved Device for Gauging and Setting Saw-Mill Dogs.*—Patented October 30, 1855. (Plates, p. 244.)

The stop *i* is first placed upon serrated plate *l* fastened to the carriage, in the notch indicating the required feed, lever *f* being in position of figures 1 and 2, resting on stud *q*, bar *h* being at that time tightly held by ratchet-rim *m*. The lever *f* is lifted, causing the rotation of the ratchet R until the bar *h* strikes the stop *i;* the lever *f* then falls, causing the tapering stud *n* to press on bar *h*, and remove the said bar from the teeth of the ratchet-rim *m*, when the bar is carried round to stop *p*. The progress of the lever being stayed by stud *q*, the bar *h* being no longer acted on by the stud *n*, spring *g* carries it between the teeth of the ratchet-rim *m*, and the ratchet is ready for the next feed. The object of this construction is, making the limit of the ratchet movement independent of the movement of the operating lever *f;* for when the amplitude of motion is governed by the striking of a stop by the lever, the slipping of the pawl entirely destroys the accuracy of the feed; and as, by wear on pawl and teeth, this accident is liable to obtain, it becomes necessary to guard against it. This is done by spring-bar *h;* for if the pawl slip several teeth, the lever will move on until bar *h* strikes the stop, and the amount of the revolution of ratchet R will be the same, no matter how often the pawl may have slipped.

The inventor says: Making no claim to ratchet, pawl, and lever for giving the feed, I *claim* the spring-bar *h* in combination with the ratchet-rim *m* and lever-stud *n*, constructed, arranged, and operating substantially as and for the purposes specified.

No. 13,755.—Horace Lane.—*Saw-Horse.*—Patented November 6, 1855. (Plates, p. 244.)

The block of wood having been placed upon the saw-horse, the lever C is to be pulled back until the cord L has drawn the slide H (to which dog I is attached) down sufficiently, so that the block will be held tight by the dog. By throwing the pawl D out of the teeth of ratchet B, the dog will be caused to rise from the block of wood by the action of the spiral spring K.

The inventor says: I *claim* the use of the spur I to hold the wood or timber in its place on the saw-horse, while the sawyer is sawing the wood or timber into fire-wood, or into short pieces.

Also, the use of the roller, the ratchet-wheel, the lever, the dog and spring, the cord, the pulley-wheel, the slide, the arbor, and the groove and spiral spring, combined with the common saw-horse, substantially as set forth, and for the purposes stated.

I do not make any claim on the common saw-horse, but for the improvements on the same, as set forth.

No. 13,716.—Isaac N. Forrester.—*Improved Method of Hanging Mulley-Saws.*—Patented October 30, 1855. (Plates, p. 244.)

The flanges or ear-guides *n n* are riveted to the saw-blade, and are

so arranged that the point of connection is in a vertical line with the base of the teeth, as indicated by the arrow *z*. The lower end of the blade may be hung in the same way, or merely a hole punched in a line with the base of the teeth, and by this hole attached to the end of the pitman. The ears *n n* slide in vertical ways attached to the frame of the machine. By this means the back edge and all the blade part of the saw is free from rigidity or stiffness. The ways (called grooves or guide-places in the claim) are not represented in the engraving.

The inventor says: I *claim* the manner or mode of hanging saw-blades, by forming thereon, or attaching to the front edge only of one or both ends, devices which I term saws or guide-flanges *n n* (figure 2); and the working or applying the same in grooves or guide-places *g g*, whereby the back edge and principal part of the saw-blade is free and unrestrained, and without any rigidity or stiffness other than that of the blade itself, substantially as set forth, and for the purpose specified.

No. 13,932.—Amos D. Highfield, assignor to Himself and Wm. H. Harrison.—*Method of Adjusting Circular Saws Obliquely to their Shafts.*—Patented December 11, 1855. (Plates, p. 244.)

By changing the relative positions of the two washers E F, the saw G can be set more or less oblique. When the thinnest portion of E coincides with the thickest portion of F, the saw will be at right-angles to the spindle A.

The inventor says: I do not claim the exclusive use of oblique circular saws for cutting grooves, as such are well known; but I *claim* the employment of two bevelled washers between a fixed collar on the spindle and the circular saw, in the manner and for the purpose specified.

No. 13,938.—T. C. Bush.—*Improved Saw-Set.*—Patented December 18, 1855. (Plates, p. 244.)

One of the scores *n* (adapted to the thickness of the saw) has to be set between the arms E J, and fastened by set-screw H. The operator then applies the score *n* to the teeth of the saw, and vibrates the handle B, and bends the teeth in each direction until the gauge-screws K F strike the plate of the saw and stop it from vibrating any further, so as to make the set of the teeth uniform.

Claim.—The additional guard or stop J, so constructed and arranged as to enable the operator to set the teeth of a saw alternately in each direction, without reversing the instrument or the saw, substantially as described.

No. 13,944.—Henry C. Green.—*Improved Automatic Feed-Motion for Saw-Mills.*—Patented December 18, 1855. (Plates, p. 244.)

The object of this improvement is to regulate, automatically, the feed of the log to the saw. As the saw-shaft B revolves, motion is given to the governor D by belt E, and the cones L L by belt *d*, and motion is given

to the log-carriage by means of shaft Q and belt T. When the thick end of the log is being sawed, the saw has considerable work to perform; and consequently, the carriage moves moderately along, and gradually increases in speed as the thickness of the log diminishes, in consequence of the arm K moving the belt N along on the cones L L, the arm K being operated by means of the rack-bar J and pinion *c*. If the saw C binds and rotates very slowly in consequence, the collar G on the governor-shaft will be depressed, and the upper wheel F will gear into pinion H, and a reverse motion will be given to the arm K, so that belt N will cause the inner cone to rotate slower than the outer one and diminish the feed; and if the saw still continues to bind, so as to bring it down to less than its required number of revolutions, the arm K will cast the belt N off on a loose pulley at the large end of the inner cone L, and the feed will then be stopped until the carriage is gigged back and the saw relieved.

Claim.—The combination of the cones L L, governor D, and pulleys S S, arranged and operating substantially as shown, for the purposes specified.

No. 13,964.—Isaac Spaulding.—*Improved Saw-Set.*—Patented December 18, 1855.) (Plates, p. 244.)

The saw is placed so that it rests on the elevating screws D D, by which the back of the saw is raised or lowered, so as to give the required set to the tooth with the teeth upon the anvil H, the tooth to be set directly under the punch F and in the angle of the slide E. A blow being struck on the punch at F, the operation is completed.

Claim.—The construction of the slides E, substantially as set forth, and their arrangement with screws D D and H, and punch F, operating in the manner described.

No. 13,982.—Soranus Dunham.—*Improved Method of Hanging Saws.*—Patented December 25, 1855. (Plates, p. 245.)

The object of this improvement is to get rid of the strain which occurs in the usual mode of hanging the saw in a saw-frame. *a c* are the beams of the saw-frames, hung on rocker-shafts *b* and *d*. At each end of the stiffening-bar *h* is fitted a wedge-shaped step *l m*, the edge of which sets and plays in a groove in bearing plates *n o*, secured to said beams *a c*. The upper step serves as a nut, having a female screw cut in it, in which the male screw *p* (set firmly in the upper end of bar *h*) works, and by turning this bar round in one direction or the other, (provision being made for the turning in the lower step *m*,) the bars *a* and *c* will be spread apart or allowed to come together, so as to strain the saw properly. The saw *k* is set in forked plates *r*; screw-rods *s t* project from said plates, and pass through the ends of beams *a c* and through wedge-shaped steps *u u*, and are confined by nuts *x w*. These several wedge-shaped steps tilt in their respective grooves, and by so doing, when the saw-frame is moving with a reciprocating curvilinear motion, they provide for the necessary play of the saw and stiffening-

bar *h*, at the same time keeping the parts properly strained. The saw receives motion by means of crank o^1 and pitman d^1.

Claim.—1st. The improved mode described of hanging the saw, when the frame in which it is hung has a reciprocating curvilinear motion, so as to provide for the necessary play of the same at its ends, said improved mode consisting in supporting and confining the saw at one end, or both its ends, in wedge-shaped steps arranged to tilt in proper grooves, in the manner and for the purpose explained.

2d. The vertical stiffening and regulating-bar, with its ends arranged in the wedge-shaped steps, and with one end made susceptible of the adjustment, as explained.

No. 13,989.—Westel W. Hurlbut.—*Improved Method of Hanging Circular Saws.*—Patented December 25, 1855. (Plates, p. 245.)

The saw D is hung upon the shaft C, which has its bearings F attached to the movable slides G; the arm H extends from the bearing F to the cross-bar of the frame, passing around the edge of the saw, and forms the guides for the edges of the saw, as seen at L L^1. J is another arm, connected with the bearing F and arm H, and extends in the opposite direction to the back end of the machine, and is there attached to the knife, or opening-wedge K. The arm J has a flange similar to the one on H, which flanges serve to secure both said arms in their proper position, respectively, by means of the screws O and *n*.

The object of this arrangement is that the saw-guides L L^1 may assume their proper positions, when the saw D is set or regulated for splitting or re-sawing the board, either square or diagonally, thus permitting the guides for the board A A^1 and B B^1 to remain in all cases in an upright position.

I *claim* the arms H I, as connected with the saw-guides L L^1, the bearing F, and the opening-wedge K, in such manner as to adjust with the movement of the saw D.

No. 12,137.—Adrian V. B. Orr.—*Shingle-Machine.*—Patented January 2, 1855. (Plates, p. 245.)

The object of this invention is, first, to split the shingle from the bolt in such a way that the side of the bolt from which it is taken shall always be left smooth, thus leaving one side of the shingle smooth after the operation of splitting; and, secondly, to place that smooth side down on the platform over which the shaving-knife works, so that the piece shall be tapered and finished at a single stroke of the knife.

The frame D which holds the splitting-knife *d* slides in grooves *g g* in main-frame C, and it has two faces *a* and *b*, the face *b* being in a plane with the splitting-knife, the other with the free side of the shingle, the object of which is to allow the piece, when split off the bolt, to pass through without bending.

The piece being placed with the smooth side down on the platform R R, over which the shaving-knife *f* works, and kept from sliding by the hold-fast *s* (which latter projects through an opening in platform R),

is now pressed close to the platform by roller *n*; the knife-frame P is put in motion through crank *o*, and, guided by the lower part of grooves T T, follows the roller and cuts the piece to the proper shape and thickness; then in its back motion along the upper part of grooves T T, rising from the platform, lifts lever A, in consequence of which hold-fast *s* is depressed below the surface of platform R, allowing the finished shingle to slide down the somewhat inclined platform.

Claim.—1st. Constructing the frame or slide D of the splitting-knife with two faces *a* and *b*, the one being the thickness of a shingle in advance of the other, as described and for the purpose set forth.

2d. The device of raising the shaving-knife *f* from the platform R R, during its back-motion, for the purpose of allowing room for the introduction of the piece to be shaved, substantially as described.

3d. Moving the hold-fast *s* up and down by the means described, so as to have its use, when wanted; and then removing it out of the way of the finished shingle, in its descent, as already set forth.

No. 12,206.—J. W. Hatcher.—*Rotary Shingle-Machine.*—Patented January 9, 1855. (Plates, p. 246.)

There is attached to the under side of each of the cross-bars B B (at opposite ends) a knife C. The cells G, in the wheel F, have the length of a shingle, and little more than double its width, the depth of one end of each cell being equal to the thickness of the thick end of a shingle, and the depth of the other end of the inner cell something deeper than the thin end of a shingle, and of the outer cell the thickness precisely of the thin end of a shingle. Each cell has a revolving cylinder or axle H; from the under side of which extend two metal strips I I, in grooves cut for the same in the cells. Cords K and *m* pass through holes in the wheel, and connect each of these axles with a spring *n* and a lever L. A hole is bored through the wheel in each cell, outside the axle H, in which plays a bolt *b*, attached to a spring acted upon by levers O, which levers are worked by stationary beams S S. P is the feeder. As the wheel revolves, the inner half of each cell in turn passes under the feeder and receives a shingle. This is shaved on one side as it passes under C. The lever L then passes over S, thereby turning the cylinder and strips, and depositing the shingle, with the unshaved side up, in the outer half of the cell, while spring *n* draws the cylinder back to its old position. The shingle then passes under the other knife and is thrown off from the wheel by the bolt acted upon by the lever O, which has been set in motion by passing over S.

Claim.—Taking the shingles singly from an oblong feeder, open at the top and bottom, and partially so in front, by cells cut in the wheel; turning the shingle, after one side has been shaved, by means of a cylinder with bars attached, acted upon by a lever, and returned to its place by a spring, and throwing the shingle off the wheel by means of a spring-lever, after both sides have been shaved. The machine itself, when fed with rifted shingles, shaving both sides and turning out the shingles complete.

No. 12,600.—Chas. Leavitt.—*Shingle-Machine.*—Patented March 27, 1855. (Plates, p. 246.)

In operation the handle *q* is placed in notch 8, thus lowering the table *k* (by means of shaft *p*, pinion *m*, and rack *l*) to its lowest point; the bolt is placed on *k* and the machine is put in motion, and a piece sufficient to make eight shingles is split off by froe *h*, and sapped by the froe *s*; the upper part is thrown aside, and the handle being placed in notch 4, the froe subdivides the remaining piece into equal parts, and so on in the following rotation: 6, 7, 5, 2, 3, 1.

The shingle-holder consists of a wooden tail-block *t*, and two pieces *u* and *v*, placed horizontally between the guides *w*, *v* being fixed in mortises, and *u* in slots which admit of horizontal motion. Between these two pieces is a spring *x*, keeping *u* and *v* apart, but yielding to inequalities in the length of the shingles. The knives d^1, pivoted in *z*, have long lever arms, which, overbalancing the forward portions, rest upon bar a^1. When the plane-stock is forced forward, the levers are necessarily elevated by the bar a^1, and the cutting-edges of the knives describe arcs, which produce drawing-cuts on the edges of shingle e^1.

Claim—1st. The elastic table *k*, capable of being elevated and depressed by the means described, or their equivalents, in combination with the froe or splitting-knife *h*, substantially in the manner set forth, and for the purposes specified.

2d. The elastic shingle-holder, constructed and arranged substantially as described, and for the purposes specified.

3d. The jointing-knives d^1, pivoted to the plane-stocks, in combination with the bar a^1, substantially as described, for the purpose of jointing the edges of the shingles with a drawing-cut.

No. 12,842.—Andrew P. Wilson.—*Shingle-Machine.*—Patented May 8, 1855. (Plates, p. 246.)

The gate *s s s s*, which carries on its under side the two-edged knife *e*, being drawn to one end of the slides *f f*, the block in the box *o n o* falls on the slats *l l* on the door *t*. These doors *t t* are supported by slats *q* underneath, which are fastened to the frame *a* by means of bolts, which pass through oblong slots in the slats *q*, so that one end of one door can be lowered and the other end of it elevated, in order to give the shingle the desired thickness and taper. The springs *m* on the under side of the door extend a short distance under the knife, to support the shingle while it is being cut. The cleaners *g g* are attached to the under side of the cross-ties *c c*, and, extending from the ties towards the knife, reach down to the doors, and are provided with grooves (figures 5 and 6) for the slats *l* to pass back and forth with the gate.

When the gate passes back, it brings the knife in contact with the block, which rests on the slats *l*. The knife commences cutting the shingle, which passes under the knife, and is supported by the springs until the knife passes under the cross-tie *b* and over the cleaner, which cleans the shingle from between the knife and springs. The knife, having passed under the tie *b*, permits the block again to fall upon the slats on the door, on the opposite side of the knife. The gate, in passing back again, brings the knife in contact with the block again, which, having fallen on the door opposite to the first, reverses the new shingle to be cut, taking the butt of the second shingle from the end of the block from which the top of the first was taken, and so on alternately.

Claim.—The mode of adjusting the block out of which the shingles are to be cut, as set forth in the above specification, by means of the adjusting slats *q q q q* (figure 4) underneath the doors *t t*, and also the springs for supporting the shingle, as set forth above; also, the cleaners *g g*, for the purpose of cleaning the shingle from between the knife and springs, and for the purpose of keeping the doors *t t* clean from all substance that may fall on them.

No. 12,848.—John Taggart, assignor to Himself and Nehemiah Hunt.—*Machine for Sawing Wedges or Shingles.*—Patented May 8, 1855. (Plates, p. 247.)

The main carriage C has a reciprocating longitudinal motion. The stationary lifters consist of rollers L M attached to the cross-bars P; so that when the carriage carries a lifter-catch G or H into contact with either of the rollers, it raises the catch out of its notched rack D or D^1, and this before the adjacent lever I or K is moved into contact with the rail next to it, N or O. When the friction-roller *y*, at the end of the lever I or K, comes into contact with the rail N or O, its lever will be turned on its fulcrum so as to draw towards it the arm *h*, and thereby turn the bearer F, so as to move the raised lifter-catch directly over the next notch of its notched rack, while the other lifter-catch remains in a notch in the other notched rack. This operation produces a slight forward movement of the carriage E, or feeds it up to the saw, at the same time causing the bearer F to be turned horizontally.

The block, from which the shingles are to be sawed, being made to rest against the front edge of the bearer, and being fastened to it, will not only be turned or vibrated with the bearer, but will be moved forward with it, so as to cause the saw, during each horizontal movement of the carriage, to cut from the block a shingle, commencing the cut at the thinner edge and terminating it at the butt end of the shingle.

Claim.—The peculiar combination of mechanism employed for moving the bolt forward, and changing its position so that a shingle or wedge shall be removed from it by the saw during each longitudinal movement of the bolt produced by the main carriage; the said combination consisting of the carriage E, the turning-bearer F, its lifting-catches G H, the notched racks D D^1, the two levers I K, the stationary lifters L M, and the stationary rails N O, the whole being combined with the main reciprocating carriage and the frame of the machine, and made to operate together and with the circular saw, substantially as specified.

No. 13,155.—A. C. Billings and B. H. Ruggles.—*Machine for Riving Shingles.*—Patented July 3, 1855. (Plates, p. 247.)

As the wheel C rotates, the pin *c* thereon. in consequence of being fitted in the curved slot *b* of lever G, gives said lever a vibratory movement, and the gate I is consequently operated with a vertical reciprocating movement. The block A, from which the shingles are cut, (represented by broken lines.) is secured to the part *f* of the head-block N by clamp O. When the gate I has nearly reached the length of its upward stroke, the wedge-shaped projections *k* will act against the end of lever Q. and the pawl *n* will act against the rack M and feed the carriage L along, so that the edge of the block will be underneath the knife J in the gate. The head block and carriage are shoved back by hand by operating lever *p*, and throwing the pawl from the rack. The spring P allows the head-block N and block A to yield in case of any unusual resistance offered to the vertical stroke of the knife, such as knots, &c.

Claim—1st. Giving the proper feed-motion to the carriage L by means of the inclined or wedge-shaped projection *k* on the gate I, lever Q, and pawl *n*, which acts against a rack on the under side of the carriage L, as shown and described.

2d. Connecting or attaching the head-block N to the carriage I by means of the spiral spring P, for the purpose of allowing the head-block to yield or give when necessary, as set forth.

No. 13,475.—Chas. Ketcham, assignor to Chas. G. Judd and Andrew Oliver.—*Machine for Sawing Shingles.*—Patented August 21, 1855. (Plates, p. 247.)

Ratchet-wheel M is driven by a lever attached to the gate, and screw-shaft G revolves with the ratchet-wheel; the screw-shaft moves the half-nut K, and the nut moves the block E by means of arms I, the arms I terminating in a clasp which holds the block E; the clasp has at its lower part a ring I, which slides on guide-rod H. From a bolt in the lower end of the clasp extends a rod connecting it with the inclined plane O, for which it serves as a guide. Brace P extends from the nut K to the same bolt, which fastens the rod above mentioned to the inclined plane. These two rods or braces communicate the feed-motion to O. The block-holder C is hinged, and supported by braces *s*. The receiver D supports the shingles when sawed, and receives the shingles, and, being movable, may be drawn back with its contents by lever B clear of the saws. The inclined plane O during its motion raises roller *o*, which, being attached to a coupling uniting the two wedges S S, raises them. The wedges are adjustable by lengthening or shortening the coupling, and are secured by clasps *q*; they (the wedges) communicate a lateral motion to rollers *n*, which, being attached to guide R, move it towards the centre of the machine. This lateral motion is communicated to the movable parts of the gate by means of friction rollers *m*. The gate holds the movable saws *x* hung in the lines they are designed to cut, and the saws of course move laterally together with the gate. By lengthening or shortening the coupling of wedges S, the movable saws can be set to cut lines in any desired direction in respect to the stationary saws *z*, moving the rollers *n* to another place on guide R, and changing the inclination of the plane O, as may be necessary. X X are binding rollers which hold the material while being sawed, and they are moved up and down in ways by racks *d* (connected to the boxes of the roller-shafts) and pinions on shaft *e*, which latter may be turned by means of a hand-wheel or crank.

Claim.—1st. The feeding-trough C for containing the shingle or stock-block E, constructed as described and arranged, in relation to the means for feeding and the means for cutting, as set forth.

2d. The receiving-trough D, having the grooves in it to receive each shingle while being cut, and holding them sufficiently to permit their easy and ready removal from the saws in compact and orderly condition.

3d. The arrangement of the adjustable inclined levers O O and adjustable wedges S S in relation to each other, and to the means for feeding, and to the saws for the more perfect and accurate adjustment of the movable saws, as herein set forth.

4th. Holding the stock-block within the troughs C and D by pressure exerted in the line of the edges of the shingle, being cut by means of the rollers X X, or their equivalents, held and moved substantially as stated, in contradistinction to the holding of the block by lateral and end pressure, as is usual in shingle-making machines, so that the shingle being cut is neither pressed upon the sides of the saw, as must occur when the lateral pressure is used, nor the block upon the teeth of the saws, as must occur when end-pressure is made.

No. 13,555.—Henry J. Weston.—*Improved Construction of Beds for Shingle-Machines.*—Patented September 11, 1855. (Plates, p. 248)

The block of wood T being placed on the bed-plate R R^1, which is supported by elliptical springs, and is divided into two parts R and R^1 to allow the part R (when the part R^1 is forced below its natural position by the casually increased thickness of the piece V separated from the block) to rise to its proper position to form a gauge for the next succeeding piece which is to be split from the block by the next succeeding forward motion of the driver P.

I do not claim the general principle of splitting off a piece from the block thick enough to make two or more shingles, and then subdividing it; neither do I claim the combination of two or more riving knives for that purpose.

But I *claim* making the yielding-bed R R^1 in two parts, and arranging those parts in the manner described and represented.

No. 13,666.—WILLIAM J. SCOTT.—*Improved Method of Feeding the Shingle-Bolt to Knives.*—Patented October 9, 1855. (Plates, p. 248.)

H is the knife-frame. The carriage F, for holding the block, is provided with racks *a a*, which are fed forward alternately by the arms *d d*, which are attached to each end of shaft D, and so adjusted that they operate alternately upon the two racks, for the purpose of feeding the carriage, in such a manner that at each stroke of the knife its face is at the required angle with said knife *h* in the ratchet attached to shaft D; said ratchet is rotated by means of the hand *g*, which is attached to one end of the lever *i*, whilst lever *i* receives a vibratory motion from the knife-frame H, to which it is attached by the rod Q passing through the stand *t*. *r r* are two adjustable stops, against which the stand *p* (which is attached to the knife-frame) strikes alternately in its upward and downward motion, thus giving the vibratory motion to the lever *i*, which is communicated by the hand *g* to the ratchet *h*, from thence through the shaft to the cams *v v*, which operate upon two racks *a a*, and thus feed the carriage; bearing the block to the knife E E are the handle cams for throwing down the arm M, for the purpose of allowing the carriage to be run back to receive another block, and repeat the operation already described. L L are two bars, to which the arms M M are pivoted, said bars being adjustable for the purpose of more readily adjusting the arms M M. *k k* are two springs for keeping the arms M M in gear with the racks *a a* when the cams are thrown up. *l* is a spring attached to the lever *f* to throw the hand *g* over the tooth of the ratchet *h*.

Claim.—1st. The application and construction of the two-handled cams *v v*; also the adjustability of the arms M M, by means of the bars L L, as described.

2d. I claim the combination of the rocking lever *i*, clutch or hand *g*, lever *f*, and spring *l*, with the knife-frame, for the purpose of feeding intermittingly the block to the knives in the manner described.

No. 13,958.—JOEL TIFFANY and MILO HARRIS.—*Shingle-Machine.*—Patented December 18, 1855. (Plates, p. 249.)

The shingle (represented in thick broken lines) is placed with its point against the head-block of the carriage; the operator draws the driver forward, and thereby causes the primary carriage to force the shingle far enough forward to place the butt of the shingle between the grippers F F. At this moment the pins *g g*, on the driver, act upon the outer ends of the grippers to firmly grip the butt of the shingle, and consequently to draw it between the knives B B and B^1 B^1. As the shingle passes between the knives, they gradually approximate each other by reason of the projection *k*, on the knife-carriage, sliding in and being acted upon by the oblique grooves I in the driver, and thus it receives the proper taper form; the knives B taking off the rough, and B^1 smoothing it from butt to tip.

Claim.—Providing a primary and secondary set of knives B B^1; a primary and secondary set of feed-rollers C C^1, and obliquely grooved driver D D^1 D^2; a primary feed-carriage E, and a pair of secondary feed-grippers F F; and arranging and combining the whole in the manner and for the purpose specified and shown.

No. 13,084.—GEORGE FETTER and JOS. L. PENNOCK.—*Machine for Cutting the inside Hold of Shovel-Handles.*—Patented June 19, 1855. (Plates, p. 249.)

The handle V is clamped upon carriage P, the outer edge of the hold *e* having been previously rounded in any proper manner. Motion is then given to shaft F, and cam G first acts upon the upper side of frame H and elevates the frame and sector I; and as rack K, on the sector, gears into rack N on the half cylinder M, said cylinder will be turned or moved in the grooves *b* in the projections L L, and cutter O will sweep over the upper half of the inside of hold *e* at one end, it being understood that one end of the hold is placed in contact with the cutter at the commencement of the operation. The cutter, therefore, during the movement above described, cuts a transverse groove on the inner side of the hold *e* at one end. The cutter now remains stationary as the cam G passes over the upper edge of frame H, and cam T acts against projection *d* of rack S and moves it; and as this rack gears into segment rack R of carriage P, the carriage is also moved, and the whole length of hold *e* is forced past the cutter O, which cuts or rounds the upper part of its inner side. As soon as projection *d* is relieved from cam T, the carriage is thrown back to its original position by spring U. Handle V is then reversed upon the carriage P, and the opposite side of the inside hold is cut by repeating the operation above described.

Claim.—1st. Cutting the inside hold of D-shaped handles for shovels, spades, etc., by means of a curved cutter O, so operated as to pass one half way round one end of the hold, the cutter smoothing or rounding a portion of said hold equal to its width, and then remaining stationary, while the handle is moved to force the remaining uncut portion of the hold past the cutter.

2d. We claim operating the cutter O, by means of the cam G, frame H, geared sector I, and half-cylinder M, to which the cutter is attached; also, operating the carriage P, to which the handle V is attached, by means of the cam T and racks R S. The above parts being arranged and operating conjointly as shown and described.

No. 12,424.—SAMUEL R. SMITH and ELIJAH COWLES.—*Machine for Cutting Wood into Slivers.*—Patented February 20, 1855. (Plates, p. 249.)

The cutters *t* are attached to cutter-stocks X (of which the engravings represent only one). The cutter-stock fits over an arm V, which is fast on shaft B, and rotates with it. The slot *x* in the arm *w* of the cutter-stock fits over the ledge *y*. This ledge has an irregular curved portion *z*, which moves the cutter-stock so as to cause the cut-

ters to pass over the stuff a^1 in a straight line. Thus the shavings will be cut in the direction of the grain.

As the hollow shaft F rotates, screw L communicates motion to worm-wheel K, and shaft J rotates, and cord *e* is wound upon one part of clutch *g*, weighted lever H is raised, and (as rack G gears into *c*) shaft B is gradually depressed, and the cutters are fed to the stuff. When the cutters have descended a distance equal to the thickness of the stuff, the clutch *g* is disconnected by the automatic operation of parts C M O, etc., the feed-motion ceases, and the cutters are raised and adjusted for a new cut.

Claim.—1st. Giving the necessary feed-motion to the cutters by means of the lever H, with the segmental rack G attached to one end, which rack gears into the recesses *c* cut in the lower end of the shaft B, the opposite or weighted end of the lever being raised by the cord *e*, which is wound around a clutch *g* on the shaft J, motion being given the shaft J by the worm-wheel K and screw L, substantially as shown.

2d. Giving the necessary direction to the cutters while passing over the stuff a^1, by means of the rim or ledge *y* on the disc Y, said rim or ledge having a bent or curved portion *z*, which, in consequence of the arm *w* working upon it, communicates the proper motion to the cutter-stocks, so that the cutters will pass over the stuff in a right or straight line, as described.

No. 12,459.—Asa Landphere and Samuel Remington.—*Spoke-Machine.*—Patented February 27, 1855. (Plates, p. 250.)

When the stuff F first arrives under the cutters L L, both these sets of cutters are forced away from the centre of the machine by the pins *m* m^1, (travelling along the properly curved profile-plates *g g*,) and only the straight parts *n o* of the cutters are allowed to come in contact with the stuff (see figure 4) and plane the top flat, as the first part which is acted upon is to form the shoulder of the spoke; as the carriage moves on, the pins *m* m^1 are allowed by the form of the profile-plates to approach the centre of the machine, and the curved parts of the cutters come into operation. The profile-plates *g g* direct the movements of the cutters laterally to the stuff, and the ways g^1 g^1 (against which the screws *o* o^1 rest which support the cutter-frames) direct their vertical movement, and thus regulate the form of the longitudinal profile of the stuff. One side of the shoulder is planed by the cutters *p p* on disc P^1, whose position is regulated by arm *r* and profile-plate *s*, which also serves to guide the disc and cutters out of the way of the wheels *b* b^1. When the stuff has passed through, the carriage is run back, the stuff is half-way turned round, and then again subjected to the planing operation, as above described.

Claim.—The dressing of spokes by means of a series of revolving cutters, whose edges present an oblique profile in part of the spoke, when said cutters are so arranged on their shafts as to reduce the spoke in narrow longitudinal sections, by which means much more smooth work is obtained than when the cutters reduce the spoke at one single operation, as set forth.

No. 13,408.—William Van Anden.—*Spoke-Machine.*—Patented August 7, 1855. (Plates, p. 250.)

F^1 and F^2 are the cutter-holders, arranged on axles B^1 and B^2 in pairs, so as to cut, by means of the stationary and adjustable cutters G and H, the four sides of the spoke simultaneously and longitudinally, as the spoke is carried through the space between their curved cutting-edges. These holders are secured by pins *f* entering slots *g* on the axles, so as to allow of a lateral adjustment of the cutters at the same time that they are rotating, so as to vary or shape the sides of the spoke to the required pattern. Cutters G are fixed in the face of the cutter-holders. The cutters H have an adjusting lateral motion in the cutter-holders. When the spoke is nearly finished, the side-edges of it are squared; and as the lateral motion of the holders is uniform in its action upon all the cutters, it therefore becomes necessary to give the side-cutters an independent lateral motion to that of the holders. As the holders are separated, the shanks of the cutters H come in contact with fixed collars I, which forces the cutters out beyond the faces of the holders, and thereby flattens or squares the sides of the end of the spoke. Arms K are secured to the middle of yokes J, to which arms pins L are secured, which straddle guides M attached to bed N of the spoke-rest carriage, which guides govern the width of the spoke as well as the shape of it, as they move forward by the forward motion of the spoke-rest carriage. To the centre of the middle one of each set of double-acting levers V are secured the ends of pawls W, the tail-ends of which rest upon cams X. These cams govern the shape of the spoke, acting by means of the pawls upon the levers and upon the boxes of the cutter-holder axles, thereby increasing or decreasing the distance between the upper and lower sets of cutters, according to the irregularities in the shape of the cams.

Claim.—1st. The use of the upper and lower adjustable cutter-holders, made adjustable laterally on their axis, substantially as described, in combination with the curved stationary cutters G, and adjustable cutters H, and collars for adjusting the same, or their equivalents, for the purpose substantially as set forth.

2d. The use of the adjusting yoke and the attachments thereto for adjusting the cutter-holders, or their equivalents, in combination with the cutter-holders and guide-ways on the spoke-rest carriage, or their equivalent, substantially as set forth.

3d. The use of the double-acting adjusting levers, or their equivalents, for the purposes set forth, in combination with the cutter-holders and their axles, and their combination with the pawls attached to the double-acting adjusting levers, and cams for operating the same, or their equivalents, for the purposes substantially as set forth.

No. 13,731.—Owen Redmond.—*Spoke and Axle-Helve Machine.*—Patented October 30, 1855. (Plates, p. 251.)

The bed C is supported by journals *c* and *d*, the journal *d* being wrapped with a spring *i*, fastened at its outer extremity to the bottom

of table B, and its inner end secured to the journal *d*. Two pieces of stuff are secured to the two faces *n* and *m* of bed C by means of dogs *l k* and l^1 k^1. The movements of the cutter-heads, in combination with the forward motion of the bed, cause the cutters to impart to the upper portion of the stuff the form of one side of a spoke. By this time the forward movement of table B has brought the lower end of catch *j* in contact with stud b^* on the side of frame A, moving it in the direction of the arrow and releasing arm *f*, (attached to journal *d*,) which by action of spring *i* flies up until it strikes shoulder c^*, bringing face *n* of bed C flush with the upper face of table B, so that the stuff secured thereto occupies the place of that secured to face *m*, and previously operated upon as above mentioned. The motion of table B will be reversed by means of driving-band L being shifted to pulley J, and the stuff on face *n* of bed C will now be submitted to the action of the cutters during the backward motion of the table.

Axe-handles may be shaped upon this machine by removing bed C and inserting in the table B either of the beds X, Y Z, instead thereof; the stuff to be first sawed in the curved form required for the axe-handle and secured upon one of its curved edges, when bed X is employed; when bed Y Z is used, the stuff is secured on a flat side to the swinging plate X^1. This plate is acted upon by a spring d^* so as to have a tendency in the direction of the arrow, and when moving with table B, has its edge f^* pressed upon by the adjustable guide m^*, so that the stuff shall pass under the cutters in a serpentine direction. The beds here represented will fashion but one side of the handle; others, the reverse in form being required for forming the opposite side.

Claim.—1st. The partially revolving bed C, constructed, arranged, and operating substantially as described, so as to submit different pieces of wood to the action of the cutters at its forward and backward movements, substantially in the manner set forth.

2d. The bed Y Z, having a laterally swinging spring-plate X^1 in combination with the adjustable guide m^*, for submitting curved timber to the action of rotary cutters, in the direction of its curve, substantially as specified.

3d. The curved bed X, traversing with an undulating movement, for submitting curved timber to the action of rotary cutters, as set forth.

No. 13,882.—Thos. R. Markillie.—*Improvement in Spoke-Machines.*—Patented December 4, 1855. (Plates, p. 251.)

On the end of the rails of the carriage S a bed-plate *m* is firmly bolted. From this plate rise the standards *p*, from which standards two arms *q* are suspended by a bolt; these support a plate *r*, which carries the block in which the adjustable tracer *s* is fastened. At one end of this plate are two standards which support the shaft of the cutter-wheel M. At the other end of plate *r*, which slides in guides *t*, is a spring *u*, having its motion in the direction of the tracer. This spring, when the cutters are thrown out of gear by the cam U on the end of pattern V, acting on the tracer *s*, holds them in that position until the

carriage has been again drawn back, when the spring is freed from its catch *t* by its curved point, which projects over the plate *m*, striking against beam N, when the plate carrying the cutter is drawn forward towards the blank W until the traces come in contact with the pattern, and held in that position by a weight attached to a cord passing over the sheave *n*, having its other end made fast to plate *r*. By this arrangement of the cutter and tracer on the same bed-plate, having a reciprocating motion, a duplicate spoke is cut instead of a reverse one, as in other machines.

When the spoke has been completed, the cam U on the end of the pattern, by pressing against the tracer *s*, throws the cutter out of the line of cutting, in which position it is held by spring *u*, leaving a portion of the blank undressed to form the tenon.

Claim.—The arrangement of the cam U on the pattern V, in combination with a tracer *s* and a spring *u*, in the manner and for the purpose described.

Also, the particular arrangement of the rotary cutter and tracer in combination with the plate that supports them, suspended in the manner and for the purpose described.

No. 12,221.—James Wilson Treadway.—*Stave-Jointer.*—Patented January 9, 1855. (Plates, p. 252.)

Under the circular saw E passes a carriage which supports the bed-piece A on two pivots *a a*. The stave is placed on the bed piece and fastened closely to it by the clamps *b b*. The distance from the axis of the pivots to the ends of the upper side of the bed (which side of the bed is rounded as represented in fig. 3, so as to fit the curve of the stave) is always to be equal to the radius of the head of the cask for which the stave is intended. The axis of the pivots is in the same plane in which the saw-plate moves. By turning the bed-plate with the stave on said axis, the edge of a stave of any width can be brought in contact with the saw, and the cut will always be towards the axis of the pivots, and consequently towards the centre of the cask. The bed-piece is fixed in proper position by means of a serrated hold-fast *c* and catch *d*.

The inventor says: I do not claim the curved bed-plate upon which the stave is bent and held by the clamps, except in combination with suitable devices to allow it to rotate partially about a fixed axis, for the purpose of giving any degree of bevel to the joints, and for jointing both sides of the stave without its change of position on the bed-plate, as fully specified, and all of which I *claim*.

No. 12,900.—Daniel Drawbaugh.—*Stave-Machine.*—Patented May 22, 1855. (Plates, p. 252.)

The block from which the staves are to be cut is placed upon the vibrating bed C, one edge of the block bearing against the concave D; the bed is first moved downward by raising the outer end of lever H, in

order to allow the edge of the block to bear against the concave. The bed is then raised by depressing the outer end of lever H, and the block is forced against the knife I, which cuts off a stave corresponding in thickness to the space between the knife and concave. The pressure-roller J, which keeps the stave against the knife, causes it to be cut in perfect shape corresponding to the concave.

Note.—The slides P P and the brace R, which are contained in the claim, are not referred to or represented in the original specification and drawings of the inventor.

The inventor says: I do not claim separately any of the parts of the above machine; but I do *claim* the combination and arrangement of the following parts, to wit: making the frame F to vibrate on the shaft G, and hinging it (the frame F) to the bed C, so as to operate it with a vibrating motion on the pivots *a a* and slides P P with the brace R, which renders the bed C rigid to traverse parallel, so as to cut the lumber either curved or straight, as required for staves, heading, or other purposes, substantially as herein described; the bar D being changed or reversed as described.

No. 13,035.—M. T. Kennedy.—*Machine for Planing Staves.*—Patented June 12, 1855. (Plates, p. 252.)

The disc and clamp revolving around their axes, the uppermost rod K will be acted upon by cam M, which bears against its end and forces it forward, so that its lip *c* will be forced outward from the disc I^1; the stave is then inserted between the lip and the edge of band J, and when the uppermost rod K passes the cam M, its spiral spring L will draw the lip *c* of said rod firmly against the edge of the stave, and the stave will then be secured between the edge of the lip and the edge of the band J. In this way all the staves are inserted, the cam M permitting this by forcing out the lip. The clamp and disc rotate against each other: and as the staves in the clamp come in contact with the cutters *b* they are dressed, as they pass around on the clamp; and when the ends of the rods come in contact with the cam M^1, the lips *c* are again forced forward or out from the disc I^1, and the staves fall from the clamp.

The inventor says: I do not claim, separately, the rotating disc C, with the cutters *b* attached, for that has been used for analogous purposes; but I *claim* the combination of the disc C and clamp, the clamp being formed of a series of rods K passing through the discs I I^1, and provided with springs L and lips *c*, arranged and operating in the manner and for the purpose shown and described.

No. 13,036.—M. T. Kennedy.—*Machine for Jointing Staves.*—Patented June 12, 1855. (Plates, p. 252.)

The stave is placed between the plates *e* and *g*, and there secured by turning cam K. The lower end of frame L is then moved towards the back part of frame A, so as to give clamp I an inclined position (see fig. 1). Pitman E is then set in motion; the clamp by its own

gravity settles down between the two planes F F, and the edges of the stave are brought in contact with the cutters *a a*, which together with the planes F F are reciprocated by means of the pitman. The stave is then planed to the form A^1. The clamp is then elevated, by means of treadle N, above the planes, (see dotted lines in fig. 1,) and the position of the stave reversed by turning the clamp half-way round. The clamp is then again let down, when it will be cut to the form A^2. If the staves require to have rounded edges, (see A^3,) the staves are bent or sprung upwards at their centres in the clamp I.

The inventor says: I do not claim, separately, the reciprocating planers, for they have been previously used; but I *claim* the combination of the reciprocating planers F F and clamp I, constructed, arranged, and operated in the manner and for the purpose shown and described.

No. 13,045.—Geo. H. Swan.—*Stave-Machine.*—Patented June 12, 1855. (Plates, p. 252.)

C slides, and D cross-sills, for the reception of the cask; K and L levers, K carrying the croze, chamfer, and howelling knives, and a knife cutting in towards the outside of the staves at the extreme top of the chamfer, exactly opposite the levelling saw on lever L, cutting towards the inside of the staves, and meeting, forming the top of cask-levers K and L; M spiral spring pressing apart the rear ends of the levers, and consequently pressing the knives together to any depth that the gauging or connecting-rod N will admit. O short slide, making fast to arm I by means of a thumb-screw, with flange attached to receive spiral spring P, which also connects to lever L, and pressing the end of the lever carrying the levelling saw tight to the outside of the barrel, and governing lever K by the rod N, and consequently giving a uniform depth of cut to the work in every part, being round or not, as the levers are balanced off by putting a set of knives on each end, or the equivalent in weight, consequently getting the same pressure of spring at all points of the work.

Claim.—The chamfering, levelling, and howelling barrels, kegs, &c., in fact, anything requiring a croze, chamfer, howel, or level, by means of the two levers operated upon by springs and gauging or connecting rod, in such a manner as to gauge the work from the outside of the cask, being round or not, working exactly to the shape of the head truss-hoop with any kind of croze knives or saws necessary to give the desired croze or groove, chamfer or level, howel and level; and the two levers are attached to the slide by pin or bolt acting on one or separate centres, and that slide made fast to the arm of the thumb or set screw at any part from the shaft, or doing away with the slide, and putting the pin or bolt directly through the arm at any point from the shaft required, consequently adjustable to any size.

No. 13,230.—William Robinson.—*Stave-Machine.*—Patented July 10, 1855. (Plates, p. 253.)

The plate C and knife D have a reciprocating movement. The piece of wood fastened to head-blocks E F is dropped down to the plate as soon as the latter arrives under the piece of wood, and the knife D will enter the wood and split off a stave. The stave will remain under the piece of wood after being split off, but will fall upon the lower plate C^1 so as to be clear of it, the knife D sliding over the end of the stave to prevent it from springing up; as the return stroke of plate C is made, it will push the detatched stave towards the dressing-knives.

The inventor says: I make no claim to the mere fastening of the riving-knife to stationary springs, as shown in Stoddard's shingle-machine, patented December 7, 1852; neither do I claim the vertical slotted movable knife bars shown in the patented shingle-machine of Stevens and Kidder.

But I *claim* the horizontally slotted spring knife-holders *a a*, combined as specified with the guides *h* h^1 on the driver C, so as to prevent the longitudinal movement of said holders during the riving operation, and cause the knife, at the completion of the cut, to force the stave into the lower bed and there hold it during the return stroke of the driver, as set forth.

No. 13,631.—Larkin T. Atkins.—*Machine for Gauging, Measuring, &c., Staves.*—Patented October 9, 1855. (Plates, p. 253.)

The two jaws A A attached to one end of the frame are shod with two plates D, having the proper bevel of the stave. The outer jaw is provided with two springs to allow the jaws to be opened for the reception of the staves E. A leather strap attached to a treadle F, and passing over a friction-roller *r*, connects with the outer jaw, which causes the jaws to close when the treadle is pressed down by the foot of the operator. The treadle is held down by a ratchet *s*. Vibratory arms C, worked by a weight, pass into the jaws and receive the staves from the jaws when they are opened. Similar jaws E E at the other end of the frame are provided with straight-edged plates D for jointing heading and shingles.

Claim.—The combination of treadles, clamps, and vibratory arms or levers, operating in the manner and for the purpose set forth.

No. 12,416.—Joel Hastings, James Ramsay, and Henry G. Chamberlain.—*Machine for Cutting Tenons.*—Patented February 20, 1855. (Plates, p. 253.)

The fixed plate L and the clamping-plate *m* are so adjusted that when the said clamping-plate and the dog *o* have advanced nearest to each other, the distance between them will be such as to grasp a slat tightly in the proper position with the parts to form its tenons opposite the axes of the cutter-stocks. Rotary motion is imparted to shaft J and shafts C C. The slats are inserted one at a time by the operator,

by pushing them, during the retirement of the tenon-heads and opening of the clamping apparatus, between the gauge-plates V V on to the table K, being always pushed back against the stops *e e*. The clamping-piece *m* and dog *o* advance and seize it, and the tenon-heads immediately approaching each other, (by the action of the cam-grooves *j* and *q*,) with their cutters in rapid revolution, cut down the tenons at both ends simultaneously. The retirement of the tenon-head, and subsequent opening of the clamps, (effected by the same cam-grooves *j* and *q*,) then leave the slat free; and the fly N coming immediately afterwards into operation (by the action of cam-groove *w*) throws it from the machine (see dotted lines in figure 2). The fly immediately afterwards, resuming its position below the surface of the table K, leaves the machine in condition to receive the next slat.

Claim.—1st. The arrangement of the two advancing and retiring tenon-heads, the clamping-piece *m*, the dog *o*, and the fly N, substantially as described.

2d. The construction of the cutter-stocks and arrangement of cutters, substantially as described, to wit: the cutter-stocks being composed each of an open flanch D, attached by a yoke or arms *d d* to its shaft, with a disc a^1 bolted to the said flanch, and having the cutters *b c* secured, one to its face and the other to its back.

3d. The fly N, arranged and operating in any way, substantially as described.

No. 12,449.—William Steele.—*Tenoning-Machine.*—Patented February 27, 1855. (Plates, p. 253.)

Frame A (secured to upright Y) receives gate C, in which incision-cutters *l l* and tenoning-cutters *j j* are secured, the sides of said frame serving as fender-posts for gate C to play upon. The gate C is moved downwards by means of pitman D and a treadle (not shown in the engravings). A sliding-box *d*, having a wing *g* secured to one of its sides, is connected to the innermost side of frame A by means of set-screw *e* (that passes through a slot in A) and nut L. Thus *d* can be moved up or down, and secured in place. The base *p* of gauge-box H, and of rest *s*, has a segmental wing *k* secured to its inner end, which wing is secured to wing *g* of box *d* by means of pin *n* and set-screw *f*, passing through a curved slot in *k*. Thus base *p* can be secured to box *d* in a position at right-angles to the sides of frame A, or in an oblique position thereto. The piece of joist is placed in gauge-box H; its forward end is then moved forward until it touches the tenoning-cutters; then the gauge-box is moved outwards from rest *s* a distance exactly equal to the required length of tenon; the joist is then secured in the box by set-screw J, and is fed forward to the cutters by means of lever *a*, pawl *b*, and rack *c*. The height of base *p*, box H, and rest *s* is adapted to the depth of the joist to be operated upon, so that there need not be an unnecessary amount of motion imparted to the tenoning-chisels. Figure 3 represents a horizontal section through line *x x*, in figure 1; figure 1 side view, and figure 2 front view.

Claim.—The arrangement of the feeding-box H, the rest *s*, and their

base *p*, with each other and with the gate C which carries the tenoning-cutters, in such a manner that the said feeding-box may be moved from the said rest upon the base *p* the desired length of a tenon, and then be fed forward again to bring the joist to be operated upon in contact with the cutters, substantially as set forth.

Also, combining the base *p* of the feeding-box H and of the rest *s* with the frame A, in such a manner that the said base, box, and rest can be secured in an oblique position to the sides of said frame, and to the direction of the movements of the tenoning-cutters, whenever it may be desired to form tenons with oblique shoulders, in the manner set forth, or its equivalent.

Also, the combination of the incision-cutters *l l* with the angular-edged cutters *j j* in such a manner that the said incision-cutters will penetrate into the surface of the wood, in advance of the tenoning-cutters, a sufficient distance to prevent the said edges of the tenoning-cutters from tearing out splinters from the sides of the timber operated upon.

No. 12,864.—THOMAS J. KNAPP.—*Adjustable Tenoning-Tool.*—Patented May 15, 1855. (Plates, p. 254.)

The ring I, of a diameter equal to the diameter of the tenons to be cut, is placed around hub C. The two segments are then adjusted by operating screws *b c d*, the inner ends of the segments resting against the periphery of the ring I, thus leaving the aperture between the segments of a size equal to the desired diameter of the tenon. The shank A is placed in a rotating mandrel, and the end of the spoke pressed into the aperture formed by the segments, the cutters H G cutting tenon and shoulder. Thus by using various sized rings I, tenons of various diameters can be cut with the same tool.

The inventor says: I do not claim the cutters G H, for they have been previously used.

But I do *claim* the construction of the tool, as herein shown and described, viz: having two segments D D of a cylinder secured to the flanch B of the shank A by screws *b b*, and having screws *c c*, *d d*, pass through the flanches E E and projections *e e* of both segments, for the purpose of allowing the segments to be placed nearer together or further apart, as desired, and having a hub or boss C at the centre of the face of the flanch B to receive the rings I of different sizes, corresponding to the diameter of the tenons to be cut, and by which rings the segments are properly adjusted the required distance apart, for the purpose of cutting tenons of various sizes, as herein shown and described.

No. 13,049.—CHRISTOPHER SHARPS and GEORGE E. ADRIANCE.—*Tenoning-Machine.*—Patented June 12, 1855. (Plates, p. 254.)

The plane-stocks C C¹ (to which the planes and cutters D D¹ are attached) play freely up and down in box B, and in and out laterally, and are kept the required distance apart by a tongue E, which is made of the same width as the required width of the tenon to be cut. The

cutters D¹ cut at right-angles to the planes, and form the shoulder on the spoke. The mouth F receives the end of spoke *a*. The chips, etc., pass out at G. The drop H (hinged at *h* to the box B) holds down the spoke. Springs I I are to throw the planes apart for the purpose of inserting a spoke. K K are followers, crowding the plane-stocks up to the tongue E and stuff to be tenoned, by means of springs L L. The slots *f* in the springs L are to allow the plane-stocks to be moved farther apart by the treadle and wedge J, when it is desired to tenon stouter spokes.

The operator places his foot on the treadle, throwing the planes apart, then the spoke is inserted and secured by the drop; the operator then removes his foot, thus letting the planes work up and down gradually un il the tenon is finished.

Claim.—1st. The arrangement and combination of the two planes and cutters for cutting the tenon-rest for supporting the spoke, drop for keeping it down upon the rest while the tenon is being cut, and guide-box B, having a mouth F and discharge G, substantially as and for the purposes set forth.

2d. The combination and arrangement of the plane-stocks, with planes arranged so as to move in and out; slotted springs to allow for said movements; springs I I and treadle J J, for causing said expansion, substantially as and for the purposes set forth.

No. 13,735.—C. P. S. WARDWELL.—*Machine for Cutting Double Tenons.*—Patented October 30, 1855. (Plates, p. 254.)

The timber is represented in dotted lines. The operation of the machine will be understood from the claim and engravings.

Claim.—The combination and arrangement, substantially as shown and described, of the intermediate obliquely set or drunken saw F, with the clearing or finishing true circular saw M, for operation together in the manner specified, and whereby the drunken saw F not only serves to largely reduce the wood between the tenons, as required, for the completion of the tenons, but to form a wide kerf or pathway for the axle L of the finishing saw M, to admit of the deep insertion of the latter into the wood, and of its operation as a clearer between the double tenons during the continuous progress or feed of the timber as described.

No. 12,134.—HAZARD KNOWLES.—*Cutters for Tonguing and Grooving.*—Patented January 2, 1855. (Plates, p. 254.)

The figures represent a cutter for grooving. It consists of three steel discs, the cutting-edges being formed by cutting oblique notches d^1 in their peripheries, and throwing outwards the angles c^1 at the rear side of said notches, and sharpening them. As the cutting-edges wear away, the rear sides of the notches are filed away sufficiently to form properly shaped points, which are again thrown outward. Consequently the diameter of the cutting-discs can be preserved in renewing the cutting-edges.

Tonguing-cutters are formed in a similar manner.

Claim.—Forming tonguing and grooving cutter-heads, of combined discs of steel, which have cutting-edges formed on their peripheries of such a shape that new cutting-edges can be formed upon them as the old wear away, without reducing their diameter, substantially as herein set forth.

No. 12,180.—Pulaski S. Cahoon and Samuel F. Ross.—*Improved Chuck for Turning Elliptical Cylinders.*—Patented January 2, 1855. (Plates, p. 255.)

The piece P to be turned is secured in the box *a* which projects from the slide E. The sliding-standard F, which supports the ring f^1 *f*, is then moved by means of screw *e* until sufficiently out of centre with the lathe-spindle B to give the required oval to the piece to be turned. By thus moving the standard, the slide E is caused to assume the position represented in dotted lines in figure 1, and the piece to stand eccentric to the lathe-spindle, and concentric (before the operation commences) with the hole *f* of the standard-ring. When the spindle is now revolved it carries the slide and box with it, and owing to the ring or flanch f^1, to which the slide is connected by the lips *b b*, being eccentric to the axis of the spindle, the axis of the slide is caused gradually to change its position, and in doing so to describe an oval, as represented in dotted lines in figure 1, and the piece, consequently, as it comes in contact with the cutter, to be shaped accordingly. By having the axis of the slide more or less eccentric to the spindle, the oval will more or less approach a circle.

Claim.—1st. The arranging of the ring f^1 upon the sliding standard F, and combining it with the lathe-spindle B, by means of the slide E, substantially as and for the purpose set forth.

2d. Arranging the slide between the face-plate and the standard F, instead of attaching it to a ring situated back of the face-plate, substantially as and for the purposes set forth.

No. 13,104.—John W. Russell.—*Improved Chuck for Turning Eccentrics.*—Patented June 19, 1855. (Plates, p. 255.)

The chuck is applied to irregular objects by starting one of the nuts, and then the other to follow in the same direction. Or one may be taken out, and then the screw and jaws follow, when the jaws can be revolved on the screw to any point of deviation desired.

Claim.—The application of a chuck to irregular objects, and points eccentric from the centre, using for that purpose the jaws C C and the screw E, in combination with the nuts or collars D D, all for the purposes substantially as set forth.

No. 13,208.—Wm. Blackburn.—*Automatic Machine for Turning Ship Spars, etc.*—Patented July 10, 1855. (Plates, p. 255.)

A is the spar to be turned; B is the driving-pulley, adjusted on the spar A; C, friction-rollers; E E the tool-carriages, worked by feed-screws H H; J J J rests, (for supporting the spar while turning,) adjustable by their screw-shafts and gearing N M, to be worked from shaft K; two pairs of bevel-wheels L *d* and L *d* serve, one to adjust the lower rest J, and the other the tool-holder O, by means of a vertical screw Q; P are the chisels. The engraving represents only about one-half of the machine, the other half being exactly alike; *x x* is the centre line.

Claim.—1st. The combination and arrangement of the gears N N and *d*, with the self-adjusting rests J J J, or mechanism substantially the same, for holding the stick, whether straight or tapering, always firm and steady during the operation of turning.

2d. The combination of the chisel-holder O, screw Q, and gear *d*, or mechanism equivalent thereto, for working the chisel-holder simultaneously with the self-adjusting rests, substantially as set forth.

No. 13,301.—Matthew F. Connet.—*Machine for Turning Cylinders of Wood, &c.*—Patented July 24, 1855. (Plates, p. 255.)

Before placing the material P between the centres on the swinging-frame, the latter is set free from catch F to be thrown forward by spring D against rail *m*, and the tightening pulley *h* is thrown off the belt *f* so as to stop the revolutions of the said centres. The material is then secured between the centres and the screws G G, adjusted so that when the swinging-frame is drawn up against them, (and secured by catch F,) the material P is reduced at the point opposite the cutters to the necessary depth. The tightening pulley *h* is now thrown on belt *f*, when the material will slowly revolve and be properly turned off by the rapidly revolving cutters.

The inventor says: I do not claim the revolving of the cutters at a rapid and the block at a slow motion, as this has been done before; but I *claim* so combining a swing-frame, which carries the block to be cut, with a cutter or cutters revolving around a fixed centre, as that the block may be swung up to the cutters and first cut to the required depth or gauge without revolving, and then be revolved slowly on its centre against the action of the cutters, to complete the turning or cutting at a single revolution of the block, substantially as described.

No. 13,899.—Israel Amies.—*Improved Application of Embossed Veneers.*—Patented December 11, 1855.

The veneers are perfectly polished on one side, and the rear side partially smoothed with sand-paper. Paper is then pasted over this rear side, and the whole is left a sufficient time to allow the wood to partially absorb the moisture of the paste. The veneer thus prepared is introduced between two dies, correspondingly carved—one convex, the other concave; both dies being moderately heated. The dies and veneer are then submitted to considerable pressure. On removing the veneer, its face represents in relief the pattern on the dies, and has all the appearance of an elaborate wood carving.

The inventor says: I wish it to be understood that, although I have described one particular process of treating veneers, before my improved art of embossing is practised thereon, I do not desire to confine myself to that process in every minutia, as the same may be modified, or equivalents substituted; but I *claim* the employment of embossing veneers, in the construction of furniture, and for other ornamental purposes, in the manner set forth.

No. 13,099.—David Pierce.—*Machine for Manufacturing Wooden Ware.*—Patented June 19, 1855. (Plates, p. 256.)

Notches are cut in a horizontal direction in the post, into which the cross-plank E may easily be moved, for the purpose of adapting the tail-spindle, which passes up through it, to the length of the work to be done. The notches are cut so deep as to permit the tail-spindle *a* to be moved to the right or left, sufficiently to secure any desired taper for the work to be done. F is the sliding-rest, holding the cutting-tools and sliding in grooves *g*. The gang of cutting-tools 1, 2, 3, 4 are placed at distances from each other to correspond to the desired thickness of the cylinder. To finish the inside of the work, a core is attached to the pulley-spindle of the lathes of the form of the interior of the work. The semi-circular longitudinal excavation in the core is to receive the chips; G is the cutter. Knobs *h*, cutter *n*, and spurs *m* (attached to springs H) serve to mark and cut the croze. The cutter-discs Q serve to turn the heads or bottoms. The slot in the piece *p* serves to admit the head to be finished, and the piece is hinged so as to bring it nearer to or further off the cutter according to the size of the head. Two centres pass perpendicularly one through the upper and one through the lower portion of the piece to the slot, and the unfinished head is adjusted to the plane of the cutter. The lower centre is fitted into a disc V. For the purpose of cutting elliptical heads, a pin *u* is placed in disc V. If then the band *x* be passed around the stationary pulley and the centre enclosing the pin, and the head be turned against the cutter, the pin operating against the band will retract the head from the cutter to the extent of the eccentricity of the pin, and thus the elliptical shape will be produced.

Claim.—1st. The application and use of a cutter or cutters in gangs attached to a sliding-rest, as described, or their equivalents.

2d. The apparatus for forming and finishing circular or elliptical heads or bottoms, as described, or its equivalent.

3d. The apparatus for turning out the inside of the cylinders and cutting the croze, as described.

No. 12,857.—Jacob A. Conover.—*Machine for Splitting Wood.*—Patented May 15, 1855. (Plates, p. 256.)

The blocks of wood are placed upright on the endless bed *c*. The plate *p*, with its elastic pad *r*, holds the block down to the bed during the descent and the rising of the knife *w*. The knife *w* has four blade

forming a cross (see fig. 4), which work through a corresponding slot in plate *p*. As soon as the knife has cut through the block, and has again been lifted above the block and plate *p*, this plate *p* itself is raised by the operation of cam *u*, and the feed-motion of the bed takes place to advance the next block.

Claim.—The movable bed or carriage for carrying and advancing the blocks of wood in combination with the reciprocating cutters, operating at right-angles with the surface of the bed or carriage, substantially as and for the purpose specified.

Also, in combination with the bed or carriage and reciprocating cutters, substantially as specified, the employment of the clearing-plate through which the cutters pass, substantially as and for the purpose specified.

Finally, providing the said clearing-plate with an elastic pad, and imparting to it an up-and-down motion, substantially as specified, in its combination with the bed or carriage and reciprocating cutter, as specified; by means of which the said plate, under the combination specified, performs the double office of holding the blocks and clearing the cutters, as specified.

No. 13,485.—Wm. O. Bisbee.—*Machine for Splitting Fire-Wood.*—Patented August 28, 1855. (Plates, p. 256.)

The block of wood N being placed within box D, the horizontal knife C is forced in (by crank and pitman motion) until its front edge enters notch *d*, thereby splitting the block horizontally. By this time that part of frame B (frame B carries the knife C) which, in fig. 1, is immediately underneath the block of wood, has receded behind the box D, so as to allow the piece which has been rifted from the block to fall on table E. During the return-motion of the frame B, the shoulder *x* will push the piece before it, and draw it through the rifting-knives G. These knives are arranged as represented in the top view, fig. 2, because if the cutting of the knives were in a line, and the knives parallel with each other, it would be impossible to rift the piece into strips, as the latter would become wedged between the knives. Fig. 1 represents a vertical section.

The inventor says: I wish it to be distinctly understood that I do not wish to confine myself to the exact form or method described of operating the machine, or to the exact number of vertical knives shown.

But I *claim* the vertical knives G as arranged, with their edges a distance in advance of each other, and their sides at different angles, so as to act effectually as a means of rifting wood, as described.

No. 13,492.—G. W. B. Gedney.—*Rotary Wood-splitting Machine.*—Patented August 28, 1855. (Plates, p. 256.)

The splitting-knives *e* are attached to the revolving disc *a*, by means of the groove e^1 (fitting the edge of the opening in the rim) and the

flanch and single bolt e^2. The V-shaped knife-edges e^3 project a proper distance above the outer perimeter of the rim to split the wood, which is put into hopper *f*, and rests by its own gravity upon the revolving rim; as the knives come around just in front of the hopper, there is a set of thin plates *s* that project down, one opposite each depression in the knife-edges, and others *r* opposite the small grooves in the apex of the V-knives. These serve to clear the knives and allow them to work freely. The small catches *h* on axis *o* (to which lever *i* is attached) come in contact with the wood and prevent its rising while under the action of the knife.

I *claim* the machine described for splitting wood, consisting of the V-grooved knives, acting upon the wood as described, having openings in their apex to receive the clearers, substantially as specified, and in combination therewith the fingers for holding down the rear end of the wood to be split.

I also claim the mode of attaching the knives by the groove e^1 at their back, and an overreaching flanch l^2, by which the resisting strain tends to hold the knife in place, as specified, without bringing the strain upon the bolt by which it is fastened.

XV.—STONE AND CLAY.

No 2,264.—John A. Messinger, deceased, by his administratrix and administrator, assignors to Ambrose Foster.—*Improved Building-Block.*—Patented January 16, 1855. (Plates, p. 257.)

This building-block is composed of sand and lime in the proportions of twelve parts of sand to one of lime, mixed together and pressed in moulds. For the purpose of facilitating the ripening of the block, it should, where this form is admissible, be perforated with holes as represented in the engraving. These bring the air into contact with the central parts of the block.

Claim.—The building-block described is claimed as a new manufacture.

No. 12,558.—Loomis E. Ransom.—*Improvement in the Manufacture of Bricks.*—Patented March 21, 1855. (Plates, p. 257.)

The material is placed between guide-bars *a b*, which are of the thickness of a brick, and the scraper B is passed over it.

The tool P^1 has a smooth surface *c*, equal in width to the thickness of a brick, bounded on one side by the flat plate *d*, and on the other by the knife *i*. The surface *c*, as the tool is drawn towards the operator, compresses and smooths the edge of the brick, while plate *d* and knife *i* sharpen the edges and trim off any superfluous material.

The tool P^1 is represented on a larger scale than the rest of the figure.

The inventor says: I make no claim to any portion of the processes of manufacturing bricks set forth in the French patents of Capgras and Chanon, June 21, 1843, and Charles Henry Maigret, May 22, 1840.

But I *claim* the manufacture of bricks substantially as described; that is to say, by first spreading the tempered mortar or clay at once upon the ground, where the bricks will be left to dry, and in beds of certain desired length, width, and thickness, and then while the mortar is in a soft state, or before it shall crack by too much drying, producing therein lines of weakening or separation, defining the dimensions of the bricks without regard to their smoothness or final finish; and after the bricks in drying shall have separated from each other along the lines thus formed, turning them on edge, and squaring and polishing their edges, and defining the thickness of the same, by rubbing over them the metallic tool P^1, or otherwise, substantially as set forth; the desired thickness of the bed being produced by means of guide-bars or moulds, and scraper or lute, substantially as specified, whereby I am enabled to dispense with off-bearers, and otherwise to simplify the manufacture of bricks.

No. 12,898.—John Chase, Jr.—*Improvement in Brick-Presses.*—Patented May 22, 1855. (Plates, p. 257.)

The frame B (which is vibrated by the action of the crank *r* on the pins *f*) operates alike on both sides of the frame A, one rod *c* ascending while the other descends; and there are two platforms F, one at each side of the frame A, the moulds being fitted at both sides of the frame. The figure represents only one of the platforms. When a rod *c* is raised, the empty mould B^1 is placed in between the grate I and the friction-rollers *j j*, and the spring O keeps the mould against grate I during the operation of pressing. The rod *c* in descending presses an empty mould in between the rollers and grate, and at the same time forces down a filled mould, which falls upon the step *h* on lever D. When *c* rises, the motion of lever D (which is imparted by means of rod C) will move the filled mould forward upon platform F.

The inventor says: I do *claim*, 1st. The swinging-frame B, constructed, arranged, and operating substantially as herein shown, for the purpose of feeding the empty moulds B^1 to the press-boxes H, and discharging the filled moulds therefrom.

I am aware that devices have been previously employed for preventing stones and hard substances from being pressed against and with the moulds, by affording facilities for removing said stones and hard substances from the moulds before the clay is pressed into them. I therefore confine myself specifically to the device herein shown and described for that purpose, viz: further, I claim the employment or use of the levers or pendents *l*, constructed with projections *n*, and placed between the bars of the grates I, as herein shown, so that as the filled moulds B^1 are forced downward from between the grates I

and friction-rollers *j*, the stones, should any be in the moulds, will act against said projections and turn the pendants, so that a passage or opening is allowed for the stones to drop through.

No. 12,997.—Wm. H. Degges.—*Improvement in the Soak-Pits of Brick-Machines.*—Patented June 5, 1855. (Plates, p. 257.)

The clay, after it has been pulverized and soaked in the revolving-pit A, is shovelled on to the endless apron *h*; the pit being in motion, keeps the edge of the clay-bank therein all the time at the same distance from the endless apron, so that the hands supplying the machine need never change their position.

Claim.—The revolving soak-pit, or its equivalent, for uniformly soaking the clay when pulverized, and conveying it to a convenient position to be fed into the brick-machine, substantially as specified.

No. 12,998.—Wm. H. Degges.—*Improvement in Brick-Machines.*—Patented June 5, 1855. (Plates, p. 257.)

The crank *s* on the pug-mill shaft F gives a reciprocating motion to the sliding-frame H, the cross-head of which is connected with it by the pitman *t*; the ends of this cross-head extend on each side of the main frame D through slot 17 in the connecting-pieces *u*, (the slots allowing the cross-bar *z* to rest at each end of its travel,) which are jointed to the upper ends of two vertical levers *v*, one on either side, having a fulcrum common to both at *w*, and connected at their lower ends by links *x* and slides *y* with the cross-bar *z* under the tub E, extending from side to side through aperture I; the width of this aperture is equal to twice the thickness of bar *z* and the width of the mould-frame, so that at whichever side the bar may be, the mould-frames are inserted immediately under the centre of the tub, and moved thence by said bar exactly under the apertures for filling, thus economizing space and reducing the diameter of the pug-mill. The brushes, fig. 4, correspond in size and number with the mould-frames, which are fixed in any convenient position near the pug-mill, and are composed of alternate layers of bristles and sponge, for the purpose of cleaning and damping the moulds ready for use. The coal-dust with which the apron *h* is supplied, in order to prevent the clay from sticking thereto, mingles with the clay, and assists in burning the brick to great advantage.

The inventor says: I do not claim inserting the moulds under the pug-mill on either side of the centre, alternately, to be moved thence under the apertures to be filled; neither do I claim dusting the parts of a brick-machine generally for the single purpose of preventing the clay from adhering, nor do I claim mixing coal-dust with the clay in any other manner than that described.

But I *claim*, 1st. Causing the reciprocating bar *z* to rest at each end of its travel, whereby ample time is afforded for inserting the moulds under the bottom of the pug-mill, and for pressing the clay into them while in their rest position, substantially as set forth.

2d. Inserting the moulds immediately under the centre of the pug-mill, whence they are moved alternately to the right and left previous to being filled, whereby the size of the pug-mill and the power required to work it are economized to the fullest extent.

3d. Dusting the endless apron, or other device, for conveying the clay to the pug-mill with a mixture of coal-dust and sand, whereby the clay is prevented from adhering thereto, and at the same time the coal-dust is evenly mixed with the clay during its preparation, for purposes specified.

4th. I claim the series of brushes, or other device, substantially the same, that will hold water, whereby the moulds are both cleaned and damped at the same time, as set forth.

No. 13,042.—Jno. Plumbe.—*Improvement in Cutting Clay into Bricks.*—Patented June 12, 1855. (Plates, p. 257.)

Wires F, the width and length of a brick apart, are stretched in contact with the inside bottom of the mould-frame D D; each end of every wire passing through a vertical transverse slit in the sides of the frame, and being fastened by a pin on the outside. When the clay has been filled in, and as soon as it has become sufficiently dry, the wires are pulled up, one or more, thereby cutting the clay into single bricks.

Claim.—The mode of forming bricks, or their equivalent, by means of wires, or their equivalents, cutting upwards substantially as described, irrespective of the manner in which the clay is prepared and placed in the mould-frame.

No. 13,110.—Levi Till.—*Improved Brick.*—Patented June 19, 1855. (Plates, p. 257.)

The object of this improvement is to secure greater strength by locking or binding the walls together, by means of grooves *a* and projections *b* in the bricks.

Claim.—The making of bricks with channels or grooves, and with spurs or conical projections, for the purposes and substantially in the manner set forth.

No. 13,123.—Henry Clayton.—*Improvement in Brick and Tile Machines.*—Patented June 26, 1855; patented in England, December 13, 1852. (Plates, p. 258.)

The material as it comes from the pug-mill is forced against and cut by wires c^2 set to the desired width. c^3 are rods which slide through sockets fixed to the front of disc c^1, and have arms c^4 which embrace the wires c^2, so that when they are raised, the arms c^4 may scrape the wires and keep them clean. Next the clay is received upon a frame of carriers *e*, and is cut transversely into bricks by a movable frame *d* of

parallel wires d^1. In order to separate the bricks one from the other, after having been cut by the wires, the outermost brick when it comes to the end of the carrying-rollers is received upon and by the last roller *e*, the surface of which is caused to move faster than the preceding rollers, by which means a brick is separated from the rest and laid upon a pallet or board which is placed on a movable or tilting platform.

Claim.—Combining with the wires c^2 c^2 their sliding-scrapers or cleansing mechanism, made to operate essentially as explained.

Also, the combination of the accelerating roller *e* and the tilting-board *f*, with the delivery rollers or their equivalent.

No. 13,129.—A. V. Hough.—*Improvement in Brick-Machines.*—Patented June 26, 1855. (Plates, p. 258.)

Claim.—The sides *ff* placed at the bottom of a pug-mill L, for the purpose of enabling the operator to regulate the rapidity of the egress of the clay, according as it requires to be subjected to the operation of the cylinder for a longer or shorter time.

Also, placing the shaft D, with its blades *c*, in a horizontal position within the cylindrical case C, as shown, whereby the machine is rendered extremely simple, the journals kept free from clay, and all the parts of the machine operated by the rotation of a single shaft.

No. 13,259.—Stephen Ustick.—*Improvement in Brick-Presses.*—Patented July 10, 1855. (Plates, p. 258.)

The longitudinal plates 12 are separated by thin plates 14, inserted between their edges, so as to leave a slit between them for the escape of condensed air, during the operation of pressing the brick. These spaces, widening towards the inside of the piston, form the air-channels 15.

I *claim*, 1st. Combining the inner and outer peripheries of the rim of the revolving casting C, shaped in segmental curves, eccentric with each other and with the centre of the shaft B on which the casting is secured, in such relation to the upper and lower pistons for pressing the brick frames to which they are attached, and to the friction-wheels E H in said frames, as to cause the said segmental surfaces to operate on the friction-wheels in their revolutions betwen the same, after the manner of a wedge, and thus avoid all liability of strain on the shaft B, arising from the resistance of the pressure exerted in pressing the bricks, by confining it to the body of metal between the two surfaces, substantially in the manner set forth.

2d. I claim forming the faces of the pistons of longitudinal and transverse plates 12 and 13, secured to the blocks or main body of the pistons by dove-tailed tongues or grooves, and wedges or gibs, and capable of being moved outward, sidewise and endwise, so as to increase the area of the face of the pistons, in case of wear, as before described.

3d. I claim forming a narrow slit in the centre or other part of the face of the piston, widening as it extends from the face, or not, as desired, and communicating with the outside of the pistons, through their ends, for allowing the air confined in the moulds to escape during the pressing of the clay into bricks, as described.

No. 13,502.—Levi Till.—*Improvement in Brick-Machines.*—Patented August 28, 1855. (Plates, p. 258.)

The pulverized clay passes from hopper E into the moulds *a*, and is, during the revolution of the moulds, pressed against the pressing surfaces *l* of the wheel D, which are perforated. Each of the surfaces *l*, as it comes into contact with the clay in the mould, comes also into connexion with an air-pump U by means of the channel *n* and tube O. Thus the air is exhausted from the clay while being pressed. The slots *m* serve for the discharge of all the excess of clay, and also, in combination with the teeth *h* on the mould-wheel, insure the accurate meeting of the moulds and pressers.

I *claim*, 1st. The use of the air-pump, in combination with the perforated pressers, by which the air is exhausted from the clay while under pressure, as stated, and not otherwise.

2d. I claim the device of the diagonal slots *m*, figure 3, in combination with alternating with the pressers, by which all the excess of clay may escape, and is discharged on one side, and not on both, of the machine.

No. 13,533.—Jos. Alexander Victor.—*Improvements in Brick-Machines.*—Patented September 4, 1855. (Plates, p. 258.)

A cylinder, provided with spiral knives, cuts and mixes the clay and works it to the end of the cylinder into a reservoir, under which the endless chain of brick-moulds X X passes between two sets of rollers F and G; the upper rollers not only aid in carrying the moulds through the machine, but compress the clay in the moulds.

I *claim* the combination of the endless chain of moulds, connected substantially as described with the two sets of rollers, one of the upper of which, in addition to aiding in drawing the mould through, at the same time compresses the clay in the mould.

No. 13,572.—G. W. B. Gedney.—*Improvement in Brick-Machines.*—Patented September 18, 1855. (Plates, p. 258.)

To move the moulds *c* along, a ratchet-wheel is affixed to the axis of carrying-cylinder *b*, into which ratchet-wheel a pawl *m* works, which pawl is jointed to a lever having said axis for a fulcrum, and connected by a rod m^1 with a wrist *n* on the cam *o*, which cam operates the rod *p*. This rod extends down to a frame-work of two projecting-fingers p^1, that stand horizontally on each side of the lower portion of the endless chain of moulds, in such position as to receive the off-bearing boards *r* and deposite them on the off-bearing apron. The fingers p^1

are returned by a spring. The said boards *r* are placed in hopper *q* in front of the press-box, and as each mould is fitted and comes out from under the hopper, one of these boards drops upon the mould and is caught by two projections r^1 on said mould, and carried forward until it comes under the cords *s*, which keep said boards in contact with the moulds while they pass down around the cylinder *b*, and are thus reversed, bringing the board under the open mouth of the mould. At this instant the board is brought upon the ends of the fingers p^1, which then descend and deposite the board, with the bricks upon it, on an endless apron *t* below, which apron carries off the bricks.

I *claim* the off-bearing boards, applied and arranged as specified. I also claim the fingers for placing the board from the mould on to the endless apron.

No. 13,747.—Alexander H. Brown.—*Improvement in Brick-Machines.*—Patented November 6, 1855. (Plates, p. 259.)

The skeleton-wheel C, upon shaft X, has eight moulds, each open at top and bottom. E are the inside plungers, acted upon by the cams F upon shaft U^1 through the hooked ends of the compression bars G. The upper cog-wheel U transfers motion to upper horn of the ratchet-stock K by means of a crank-pin and connecting-rod J. The connecting-rod L extends from the lower horn of K to lever M, upon rock-shaft N. The two short levers O O are fastened to rock-shaft N, and the rods P P are attached to levers O by a pin passing through a horizontal slot in their lower end to allow for the vibration of levers O. The upper ends of bars P form a rectangular hook to act upon the cross-bars Q, fastened to the inside plungers E. These bars Q are taken hold of by the hooks of bars G and bars P alternately. S S are the outside plungers, provided with guide-rods and spiral springs, and acted upon by the two cams R R upon the shafts of the two cog-wheels U U. T is a fork attached to the inner end of the lower plunger S, which acts as a regulator of the skeleton-wheel by taking hold of a pin inserted into the ends of the moulds, so as to insure the plungers entering the moulds at all times. W is one of the pulleys of the delivery-band; *x* is the hopper; A^1 are two quadrants, one on each side of the skeleton-wheel, and attached to two levers for the purpose of regulating the amount of clay for making the brick, by causing the lugs Q to rise or fall as the surface of the quadrants are raised or depressed through the agency of the crank-shaft *b* and levers C^1.

The prepared clay passes into the hopper upon the top of the machine from the pulverizer, which is placed above the machine: as the moulds in the face of the wheel pass under the bottomless hopper, they receive the necessary quantity of clay to produce a brick; and when the mould arrives opposite the top plunger, the clay receives a sufficient amount of compression from the plunger to expel a portion of the air and consolidate the clay sufficiently to carry it to the second plunger, when the said plunger and the corresponding inside plunger approach each other, through the action of the reversed cams, upon the lower compression-shaft, making the bricks uniform in size and weight.

After the bricks have thus received three compressions (by the rotary motion of the wheel) the mould takes a vertical position with the skeleton-wheel shaft; and while the plunging is going on to compress the succeeding brick, and while the mould-wheel is perfectly at rest, the brick is expelled from the mould through the action of the vertical bars P P, which take hold of the cross-bars of the inside plungers, and force said plungers half an inch beyond the surface of the mould, and thus prevent the corners of the brick from becoming injured, as the bricks are deposited perfectly flat upon the carrying-belt and carried to the kiln door.

Claim.—1st. The combination of the outside plungers with the skeleton-wheel, inside plunger, and moulds, when arranged and operated as set forth, and not otherwise.

2d. Discharging the bricks by means of the ratchet-stock K, vertical bars P P, and inside plungers E, when arranged and operated as described, and not otherwise.

3d. The mode of regulating the amount of feed through the action of the quadrants upon the inside plungers, when arranged as described.

4th. Regulating the movement of the skeleton-wheel C, figure 1, by means of the fork T upon the lower plunger, when arranged as described.

No. 13,017.—Harlow H. Thayer.—*Improvement in Machines for Kneading Clay.*—Patented June 5, 1855. (Plates, p. 259.)

It will be understood from the engravings how a reciprocating motion is imparted to the fork M by means of a spring P and cam L revolved by a band N, and acting on the rear end *a* of the fork.

The plunger I forces the clay through the screen K, which, on account of its taper orifices, compresses the clay as it is forced through the lower end of chamber G.

Claim.—The employment of the inverted conical chamber G, provided with a screen or perforated plate K, which has its apertures of taper form, said chamber having a plunger I working in its upper cylindrical portion, for the purpose set forth.

Also, the press-chamber G, constructed as described, in combination with the reciprocating fork M, for cutting off the clay discharged from the press-chamber, the fork being operated substantially as shown and described.

No. 13,224.—John O'Neil.—*Improvement in Machines for Pulverizing Clay.*—Patented July 10, 1855. (Plates, p. 259.)

The clay is first pulverized by the yielding cutters *i*, and at the same time forced by their inclined surfaces into the lower section, where it is subjected to the friction produced by the plain or corrugated blades P, whose surfaces bear upon the inclined planes formed on the inner periphery of the hopper A, and thence permitted to escape, in such quantities as desired, through the perforated door B and slide C.

Claim.—The combination of the spring-blades with the ridged sur-

face of the cylinder against which they act, substantially as and for the purpose set forth.

The combination of the aperture J in the depressed part of one or more of the ridges *f* with the spring-blades, which eject or force out the stones, substantially as set forth.

The combination of the cutting or pulverizing blades with the ridged surface of the cylinder, substantially as and for the purpose described.

The perforated or grated door and slide, for the purpose of regulating the discharge of tempered clay, as set forth.

No. 13,245.—WILLIAM P. WALTER.—*Improvement in Manufacturing Plate-Glass from Cylinders.*—Patented July 10, 1855. (Plates, p. 259.)

By moving the slide *e* upon the rod *a*, the rods *d* are caused to expand. The instrument is introduced into the cylinder C while exposed to the fire, and the rods expanded as above mentioned; at the same time the instrument is revolved at the will of the operator, thus causing all parts of the cylinder to be equally heated. The expansion of the instrument will of course produce two flat sides in the cylinder.

The inventor says: I am aware that cylinders of glass have been fashioned into an oblong shape, with two flat sides, by forcing them between two pieces of wood, in a heated state; also by holding them upon bars or rods in the kiln or furnace, and by "*percelars*" in the hands of the workmen, as in flint-glass works. The putting of glass cylinders into an oblong shape is not new. This I do not claim. The stretching of glass is not new. Cylinder-glass is stretched by the blower when he swings the hot glass in the operation of making the cylinder. Glass is also stretched in the operation of making glass tubes. Stretching glass I do not claim.

But I *claim* the forming of cylinder-glass into an oblong shape, with two flat sides, by my improved flattening instrument.

No. 13,411.—PHILLIPPE STENGER, assignor to PASCAL YEARSLEY.—*Improvement in the Manufacture of Plate-Glass.*—Patented August 7, 1855. (Plates, p. 259.)

The cylinder of glass, when blown, and still heated and in a plastic state of consistency, is placed over the vertical standards C, which latter are then moved from each other, thereby stretching the cylinder into the form of two parallel sheets of glass, which are finally separated from each other by the usual means.

Claim.—The application of tractile force to the manufacture of sheet-glass, by means of the mechanical arrangement described, or its substantial equivalent.

No. 12,820.—BENJAMIN HARDINGE.—*Improvement in Facing-Beds for Grinding Artificial Granite, &c.*—Patented May 8, 1855. (Plates, p. 260.)

The saucer-shaped dish A is filled with concrete cement of silici-calcareous and ferruginous trit, ground and mixed with coarse crude emery, steel turnings, sharp sand, and hydrous silicates, with which it is wet up into a plastic state, put into said dish, and levelled with a straight-edged spatula while in very slow motion, so that when hard it turns in a perfect level. The shaft is arranged with heavy steel bearings F and J, thereby giving it a slight vertical elasticity, which prevents all sudden jerking.

Claim.—The above described artificial grindstone or facing-bed, consisting of a saucer-shaped dish filled with a concrete of the materials specified, or others substantially the same.

Also, the suspension of the shaft which carries the rotary facing-bed upon steel supporters, substantially as and for the purpose above set forth and described.

No. 12,242.—SAML. H. ROBINSON.—*Improvement in Lime-Kilns.*—Patented January 16, 1855. (Plates, p. 260.)

Four side-kilns B (of which the sectional figure exhibits only two) surround a central kiln A. The waste heat and gases pass from the limestone in the side-kilns, through flue *o*, and (by means of dampers *p p*) through either of flues *q q*, into the central kiln.

The inventor says: I am aware that a series of kilns have been built in one stack, one placed over the other, and burned from the same or separate fires. These I do not claim; but I *claim* the arranging of a series of side-kilns around a central kiln, so that the waste heat from the former may be used for burning the limestone in the latter, substantially as described, whereby a great saving of fuel and labor is attained, a more regular disposition of the heat made available, and either of the surrounding kilns stopped off, cooled, and drawn, without interfering in the least with the others of the series, as set forth.

No. 12,521 —JESSE RUSSELL.—*Improvement in Brick-Kilns.*—Patented March 14, 1855. (Plates, p. 260.)

Fig. 1 is a front view, and fig. 2 a central section parallel to it; fig. 3 is a side view, and fig. 4 a cross-section parallel to it.

Claim.—The arranging of the fire-chambers outside of the kiln, and introducing the products of combustion to the brick to be burnt through avenues or passages extending from the fire-chambers entirely across the kiln, when said fires are placed and used on one side of the kiln only, substantially as described. (See engravings.)

No. 12,991.—Danl. Blocher and Geo. M. Blocher.—*Improvements in Burning Brick.*—Patented June 5, 1855. (Plates, p. 260.)

The object of this invention is to obviate the necessity for the long grates running entirely through the arches, which are now used, the burning being performed with greater regularity as regards solidity and color, a much larger quantity of brick being placed in the kiln than can be done when wood is used or coal employed, in the manner above stated. G are the grates running through the casement; openings *b* serve for removing the cinders; holes *c* for stirring the coal; *d* feed-opening; H are the arches of the kiln, and I the main body of the brick set close together, except the three outer courses *m* m^1 m^2 of each interior bench and the entire exterior supports P, which have the interstices common to ordinary setting.

We *claim* the furnaces F, entirely within the casement, and fed at the top, in combination with the close setting of the interior benches, as described, by which placing the fuel within the arches is avoided, and the burning of the kiln improved, as set forth.

No. 13,494.—Daniel Herr (Pequea).—*Improvement in Lime-Kilns.*—Patented August 28, 1855. (Plates, p. 260.)

a is the grate; *b* and *c* are the arched ribs.

I *claim* making the arch of the kiln with two series of arched channelled ribs, so arranged that the outer ribs shall extend over and across the spaces left between the inner ribs, and at the same time leave sufficient space between the outer and inner ribs for the fire and heat to pass into the limestone, whereby the fragments and loose lime are all prevented from falling into the fire, and are conducted down the channels into the proper receptacle below.

No. 12,813.—John T. Bruen.—*Improvement in Stone and Marble Saws.*—Patented May 8, 1855. (Plates, p. 260.)

The body of the saw-plate *a* is formed of woven wire or metal strips, the cross-wires of which are made to sustain a metal strip *b*, with a corrugated edge. The warp is so protected by means of the corrugated filling, or cross-wires, as to be out of reach of wear, and the kerf formed by the edge on the corrugated strip *b* is sufficiently wide to prevent undue friction on the sides of the saw-plate. a^1 a^1 is a band of lead with indentations c^1 c^1 attached to the edge of the woven blade, so as to freely admit the sand and bring it down upon the point to be cut.

The inventor says: I do not claim the using of sand and water, or other grit, with a plain metal plate, as new, nor the blade with grooves cut in it; but I do *claim* the making of the body of the saw-plate of woven wire, or strips of metal, or any analogous device, for the purpose of admitting the free passage of the grit, in the operation of sawing stone, substantially and for the purpose as herein described.

Also, in combination with the above, the waved cutting-edge, or any analogous device, substantially as and for the purpose herein described.

Also, forming the edges of the saw-blade thicker than the central portion, so as to admit the free passage of the grit on both its sides through the indentations, as before set forth.

No. 13,074.—Joseph Adams.—*Improvement in Stone-Sawing Machines.*—Patented June 19, 1855. (Plates, p. 260.)

The saw, (suspended as shown in the engravings,) when put in motion, strikes the stone, and is relieved by its segmental motion, at which time it again preponderates and comes back in the segment of a circle, with nearly its whole weight and momentum, when it again strikes and passes up, after making its cut, and so on, causing the counter weight *o* to have a short vibratory motion up and down as the saw strikes the stone and rebounds, gradually rising at intervals, as the saws are depressed, and allowing them to cut equally, however varying the density of the material may be. To guide the saw-gate *a*, fender-posts *p* are employed; outside of these are other posts p^1, and between these a box *q* slides up and down. The saw-gate is connected with these boxes by a guide-rod *r*, which slides through the box. Each end of rods *r* is attached to the frame by a portion of it bent at right-angles. The cover *s* is to prevent the guide from being clogged with sand, &c.

Claim.—The application to the saw-frame hanging from cords, so as to move of necessity in the arc of a circle of the counter balancing weight, which, at the same time, permits it to feed itself at all parts of its motion, substantially as described; and combined therewith the guides, constructed and operating as specified.

No. 13,540.—John Cochrane.—*Improvement in Machines for Sawing Marble.*—Patented September 11, 1855. (Plates, p. 261.)

By means of this arrangement of the saw-blades *g e*, two bevel sides of a taper block of stone can be cut at one operation. To prevent the warping or twisting of the saws, the latter are attached to sliders *k*, (connected to the reciprocating frame A by accommodation-links *a b c d*,) which work along stationary guides D E fast to the bed of the machine.

I *claim* the hanging of two saws in one gate, at any required angle with each other, in combination with the angular guides D and E, the slides *k l* and *m n*, and the accommodation-links *a b* and *c d*, or their equivalents, for the purpose of sawing two inclined or tapering sides of a block of marble or stone at one operation.

No. 13,591.—C. G. Bietel and H. J. Brunner.—*Improvement in Machines for Sawing Stone.*—Patented September 25, 1855. (Plates, p. 261.)

The nature of this invention will be understood from the claim and engravings.

The inventors say: We do not claim flexible saws, radial and curved ways, or guiding-rollers, separately.

But we *claim* the combination of the flexible saws D D, rollers E E, adjustable radial ways G G, and concentric grooves or ways M M, whereby the saws are enabled to run at different angles, and their open ends to approach and separate, without affecting the degree of their tension, substantially as described.

No. 13,742.—HENRY BURT.—*Improvement in Machines for Sawing Marble.*—Patented November 6, 1855. (Plates, p. 261.)

The frames B B^1, to which are attached the saw-blades *c* c^1, have their bearings or guides on frames A A^1. Each of the frames A and A^1 is provided with a thumb or set screw f^4; and by means of these thumb-screws f^4 and slots *z* the frames and saws can be set at various angles, so as to perform simultaneously two cuts forming a certain angle with each other. The connecting-rods *d*, which are to impart reciprocating motion to the frames B B^1 and saws *c* c^1, are connected to the crank-shaft *h* by means of ball-joints, so as to allow of their being swung out or in, together with the frames, as above described.

The inventor says: I am aware that different adjustable apparatus have been used for sawing wood, and that horizontal saw-frames have been used for sawing stone into square blocks, parallelograms, thin slabs, &c.; also, connections of various kinds have been used. I do not, therefore, claim the above devices separately.

But I *claim* the combination of the saw-frame B B^1, pivoted swing ing adjustable guide-frames A A^1, and connection-rods *d* d^1, arranged and operated in the manner and for the purpose set forth.

No. 13,762.—ROBERT G. PINE.—*Improvement in Marble-Sawing Machine.*—Patented November 6, 1855. (Plates, p. 261.)

e are the saws; the guides *g j* cause the frame B, when set in a reciprocating motion, to work in a right line: and by turning the rods *a* in proper position, the rods *d* may be made to work parallel with each other; or by turning the two front rods *a* inwards or towards each other, the rods *d* will work in straight lines obliquely with each other, the jointed arms *f n* compensating for the obliquity of rods *d*.

The sockets *k b* g^1 allow the saw-frame to be raised and the marble block D to be placed underneath, after which the saws will feed themselves by their own gravity.

Claim.—The frame B, connected by jointed rods *f n* to rods *d d*, working in sockets *b b*, which are fitted loosely on rods *a*, when the above parts are all constructed and arranged in the manner and for the purpose set forth.

No. 13,773.—GEORGE W. BISHUP.—*Improved Marble-Sawing Machines.*—Patented November 13, 1855. (Plates, p. 261.)

The tube *s* can be turned by means of hand-wheel *u*. The nature of the improvement will be understood from the claim and engravings.

Claim.—Operating the saws of stone-sawing machines by placing the lever H on a tube *s*, which has an internal screw-thread cut in it, and is fitted on a screw-rod *r*, substantially as shown, whereby the lever H may, by turning the tube *s*, be raised or lowered to suit the height of the sashes, as set forth.

No. 13,777.—WILLIAM C. CHIPMAN.—*Improved Marble-Sawing Machine.*—Patented November 13, 1855. (Plates, p. 162.)

Each end of the saw-frames M M extends through the slots *a a* in the suspension-frame D, and are securely held lengthwise by the rollers and bolts *b b*, and at the same time may work laterally with freedom within the slots *a a*, this motion being made easier by a series of friction-rollers *d d*. *m* are the saws.

Claim.—The rollers *d d d d*, when arranged in the manner and for the purpose stated.

No. 13,784.—LUTHER B. FISHER.—*Improved Marble-Sawing Machines.*—Patented November 13, 1855. (Plates, p. 262.)

h is a perpendicular rock-shaft; J segments notched down on arm *k*, which latter is secured to the rock-shaft. The segments are secured to hub *n*, (which is keyed to the rock-shaft,) by means of braces *o*. It will be seen that by setting the hub higher or lower, the segments will be crowded further out or in, thereby widening or reducing the space between the ends of the two rods *g*; by this means the saw-blades *c* may be set more or less obliquely, so as to cut the marble block *b* more or less bevelling. The saw-frames will receive a reciprocating motion by means of chains or straps *s s*, which are secured to each end of segments J J, and crossed and secured to rods *g g*.

Claim.—Operating the frames of stone-sawing machines, by means of the segments J J, in combination with braces *o o o*, arm *k*, and chains or straps *s s s s*, for the purposes and in the manner set forth.

No. 13,788.—GEO. W. HUBBARD.—*Improved Marble-Sawing Machine.*—Patented November 13, 1855. (Plates, p. 262.)

E are the saw-blades; the sash D receives a reciprocating motion. The centre guides F^1 and centre cleats *d* keep the saw-sash D working in a right line, the centre cleats being permanently attached to the end pieces *f* of the sash D, while the oblique guides will move laterally the saws E, and cause them to cut the two sides of the block G in taper form, the degree of taper of course corresponding to the position in which the guides F are set, by means of set-screws or otherwise.

Claim.—Constructing the adjustable guides F and permanent guides F[1] of stone-sawing machines, as shown and set forth.

No. 13,791.—WILLIAM B. KIMBALL.—*Improved Marble-Sawing Machine.*—Patented November 13, 1855. (Plates, p. 262.)

It will be seen that the two saws B[1] B[1] (set at an angle with each other) are driven from one crank K. The bar G slides in ways, and the connecting-rods F F are linked to the saw-frames and to said bar G at *d* and *f*.

Claim.—Driving the saw-frames or gates B B, by means of the jointed pitmans F F, and bar G, in combination with the geared segment H and crank K, when arranged as shown, and for the purpose set forth, and not otherwise.

No. 13,805.—CHARLES T. WARREN.—*Improved Marble-Sawing Machine.*—Patented November 13, 1855. (Plates, p. 262.)

As the saw-frame C is moved back and forth by means of pitman D, and as the sectors *f* gear into racks F, the sectors will, as the frame C moves, be turned or moved in a vibratory manner, and the pinions *d* will move the racks *c* in and out; the saws G (which are attached to these racks) will consequently be moved laterally in the saw-frame, while they are moving longitudinally, and two sides of the block will be cut at the same time in taper form.

Claim.—Giving the saws G G a lateral vibrating movement in the saw-frame C, as the saw-frame and saws work longitudinally, by means of the rack *c*, pinion *d*, grooved sectors *f*, and racks F, when arranged as described for the purpose specified, and not otherwise.

No. 13,829.—F. NOETTE and A. SCHMIDT.—*Improved Marble-Sawing Machine.*—Patented November 20, 1855. (Plates, p. 263.)

The block to be sawed is placed upright on the wheel Z, (see dotted lines, fig. 3,) and is properly secured within frame X. The lower or cutting edges of the saws O O are then set outwards, to correspond to the taper designed to be given the sides of the block. A reciprocating motion is then communicated to the saw-frame C by pitman D. As the saw-frame C vibrates, the saws cut the block from its top end downward; and at each stroke of the saw-frame the screw-rods G[1] are turned in consequence of the projection *g*[1], at the lower end of lever M, striking the pin *h*; and the nuts *i* will be moved further apart on their screw-rods G[1] at every stroke of the saw-frame, so that the block will be sawed in taper form. The block is fed upward as the saws cut, by means of worm-wheel *n* and screw-rod W. Worm-wheel *n* is turned by screw *m* on shaft T, the shaft being turned at each stroke of the saw-frame, by means of ratchet U, pawl *l*, and eccentric-rod R. When the sides of the block are sawed, the block may be run down below the saws by turning wheel Z, and the remaining sides may be sawed square, hexagonal, or in any other polygonal form.

Claim.—The combination and arrangement of the above described devices, when the same are all arranged and operated in the precise manner and for the purpose described, and not otherwise.

No. 13,866.—JOHN A. COLE.—*Improvement in Machines for Sawing out Tapering Blocks of Marble.*—Patented December 4, 1855. (Plates, p. 263.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Attaching the saws to swinging-frames *f f* by pivots at each end, which will admit the shoes *b b* turning to any angle to follow guides *e e*, the whole being arranged in the manner and for the purpose set forth.

No. 13,916.—GEORGE T. PEARSALL.—*Improvement in Machines for Sawing Marble, &c., in Taper Form.*—Patented December 11, 1855. (Plates, p. 263.)

The lower end of the levers C, at two opposite sides of the frame B, are attached to its sides, one lever being attached by a pivot *a* and the other by a button *b*, which works in a groove *b*[1] in the side of the frame. The upper ends of the levers C are connected to bars D of the framing A in a similar manner. The levers C C, at each side of the frame B, cross each other, and are connected to each other by a pivot *c*. The front and back ends of the frame B and the cross-pieces E have other levers C C attached to them in the same manner. The vertical bars H are fitted in longitudinal bars G, which are placed on the saw-frame F and slide freely on the end-pieces. The vertical bars H are attached to sockets I, which slide on cross-pieces J J, and to these sockets and to the uprights *f* of the framing A there are attached levers K by pivots *g* and buttons *h*, which work in the grooves *i*. The marble block to be sawed is placed underneath the saws L L, and the screw-rods N N are turned so as to operate the vertical bars H and the bars G, and thereby the saws can attain the intended oblique position. The cross-levers C C[1] allow the frame B to move up and down in a perfectly horizontal position, and the cross-levers K K cause the vertical bars H to be moved laterally in a perfectly vertical position.

The inventor says: I do not claim the adjustable bars H, irrespective of the mode of operating them; nor do I claim the laterally moving saws placed within a reciprocating saw-frame, for they have been previously used.

But I *claim* the employment or use of the levers C K; the levers K being connected to the sockets I of the bars H, and the uprights *f* of the framing A, and the levers C being attached to the frame B and the framing A, substantially as shown, for the purpose specified.

No. 13,164.—Geo. Finley.—*Improvement in Machines for Washing Sand.*—Patented July 3, 1855. (Plates, p. 263.)

The object of this improvement is to separate from sand, as it is dug from the earth, all such substances as roots, clay, pebbles, and any soluble matter, to make it suitable for the purpose of manufacturing glass.

The water is supplied to the cistern *a* from reservoir R through pipe *d*. The water-line in the cistern is kept at a uniform height by means of adjustable valves or gates *e* and *g* at both ends of pipe *d*. One-half of the cistern is occupied by hopper *b*, which is shaped like an inverted pyramid, terminating in the spout *c*. The water enters the hopper through small holes in its side; these holes entering with a downward inclination, so that the sand thrown into the hopper cannot fall through them. The spout terminates in a jet-block *h*, from which is suspended the riddle *k*, which vibrates horizontally. The lumps of clay, stones, &c., will remain on the surface of the coarse sieve *m*, and the sand will pass through it and the fine sieve *l*. The stones, &c., which will not pass through *l*, pass out of the riddle over an inclined apron at the side of it. The sand is shovelled from the water-trough *o* into another trough, where the sand receives its final washing with clean water.

I *claim* the use of the jet-block, or its equivalent, for the purpose of distributing the sand and water over the surface of the sieve, in the manner and for the purpose set forth.

No. 12,164.—Asa Keyes.—*Improvement in Machines for Cutting and Trimming Slate.*—Patented January 2, 1855. (Plates, p. 263.)

The improvement consists in applying a rapid succession of stone-hammer blows; each of which beats off a minute piece of the slate, while the latter is carried along for the purpose by a carriage. The under surface of the slate rests on the dog D, opposite to and near the point where each blow is given. The dog, which revolves freely on its axis, rises a little higher than the upper surface of the carriage, to insure its contact with the slate. By this arrangement the inventor proposes to keep the slate, however uneven, always in contact with its rest (the circular dog), and thus to prevent the frequent breaking of the plate which attends the use of a level-rest.

Claim.—The inventor says: I do not claim as my invention the cutting of roofing-slate by means of a revolving-knife and level-rest, after the manner of shears, as patented by James Carter, of Delabole, in the county of Cornwall, England, in the year eighteen hundred and forty-five, whose entire discovery, as recited in his specification and exhibited in his drawings, I wholly disclaim.

But I *claim* the combination of the cutters or hammers C on the fly-wheel A with the circular dog D, in direct contact with which each successive portion of the slate rests to receive the blows of the cutter, while the slate is fed up by a carriage on ways F; said combination operating substantially as and for the purpose above set forth and described.

No. 12,270.—Henry J. Brunner.—*Improved Instrument for Cutting out Stone.*—Patented January 23, 1855. (Plates, pp. 264, 265.)

The axes of pinions E E pass through the cutter-stock, and have ratchets E^1 E^1 on their inner ends. Motion being given to shafts S S^1, the two pinions O N are alternately revolved, and pass the cutter-stock and cutters to and fro. The racks C C are moved downwards at each forward movement of the stock B, by means of the lever G striking against the stop or pin H on the bar H^1; said lever in consequence moving the pawls F F and turning the ratchets E^1 E^1. At the end of the forward movement of the stock B, the lever G strikes against the stop or pin H^2, and the pawls F F are moved back to their original position, so as to act upon the ratchets, as before stated, at the forward movement of the stock.

Claim.—Cutting out slate or other stone from quarries by means of a cutter-stock B provided with cutters D D, and having a reciprocating motion given it by means of a toothed wheel P, in which pinions O N are made to gear alternately in consequence of the arrangement of the teeth on the periphery of said wheel P, as shown; said cutters D D having the proper feed-motion given them by the pawls F F, ratchets E^1 E^1, pinions E E, and racks C C, or other substantially equivalent device, operating as set forth.

No. 12,531.—James Smith.—*Improvement in the Manufacture of Stone Paste-Board.*—Patented March 13, 1855.

The inventor says in his specification: I pulverize a stone found in Gibsonville, Livingston county, New York, composed of silica, alumine, oxyd of iron, sulphate and carbonate of lime, and sulphate of magnesia. I then mix it with paper-pulp, and water is applied until the compound becomes about the consistency of pulp prepared for making paper, but somewhat stiffer. I use about three-fourths in weight of the pulverized stone to one-fourth of the paper-pulp. This mixture, when about the thickness of very thick pulp, I mould into sheets, as brown wrapping hand-made paper was formerly moulded. When moulded I dry the sheets, and afterwards saturate them with drying-oil, so far as they readily absorb the same.

The inventor further says: I do not claim the use of bole of any kind, or chalk of any kind, or Spanish white, or glue, or paper-pulp, or linseed oil, either separately or the whole combined; nor do I in any manner use bole, chalk, Spanish white, or glue, or a compound of which they form a part; but I *claim* sheets for roofing, boarding, and other purposes, made or constructed in the manner described, or other equivalent manner, by combining said stone when pulverized with paper-pulp. I also claim the application of and combining drying-oil with said pulverized stone and paper-pulp, combined in sheets, as aforesaid, in the manner described, or in any other equivalent manner, so as to produce the results specified, or others substantially the same.

No. 12 666.—Solomon E. Bolles.—*Improved Machine for Raising and Transporting Stones.*—Patented April 10, 1855. (Plates, p. 265.)

The derrick B is firmly connected with bed-frame C by means of braces c^1 c^1 and C^1 C^1. The braces C^1 C^1 (more distinctly shown in figures 2, 3, and 4) support also the axle-trees B^1 B^1, the inner ends of which axle-trees consist of flanges *c c*, which are secured to the bed-frame by means of bolts *d*. On these axle-trees the wheels A revolve. With the derrick is connected a windlass E for operating the lifting-chain H. Cog-wheel Y, on the axis of the chain drum, gears into a smaller cog-wheel on a shaft F, which shaft has its supports on the bed-frame C, and is operated by crank F^1. Disc K is fast to shaft F, and a drum K^1 with a ratchet-wheel *b* revolves freely on said shaft. A pin *a*, which can be passed through a hole in the disc into a corresponding cavity in the ratchet-wheel and drum K^1, serves to cause the said drum to revolve with shaft F, if so desired. Rope J is coiled round drum K^1. By setting free ratchet *b*, applying pin *a* as aforesaid, and attaching the team to the front end of rope J, the driving-power of the team can be made to raise the stone in conjunction with the power applied at the crank F^1.

The inventor says: I do not confine myself, in the aforesaid invention and specification, to any particular size of bed-frame; to any particular height of derrick; to any particular size of tackle-block, single or compound; to any size of axle-tree, or windlass, or even to the raising of stones as aforesaid, and removing them from their beds, without digging and blasting in the ordinary manner; said invention may be used for removing stones in any practical locality and position for the building of wall, and for other useful purposes.

Claim.—The construction of an axle-tree for "stone-digger," in combination with the bed-frame and derrick, substantially and for the purposes as set forth in the specification.

No. 12,766.—Louis S. Robbins.—*Improvement in Machines for Polishing Stone.*—Patented April 24, 1855. (Plates, p. 265.)

The driving-shaft A, the bearing of the upper end of which is not represented in the figure, rests with its lower end in a socket in the bed-piece B. The derrick C can be freely moved around shaft A. The arm *c* of the derrick, and a brace E attached to it, support shaft D, around which the disc F can be freely moved. The chuck L, which carries the rubber, is attached to shaft I by universal joint. Shaft I has its bearing in sleeve H, and can freely move up and down, there being a groove in the sleeve into which a feather on the shaft I fits. The sleeve, to which is attached the pulley *k*, has its bearings in the disc F, and in the outer end of arm G, through the other end of which the shaft D plays. The pulleys and bands keep the shaft I and rubber in rapid revolution, and by moving the derrick in arcs which have their centre in axis A and the disc round shaft D, the attendant can bring the rubber to bear upon any portion of the surface of stone M.

The inventor says: I do not claim the use of a revolving self-adjusting polisher or grinder, or the manipulating apparatus, separately considered; but I *claim* the manipulating apparatus (consisting of the shaft A, crane C, radial arm G, and wheel F, as above described) in combination with the revolving and self-adjusting rubber, or polisher, constructed and arranged substantially in the manner set forth, and for the purpose specified.

No. 13,116.—Thos. Hodgson, assignor to Robt. Lansing Wright.—*Improvement in the Manufacture of Artificial Stone.*—Patented June 19, 1855; patented in England May 9, 1854.

The inventor mixes together 90 parts (by measure) of sand or pulverized stone, 30 parts of plaster of Paris, and 24 parts of beast's blood. The mould is to be varnished, and immediately before the casting is performed it is to be coated with oil. The composition is to remain in the mould for about 16 hours.

The inventor says: I do not claim the admixture of blood with sand, or other earthy or mineral matter, except in the manner and for the purpose herein specified, as I am aware that such mixtures have been used for mortar, cement, stucco, &c.; but I *claim* the composition formed by the admixture of sand or pulverized stone, plaster of Paris, and beast's blood, when these ingredients are mixed in the manner and in about (without limiting myself precisely to) the proportions herein set forth, to be moulded or cast while in a plastic state, substantially as herein described, into blocks, architectural ornaments or devices, statuary, or ornamental or other forms or figures, and in such conditions used as a substitute for stone for building, architectural or other ornamental purposes.

No. 13,343.—Elias A. Swan & De Witt C. Smiley.—*Improvements in Machinery for Dressing and Carving Stone.*—Patented July 24, 1855. (Plates, p. 266.)

The stone, while it travels with bed B, is operated upon by the twisted cutters on shaft *g*, which are so arranged that one end of the succeeding cutter shall take the stone before the end of the preceding cutter has left the surface; thereby there is no blow or vibration in the machine, and the cutting is a gradual shearing operation. *h* is a cross-slide, which can be adjusted higher or lower, as in planing-machines.

In carving out arches, circles, or ellipses for mantels, jointing the corners of beads that come together at an angle by a segment of a circle, and in various other kinds of carved work, the axis of the horizontal cutter should be parallel to and over the radial line from which said curves are described, or else in its rotation a perfect mould or cut could not be produced, in consequence of the change of direction of the cut for this purpose; we have therefore provided an attachment to the slide-rest *r* (see figures, which are an elevation and plan from below of the same). On the slide-rest the vertical shaft of the pulley 43, which is driven by a belt, is fitted with a pinion 44, which gears to and rotates a wheel 45 on the upper end of a vertical shaft, that is set in bearings

on the slide-rest *r*, and carries near its lower end a disc 46 and strong sleeves in which the shaft rotates freely; and 47 is a lever, the inner end of which sets around the sleeve under the disc 46, and a pin 48 passing through holes in both the disc and lever gives the facility for turning the disc 46 completely around, by successively shifting the pin 48 into another hole in the disc. On the sleeves attached to the disc 46 that sets around the vertical shaft, a yoke *s* is attached and provided with journals. Carrying the shaft of a horizontal cutter *t* and s^1 are mitre gears, communicating motion from the shaft of the wheel 45 to the horizontal cutter *t*, which cutter is to be twisted and formed with the desired mould; and it will now be seen that by means of the lever 41, the cutters can be turned around so as always to stand on the radial line of any curved figure that said cutter may be forming. And in cases where the cutter *t* is required to be inclined out of a horizontal plane, the same may be done by forming the yoke *s* double, and providing holes by which it may be bolted with the cutter, and at any required angle to sleeve or disc 46, and in this case the bevel gear s^1 will have to be formed with rounding teeth to prevent their jamming.

In carving stones it is very often more expedient to use a circular rotating bed, carrying the material to be operated on; for where such a bed is used beneath the slide *h*, the mere turning of the screws 21 or 52, as the circular bed revolves, will cut all around a square, circle, oval, or similar shape for table-tops or other articles. To give this facility, a pinion 49 is provided on a cross-shaft, (see figures,) which receives motion from a pinion 10, before referred to, and, by means of mitre gears 50, rotates a vertical shaft 51, set in suitable bearings, the upper end of which is provided with a square or key seat, receiving the socket of a circular bed *u*, shown by dotted line. (See figures.)

The inventors say: We are well aware that spiral cutters have been used for shearing cloth and similar purposes, and also that cutters for planing-machines have been fitted spirally, or on an incline, and also that picks for stone-dressing machines have been arranged around a cylinder in rows that are not parallel to the shaft, but inclined thereto; therefore we make no claim to any of these devices But we are not aware that cutting-tools for dressing stone have ever before been formed as a gradual or constant twist or incline, so that no point of the cutting-edges is parallel to the axis of motion of said cutter; thereby the cut on the stone or similar rigid substances is a shearing cut at all times, and no blow is given by said cutter on the stone, and all vibration of the machine is consequently prevented, and the cut partakes more of the character of a continuous boring operation, that both preserves the cutters and machines, at the same time the best character of work is cut, and that on very thin stone that would be broken to pieces if the cutter acted with any blow.

And we are also aware that the cutting-tools of various characters of machines have been directed in their motion by patterns and screws; but we are not aware that a drawing moved with the bed, and so fitted that the cutting-tool is regulated by keeping a tracing-point over said drawing, has ever before been used, whereby the most delicate work can be cut to a drawing without the expense of a pattern, the motion

given to said cutter being, from the combined operation of the cross-slide rest acting with the main bed, to produce any desired shape of cut, according to the drawing the machine is made to follow.

1st. We *claim* the method described and shown, of dressing, carving or cutting stone, or similar rigid and unyielding substances, by the use of a rotating cutter, whose cutting-edge is spiral or at an incline with the axis of said rotating cutter; thereby the cutting edge always operates obliquely on the material under treatment, and effectually prevents any blow on the stone that would produce a vibration of the machine, or break the cutter or stone for the purposes as specified.

2d. We claim the method described of fitting a horizontal or inclined rotating cutter, so that it can be kept radially with any curved mould or cut it may be forming, viz: by the use of the yoke *s* and parts attached, substantially as specified.

No. 13,896.—JOHN TAGGART, asignor to HIMSELF and VERNON BROWN.—*Improved Machine for Channelling Stone.*—Patented December 4, 1855. (Plates, p. 266.)

B is the sliding-carriage; F F are the drill-gates, which carry a series of saws *b b*, which, together with the standards U, reach into the grooves cut into the block V.

The saw-gates having a quick vertical motion imparted to them, while they are moved horizontally by and with the carriage B, the drills of each will be made to cut the stone in a straight groove. As the mechanism for elevating the saw-gates is supported by standards extending down therefrom, and into the said grooves, and resting on the bottom thereof, the said operating mechanism will be caused to descend in proportion to the descent of the drills into the stone.

I *claim* supporting the operative machinery of the drill-saws by means of standards U U, extending down therefrom, and resting upon the bottom of the grooves made in the stone by said drills, the same enabling said operative parts or machinery to move downward with the drills in proportion as they may cut into the stone.

No. 13,952.—OLDIN NICHOLS and AMMI M. GEORGE.—*Improvement in Stone-Dressing Machines.*—Patented December 18, 1855. (Plates, p. 266.)

The iron platen B B slides in ways on the top of bed A, and is driven by means of rack C and gear D on transverse shaft E. The frame F is fitted to, and swings on, shaft E; and a secondary frame G is adjusted to, and slides on, frame F, to accommodate the various thicknesses of stones. This frame G is elevated or lowered by the screw H, operated by balance-wheel I, which is attached to the frame F. To cross-bar H^2, on frame F, is fastened the lower end of screw I^2, which passes through the centre of balance-wheel J^2. This balance-wheel is connected so as to revolve in the swinging-stand K^2 on the curved supports L^2. By this means any desired inclination can be given to

frame F. The toggle-joints J are suspended to the top of the sliding-frame, and at their lower ends there are the tool-holders K, which receive the picks in holes L, and the finishing tools in slots N.

On the rear side of frame G there are two stands, seen at R R, which support the main driving shaft S with pulley T. Two eccentrics V V are adjusted on said shaft by means of grooves therein seen at W, into which the ends of set-screws enter to hold firmly the eccentrics; both set-screws, of course, entering the same groove when the eccentrics are set so as to operate the finishing-tool; and one of the set-screws will enter one of the grooves on one side of the shaft, and the other set-screw will enter the other groove, which is formed on the opposite side of the shaft one quarter way around it, when the eccentrics are so set as to operate the picks alternately. The eccentric rods seen at Y drive the toggle-joints The bevel-gears Z and A^2, (on shaft S.) and worm-shaft B^2, with the worm F^2 in connection with gear G^2 on shaft E, serve to feed the stone to be cut, and set-screws M^2 prevent the lateral movement of frame F.

The inventors say: We do not claim the use of fixed cranks or eccentrics to work the tools of stone-dressing machines, for they have been used before; but we *claim* the combination of the movable and adjustable eccentrics with the toggle-joints, for operating or driving stone-dressing tools, arranged and operated substantially in the manner and for the purposes fully set forth.

XVI.—LEATHER.

No. 12,128.—Jesse W. Hatch and Henry Churchill.—*Improvement in Machines for Cutting out Boot and Shoe Soles.*—Patented January 2, 1855. (Plates, p. 267.)

Shaft A carries at its lower end shoe B, to which punch C is secured. Shaft A is provided with journals which fit in boxes secured to the front of slide P, which, fitting in vertical guides in the framing of the machine, receives a vertical reciprocating motion from eccentric pin *p* on the end of driving-shaft Q. (See horizontal section, figure 2.)

When shaft A reaches its highest position, spur-wheel E comes to gear with toothed segment F^1 on front end of lever F; lever F has its fulcrum in vertical pin *a*; and at the time of shaft A being in its highest position, cam I strikes the rear end of lever F and moves it round its fulcrum *a* the proper distance to cause spur-wheel E, and with it shaft A, to describe half a revolution. When shaft A is about reaching its highest position, the square part *b* of shaft A rises above guide J, and the round part *d* of the shaft comes into contact with the guide, thereby permitting the shaft to describe its half revolution.

Claim.—Giving the cutting-knife or punch C half a revolution on its axis after every cutting operation, substantially as described, by any suitable mechanical means, for the purpose of reversing its position for the next cut, and thereby, when its ends are of unequal width, preventing the waste which, without some such provision, would be unavoidable.

No. 12,607.—Henry G. Tyer and John Helm.—*Improvement in the Manufacture of Boots and Shoes.*—Patented March 27, 1855. (Plates, p. 267.)

The object of this improvement is, to produce a boot or shoe combining the qualities of India-rubber with the lightness and elegance attainable by the use of other materials, and capable of being resoled when necessary.

The upper *a* and in-sole *b* having been cemented together, perforations are made around and through the upper *a*, until the cemented surface of the in-sole *b* has been pierced; then these holes are filled up with cement; and then the outer sole *c*, properly cemented, is pressed upon the in-sole. If sufficient strength be used slightly to separate these several parts of the sole, (see figure 2,) the rubber-filament can be seen in threads *h*, as represented in said figure 2.

The inventors say: We disclaim the use or application of this our device or invention to any other matter or thing other than is described and set forth. We *claim* the uniting of the outer sole and upper, manufactured wholly or in part of vulcanized India-rubber, with the in-sole of boots and shoes, by means of cement, the cement passing through perforations made for that purpose in the upper, in the manner substantially and for the purposes described.

No. 12,670.—John Chilcott and Robert Snell.—*Improvement in Boot-Forms.*—Patented April 10, 1855. (Plates, p. 267.)

Clamp E consists of a strip of sufficient length to reach from the nick at *f* to the top of the front-piece A. This clamp E is prevented from being pulled out laterally by entering a recess *g* in the nick, and is secured at top by latch *h* catching pin *i* on the top of clamp E. The inside of the strip is furrowed from end to end, and the recess in which it is received is correspondingly furrowed to hold the material securely. The clamps I I, fitting to the outside of the front-piece and partly over the clamp E, are attached to screws K K, which fit in female screws in rod L. This rod L is fastened at its lower end to the bottom part of the front-piece. Its upper end is attached to the front-piece by plate P, in the manner shown in the figure. Plate P is fastened to the front-piece by screw N, which can be taken out. Pins *j j* serve to hold clamps I I in proper position.

Claim.—1st. The inner clamp E fitted to a recess in the front-piece A, substantially as described, so that its exterior presents the desired surface for a part of the front-piece; whereby, after having held the first edge of the front seam of the leg secure to the front-piece A, till the whole piece of material is lapped to the proper form, it may be drawn out lengthwise and re-inserted in the front-piece inside the edge it previously held, and thus throw out the said edge, and part of the material

immediately behind it, into contact with that part of the material which overlaps and is to be united to it to make the seam.

2d. The exterior clamps I I, attached to screws K K, working in an upright L, which is attached to the front-piece A, substantially as described, in a suitable position for the clamps to hold the two parts of the front seam together, and in such a manner that the top part can be easily detached from the front-piece A, to allow the said front-piece to be taken from the "upper."

No. 12,793.—Warren Holden.—*Improvement in Boot and Shoe Stretchers.*—Patented May 1, 1855. (Plates, p. 267.)

If one side of the boot is to be stretched, a knob *n* is attached to one of the parts *e*, and the corresponding side of the boot is properly moistened. Then the last is placed within the boot, and the screw *l* is turned, thereby forcing apart the sections of the last and stretching the moistened side of the boot.

If the toe of the boot requires stretching, the link *d* is disconnected, by removing the screw d^1. The turning of screw *l* (in position shown in figs. 2 and 3) will expand the front ends of the parts.

If the instep requires stretching, the levers *j j* are placed in the groove *i*, as shown in fig. 1, and the levers then expand vertically. When in groove *g*, the levers are placed horizontally.

Claim.—Dividing the last A into a number of parts *a b c c*, connected by rods *e e f f* and a link *d*, and forcing said parts outwards so as to stretch the boot or shoe at any desired part, or at all parts, by means of the device composed of the jointed levers *j j*, nuts *k k*, and rod *l*, as herein shown and described.

No. 12,794.—Hosea B. Horton.—*Improvement in Boot Crimping Machines.*—Patented May 1, 1855. (Plates, p. 267.)

A piece of wet leather having been laid across the jaws, it is, by the raising of them through the lever D, forced upon the crimp form F; by the repeated sliding up and down of the jaws on the leather, it is slicked smooth and embraces the crimp form. Should there be any thin place in the leather and the wrinkle not perfectly removed, the nearest set-screw *d* is turned, and the wire *b b* made to project beyond the face of the jaw opposite the screw. The angle-iron G, clamps I, and screw-rod H, serve to draw tight the leather on the crimp form.

Claim.—The adjustable wires *b b* (made so by set-screws *d d*) on the face of the jaws B B, arranged substantially in the manner and for the purpose set forth.

No. 12,816.—Thomas Daugherty.—*Improvement in Boot-Crimps.*—Patented May 8, 1855. (Plates, p. 268.)

The slides L M fit loosely to the arms of elbow G. The nut I is provided with projections *a a*, which extend up each side of the elbow so as to form two inclined planes which correspond with the inside of

the clasp K, which clasp is perforated so as to traverse freely upon screw H, and the inside of the arms are scored so as to gripe the leather upon the projections *a a* of the nut. The edges of the leather having been inserted between the slides L M and clasps P Q, and between clasp K and nut I, the screw H is turned, by which means the elbow G is moved outward, and with it the clasps, thereby stretching the leather. As the screw is turned it slips a little on the nut, and slides and draws the clasps on, so that the scored part of the clasps gripes the leather tight. The elbow, etc., are received in a groove in the crimp-board A, formed by projections E and F.

Claim.—1st. (Substantially as above described and shown,) the projections E and F, to which the leather may be tacked after it is stretched, thereby permitting the stretching apparatus to be removed and applied to another crimping-board.

2d. The nut I, as constructed with projections fitting upon both sides of the elbow, applied and operating substantially as described.

No. 12,877.—John H. Thompson, Jas. M. Thompson, and H. Q. Thompson.—*Improved Machine for Polishing the Soles of Boots and Shoes.*—Patented May 15, 1855. (Plates, p. 268.)

No description required.

Claim.—A machine for polishing the soles of boots or shoes, having a polisher or polishers *g h* made of bone or other proper material attached to a shaft *f*, which has a reciprocating motion imparted to it in any desirable manner.

No. 12,985.—Alfred Swingle, assignor to Elmer Townsend.—*Improvements in Hand Pegging-Machines.*—Patented May 29, 1855. (Plates, p. 268.)

By striking with a hammer upon the top of awl-driver C, the spring slider D is driven up into handle A, thereby splitting a peg from the block which is arranged in the space L between the said slider and the peg-wood driver M; to the latter is imparted a constant tendency to press the block forward by means of an elastic band N. The awl E and peg-driver F work through holes I and K in the said slider. G is an India-rubber spring attached to the lower end of the awl-driver.

The inventor says: I do not claim combining with an awl-holder or haft, and its handle, a spring slider independent of or separate from the handle, and made to play within it and to slide on the awl; the object of such slider being to draw or force the awl out of the leather sole, or other articles, immediately after having been driven into the same.

Nor do I claim a sliding peg-receiver or spout, applied to a peg-driver and made to move therewith, and to operate as described in the patent of William Kielder and Nehemiah Hunt, dated August 15, 1854, my invention differing essentially therefrom.

But I *claim* so combining the peg chisel or cutter with the spring slider and the peg receiving and discharging passage thereof, that such peg-cutter shall be moved upwards with and by the slider, so as to

separate a peg from a strip of peg-wood, as specified, the same rendering it unnecessary to employ a spring bottom to the magazine, as is required when the peg-wood is moved against the knife.

I also claim the above specified manner of applying the spring to the peg-wood driver M and magazine, viz: by employing an elastic band spring, fastening it at its two ends to the magazine and the driver respectively, and making it to play around a grooved pulley applied to the handle or magazine, as stated; such a method of applying the spring having advantages, as set forth.

No. 13,003.—Luther Hill.—*Improved Machine for Skiving Boot and Shoe Counters.*—Patented June 5, 1855. (Plates, p. 268.)

Lever A^1 (turning horizontally) has its fulcrum upon the upper end of lever B^1. Studs *e f* projecting from lever A^1 rest respectively against the middle of the rocker-frame S and the end of shaft F. B^1 turns upon a fulcrum at *g*, and is operated by a foot-treadle below. By means of levers A^1 B^1, the clamp-plate and the rocker-frame S are simultaneously moved towards the rotary bed; the clamp-plate being carried into contact with the leather to be skived, while the knife is borne against the thin edge of the clamp-plate and against the edge of the rotary cylinder, so that whatever may be the thickness of the piece of leather, the knife will be made to adapt itself to that thickness. At the same time that the face-clamp is moved towards the cylinder-bed, the peripheral clamp will also be borne down upon a counter placed on the periphery of the cylinder and between the same and the said clamp.

I *claim* combining with the rotary cylindric bed or carrier B, its face-clamp E, and arc-cutter M, the peripheral clamp I and its cutter; the whole being arranged and made to operate so as to perform the function of bevelling along the arc of one counter and the chord of another during one revolution of the said cylinder-bed, as specified.

I also claim combining the arc-knife or cutter M, the cylindrical bed or carrier, and the clamp thereof, by means of mechanism, substantially as described, in order that such arc-knife or cutter may adapt itself to a leather counter of any ordinary thickness, held between the clamp and the plane surface of the cylindric bed; such means or mechanism being the rocker-frame S and the adjusting lever A^1, supported and made to operate substantially as specified.

I also claim supporting the bifurcated frame T of the rocker-frame S by means of a rotary journal and clamp, or the equivalent thereof, so that the angular position of the knife M, with respect to the plane surface of the rotary carrier B, may be changed as circumstances may require.

No. 13,023.—Geo. W. Zeigler.—*Improvements in Boot-crimping Machines.*—Patented June 5, 1855. (Plates, p. 269.)

The jaws are corrugated, as shown in the engravings, so as to work the leather away from the angle of the crimping-iron and into the foot and leg of the boot. The nuts *n* serve to stretch the leather upon the crimping-iron. The slots in plate K are so constructed as to move the foot of the crimping-iron into or between the jaws twice as fast as it does the leg, and to give it a compound motion which, in combination with the corrugations in the jaws, work the leather in the required direction to crimp it properly.

The inventor says: 1st. I *claim* the segment-gear M and rack J, or their equivalents, in combination with the slots K K, or their equivalents, for the purpose of giving to the plate H the described motion, for the purposes set forth, substantially as described.

2d. I am aware that the jaws of boot-crimping machines have been corrugated, and the ribs and grooves made parallel with their edges; therefore I make no claim to such corrugations.

But I claim corrugating them, substantially as described, for the purpose set forth.

No, 13,063.—Jean Pierre Molliere.—*Improved Machine for Cutting the Edges of Boot and Shoe Soles.*—Patented June 12, 1855. (Plates, p. 269.)

This arrangement consists in arranging two revolving tools G and *h*, both of the same construction, only *h* being of larger size than G. The side of the shoe is first held againt tool G, placing the edge of the guard-plate *g* between the upper and the sole. The shoe being thus slipped along to the point, and the same way with the other side of the shoe, the edge of the sole is finished with the exception of the heel. The heel is cut by the larger tool *h* (it being provided with a similar guard-plate *k*) in the same manner as the sole.

Claim.—The cutting down or paring and sawing the edges of the soles and heels of boots and shoes by means of the circular tools G and *h*, revolving upon horizontal, vertical, or angular axes; the whole constructed and operated substantially as described.

No. 13,072.—Caleb H. Griffin, assignor to Caleb H. Griffin and George W. Otis.—*Improvement in Machines for Cutting out Boot and Shoe Soles.*—Patented June 12, 1855. (Plates, p. 269.)

The operator places his foot on treadle H and moves it up and down, so as to impart to the shaft *c* a reciprocating rotary motion, he at the same time holding a strip of leather on the top surface of the table, and against guide-bar *z*. After each cut, he moves the strip forward against said guide or stop-bar. The carriage I has (by the means illustrated in the engravings) an intermittent reciprocating motion imparted to it, which carries each of the knife-bars K K in succession directly underneath the depresser-bar S, which, descending thereupon, forces the knife-bar and its knife P or R downward towards the cutter-block, and cuts through the leather. Figure 4 represents the soles as cut out by the machine. Each knife is elevated from the leather by the springs *s* on the rods that guide its bar K.

The inventor says: I am aware of the machine of Richard Richards, patented on the 16th December, 1854, the two cutting-knives of such machine having been applied to opposite sides of a revolving shaft, such shaft being partially revolved at suitable periods of time in order to bring alternately each cutting-knife in succession into the required position for it to cut through the leather, when depressed by the frame or mechanism by which it was made to act upon the same. I therefore do not lay claim to any such method of applying and operating the knives, it being attended with an uncertainty of action to which my improvement is not liable.

But I *claim* the combination of the depresser-bar with the reciprocating knife-frame, its two movable knives, and their elevating springs, or equivalent machinery, such being arranged and made to operate together, substantially as specified.

I also claim the combination of mechanism for imparting to the knife-frame its intermittent reciprocating movements, as described, the said combination consisting of the two momentum-levers W X, the barrel E on the driving-shaft, and the two sets of connecting-straps *k l*, *m n*, the same being applied to the carriage and shaft, and made to operate substantially as set forth.

No. 13,073.—JOHN M. WIMLEY, assignor to J. A. B. SHAW.—*Improvement in Attaching Gutta-Percha Soles to Boots and Shoes.*—Patented June 12, 1855. (Plates, p. 269.)

The melted gutta-percha is filled into mould A up to the rim *e*, and the shoe placed thereon and pressed firmly down until the sides of the shoe come in contact, all round, with the rim *e*. The gutta-percha is thus forced into and through the holes previously made through the in-sole and edge of the upper.

The inventor says: I am aware that India-rubber, after being cut out and shaped like a sole, has been united to the in-sole and upper by means of an intermediating cement, caused to penetrate holes made in the in-sole and upper; but I do not claim this, nor do I claim uniting gutta-percha and leather for any other purpose than that of manufacturing boots and shoes, as described.

But I *claim* manufacturing or making boots and shoes with the outer sole made entirely of gutta-percha, when the said outer soles are simultaneously formed and united to the upper and in-sole, by means of heat and pressure, in a mould, substantially as described and set forth.

No. 13,095.—JEAN PIERRE MOLLIERE.—*Improved Machine for Cutting Leather into Strips for Boot and Shoe Soles and Heels.*—Patented June 19, 1855. (Plates, p. 269.)

The leather being placed upon table A, it is slipped under the frame; for the traveller K, being at one of the extremities of the apparatus, does not hinder this being done. To cut the edge of the leather straight, the leather is kept in position by means of ruler M, which is a piece of iron with a longitudinal groove in it, in which plays the round

steel chisel O, (when the ruler is kept down,) and at each end of this groove it is provided with an opening into which the traveller K can pass. The ruler is governed by two spring-rods N buried in the thickness of the table, and whose springs always tend to keep it raised; these rods are connected under the table by yoke P attached to a treadle (not shown in the engravings). When the leather is pushed under the rule the treadle is depressed, thereby pressing down the rule and keeping the leather firmly in its place. The handle R is then moved, throwing the parts (for moving the chain) into gear, and thus setting K in motion and cutting the leather. Arrived at the end, the traveller encounters one of the fingers S attached by levers T to rod 2, forces it forward, and throws the chain out of gear, thereby arresting the traveller. The treadle is then let up, which will allow the springs N to throw up the outer M so as to let the leather pass, which is cut straight, and which the workman pulls towards him until its smooth edge comes up to the two pins 3, and then the operation above described is to be repeated, and so forth.

Claim.—The cutting up of the sides of leather into sole and heel-strips of any required breadth, by means of the self-arresting curved knife-blade O, driven alternately to the right and to the left by the Vaucanson chain H, while the leather is held in its place against the adjustable pins 3 by the spring-ruler M, the whole constructed and operated substantially as described.

No. 13,144.—REUBEN H. THOMPSON.—*Improvement in Hand-Machines for Pegging Boots and Shoes.*—Patented June 26, 1855. (Plates, p. 270.)

Motion is given to slide H by striking upon head K. The slide H carries the awl *i* and peg-driver *j*. The peg-driver is intended to drive one peg at the same time that the awl makes the hole for the next peg, the machine being moved the distance from one to the next by a slight pressure of the hand in that direction, this distance being measured, and this motion of the machine restricted to correspond, by the spring spacer T. The point at the lower end of T (it being held down by spring W) pierces the leather sufficiently to keep the machine from being easily moved out of place if a slight downward pressure is exerted upon the machine. Just as the slider H completes its descent, the arm O on the slider operates the tumbler P, the latter taking into a notch in the spacer T, and thus withdrawing the spacer from the leather at the time the awl is sunk deepest into it. T has also a slight vibratory motion in a groove in the spacer-plate Y, limited in one direction by the side of the groove, and in the opposite direction by the eccentric adjusting pin X, by the turning of which the travel of the spacer may be accurately graduated. The spacer bears against this pin; the pressure of the hand in the direction the machine is to move, will, however, move the spacer to the opposite side of the groove; then as it is raised by each descent of the awl and peg-driver, it will spring forward against pin X, and as the awl begins to rise will descend in the same position upon the leather; and when the awl rises

so as to clear the leather, the pressure of the hand in that direction overcomes the spring of the spacer, and moves forward the machine for the next peg. The peg-wood is placed between the part G of the feeder and the spring D. This spring feeder is operated by the head of the screw V, which holds the awl and peg-driver to the lower end of the slider, and which projects through a slot in the front of the case, striking, as it descends, against a bend in the feeder, and pushing it back so as to give it new hold upon the peg-wood, at the time the wood is held firmly by the cutters and a clamp E.

Claim.—1st. The spring spacer or stepping-instrument T, constructed, arranged, and operating substantially as described.

2d. I claim the spring feeder F G, constructed, arranged, and operated by the driver-slide H, substantially as described.

No. 13,272.—S. T. Parmelee.—*Improvement in Attaching Metallic Heels to India-rubber Soles.*—Patented July 17, 1855. (Plates, p. 270.)

The India-rubber is vulcanized after having been fitted within the metallic casing A. It could not be done after the vulcanizing, as vulcanized rubber cannot be rendered sufficiently soft.

The inventor says: I do not claim the mere insertion of India-rubber within metallic rims or casings, for the purpose of forming the heels of boots and shoes, for that has been previously done; but I *claim* having the metallic rims or casings A formed with recesses *a*, arranged in any proper way; so that the soft or plastic India-rubber B, mixed with the proper vulcanizing materials, may be fitted therein, and the rubber and rims or casings be permanently locked together, by subjecting the rubber to steam heat, and vulcanizing it, when fitted within the rims or casings, for the purpose as set forth.

No. 13,296.—John Arthur and Evan Arthur.—*Improvement in Machines for Cutting Boot and Shoe Uppers, Soles, &c., from Sheets of India-rubber.*—Patented July 24, 1855. (Plates, p. 270.)

The endless apron B, which has an intermittent motion, receives the sheet of India-rubber *a;* the cloth J, between the India-rubber and apron, being properly wetted by its passage through a water-trough F. Two endless chains K carry the die-frames *d* with the dies *f*. The die-frames are pivoted to the chains at *g*, and are carried by the chains through the stove M and over the roller D. When over the roller D, the sides of the die-frames come under stationary plates *h*, and are, in their onward motion, firmly pressed upon the India-rubber, which is thereby drawn over roller D at the same speed with the dies. The dies cut, or rather melt, through the rubber, taking out pieces according to the shape of the dies. The pieces are conducted to apron G, (by means of thin fingers 20 secured to a swinging-frame *r*,) while the waste, still remaining attached to the piece *a*, passes over rollers *l* and *m*, and between *m* and *n*, on to the apron *o*. As soon as the die-frame, after having performed the cutting, comes around chain-roller *b*, the

extensions *v* of the frame will strike and pass under pin *w*, which will throw up the front part of the die-frame so as to make room for the die-frame, which passes below.

Claim.—1st. The cutting or separation of India-rubber, by placing it on a wet cloth or other suitable moistened surface, and submitting it to the pressure of a heated die, having an edge of the form of the article to be cut, substantially as set forth.

2d. The combination of one or more reciprocating die-frames, each carrying a set of dies with a stove, and with carrying and pressing apparatus to carry the sheet or piece of rubber, substantially as herein described; so that the dies, by their reciprocating movement, may be carried into the stove to be heated, and then returned to cut or stamp out the pattern or article from the piece, as set forth.

3d. The method of raising the die-frames to carry the dies, on their return movement towards the stove, far enough above the roller D for other die-frames to pass below them, by extending the ends *v v* of the side-pieces *d d* of the said frame some distance beyond the pivots *g g*, which connect them with the chain; and providing pins *w w* for the ends *v v* of the die-frames to strike against, to throw up the opposite ends carrying the dies, substantially as described.

4th. The swinging-frame *r*, with its fingers 20, arranged and operating substantially as described, to conduct the points, or ends of the patterns, as soon as they are cut or separated between the roller D, upon which the cutting is performed; and another roller *l*, by which they are at once prevented curling it, and are conveyed along towards where they are delivered from the machines.

No. 13,796.—Jean Pierre Molliere.—*Improvement in Machines for Cutting Boot and Shoe Uppers.*—Patented November 13, 1855. (Plates, p. 270.)

G is the piston of the steam-cylinder operating the bed I. The skins are laid upon said bed I, and the cutters (consisting of pieces of bent steel) placed upon the skins, and then steam-power applied to lift and press the table, skins, and cutters, against the head-block C, so as to cut pieces corresponding to the shape of the cutters.

I *claim*, by letters patent of even date with the French letters patent for the same invention, the use of a large bed-plate pressed up against a resisting body by steam or other equivalent power, by which a large number of different parts are cut out from a skin by different cutters at the same time, substantially as described.

No. 13,798.—Charles Rice and Sylvanus H. Whorf.—*Improvement in Lasting and Applying Soles to Shoes.*—Patented November 13, 1855. (Plates, p. 270.)

The sole and the upper are first placed together upon a last A, the upper being made to overlap the outer surface of the in-sole, and affixed thereto by cement. The whole being thus prepared, it is next placed

within the clamping-bed B, and the parts of the latter closed. Next the platen of the press is to be depressed, so as to carry the punches on the under side of die *w* into contact with the parts of the upper which overlap the inner sole, so as to make perforations through them, and either into or through the inner sole. The platen C is then to be elevated, and cement applied to the outer surface of the inner sole and overlapping parts of the upper. Next the outer sole is to be laid upon the cemented surfaces, and the slide G moved so as to bring the die *u* directly over the last A. Next the platen is to be forced down upon the outer sole, so as to press it closely in contact with the shoe, and expel from between the soles the superfluous cement.

Claim.—The holding-clamp B and last A, as used together, and in connexion with the pressing or puncturing mechanism, or both, for the purpose of fixing soles to shoes by cement, substantially as set forth.

No. 13,827.—Charles Rice and Sylvanus H. Whorf.—*Improved Machine for Preparing Leather, for the Manufacture of Boots and Shoes.*—Patented November 20, 1855. (Plates, p. 270.)

The skin is first introduced between the feed-rollers A B of the splitting mechanism, and by them is forced against the knife C; the upper portion of the skin split by said knife C passes towards and between the draught-rollers D E, which move it forward between the roller F and rasper G, which latter roughens the under surface of it. From the rasper, the leather moves over guide-bar W, between the pressure-roller I and the perforating-roller H; and finally it passes between the roller X and brush K, which latter revolves through a vessel L, containing cement, and applies the latter to the roughened surface.

Caim.—The above described mechanism, or machine, for preparing leather for the manufacture of shoes and boots, the whole being arranged and made to operate substantially in the manner and for the purpose set forth.

No. 13,852.—John S. Lewis.—*Improvement in the Mode of Cutting the "Uppers" of Boots.*—Patented November 27, 1855. (Plates, p. 271.)

The full lines in fig. 1 represent the form of the fronts cut on this improved plan, whereas the dotted lines represent the old way of cutting fronts. It will be seen that the improved plan saves a piece of leather included between the lines *a a* and point *f*.

Claim.—Cutting the boot-front all the way down, no wider, or but little wider, than the usual width of the part which is to form the front of the leg, and filling the vacancy *b* which is thus caused when the front is crimped by a separate piece, by extending the back or counter, or by a piece produced in any other way, whereby the saving is effected in cutting the fronts, substantially as described.

No. 13,854.—Jean Pierre Molliere.—*Improvement in Machines for Rasping and Dressing the Heels and Soles of Boots and Shoes.*—Patented November 27, 1855. (Plates, p. 271.

The operator applies the bottom of the sole first to the tool *e*, and the bottom of the heel first to the tool T^1, (all the tools turning very rapidly,) for the purpose of having the rough parts of the leather and the jags of the nails taken off; the sole is then applied to tool *f*, and the heel to tool U, to finish the dressing.

Claim.—The circular tools *e f* T^1 and U, with rasping and dressing faces, revolved on horizontal, vertical, or angular axes, for the purpose of rasping and dressing the bottoms of heels and soles of boots and shoes, the whole constructed and operated substantially as described.

No. 13,867.—Alonzo R. Dinsmoor and Levi J. Bartlett.—*Improved Instrument for Chamfering the Edges of Shoe-Soles, &c.*—Patented December 4, 1855. (Plates, p. 271.)

The piece of leather is laid upon a flat table, and the blade A and spring-presser H are borne down simultaneously upon the leather, while the end of the lever-gauge G (turning upon fulcrum *d*) is made to rest upon said table. This done, the cutting-edge *a* of the tool is to be maintained at such an angle from the table as occasion may require, and the tool is to be pushed forward upon and around that portion of the leather which is to be chamfered.

The frame B is fastened to the knife by means of a wedge *c*.

Claim.—The combination and arrangement of the lever-gauge and spring-presser with the knife-blade or chisel, substantially as specified, the same being used in manner and for the purpose essentially as explained.

No. 13,875.—Jesse W. Hatch.—*Improvement in the Machine for cutting out Boot and Shoe Soles.*—Patented December 4, 1855. (Plates, p. 271.)

The cutter is attached to a vertical shaft, which is provided with journals to work in bearings in slide P, moving in vertical guides in framing C, and receives its vertical reciprocating motion from eccentric pin *a*, at the end of the horizontal-shaft D. The shaft in this machine makes only about three-fourths of a revolution in opposite directions alternately, the said movement being produced by a treadle F, which is a lever of the first order, with its fulcrum *g* at the rear end, secured to the floor or to a suitable bed-plate; said treadle being connected by a rod *o* with a wrist *b*, at the back of the fly-wheel G of the shaft D.

While the machine is at rest, the wrist is always held in one of these two positions by a weight *r* attached to or cast on the fly-wheel, the said weight resting upon one of two fixed standards $f f^1$. In either of these conditions of the wheel and wrist, the treadle is of course raised. The operator stands in front of the machine, in a convenient position

for placing the pieces of leather or other material in a proper manner upon the table H for the action of the cutter; and when he depresses the treadle by his foot, he moves the wheel far enough to bring the weight *r* over the centre of the shaft D; but the momentum the weight has acquired in moving to that point carries it past the centre, and then the pressure of the foot being taken from the treadle, it descends by the force of gravity until it reaches the other standard, thus completing the movement of the wheel. This movement of the wheel brings down the cutter and raises it again, and, just before its termination, it moves the lever E to reverse the position of the cutter by the action of one of two projections *d d*^{1} upon one of the prongs *e e*^{1} of a fork on the rear-end of the lever. The prongs *e e*^{1} of the fork are at different elevations, and the projections *d d*^{1} at different distances from the shaft D, to correspond with the elevation of the prongs *e e*^{1}; so that when the wheel moves in the direction of the full arrow shown in figure 1, the projection *d* may pass under the higher prong *e* and strike the lower prong *e*^{1}, thus throwing the lever to the position shown in figure 2; but when the wheel moves in the direction of the dotted arrow, the projection *d* may pass over the lower prong *e*^{1} and strike the higher prong *e*, thus throwing the lever to the position the reverse of that shown in figure 2. The movements thus given to the lever take place just before the weight comes in contact with the standards *f f*^{1}, and is just sufficient to give half a revolution to the punch-shaft. To keep the cutter-shaft from turning back too soon, the friction of a bar *h* is applied in a yoke I; on the top of the framing, between the top of the yoke I and the bar *h*, the lever E works snugly, and the bar is forced up against the lever to produce the necessary friction by two India-rubber springs *i i*, one at each end. Stop-screws *j j* are also applied to the yoke I, to stop and regulate the movement of the lever.

Claim.—1st. The projections *d d*^{1}, at different distances on the face of the wheel, and the fork *e e* on the sector-lever E, having its prongs at different elevations, combined and operating substantially as set forth.

2d. The application of the spring friction bar *h* to the yoke I for preventing the return of the sector-lever before the proper time, in the manner specified.

No. 13,886.—James Henry Sampson.—*Improvement in Boot-Trees.*—Patented December 4, 1855. (Plates, p. 271.)

In using this tree the foot portion is put in the boot; next the leg parts are passed into the leg of the boot, and connected to the foot C by means of dove-tail D. Then the lever E is to be turned down until the sections A B of the leg are pressed apart sufficient to mould the boot into shape. When the parts A B are closed upon one another, the pressure of the part A upon the upper arm of the lever-catch will prevent the stud *c* of said catch from entering recess *d;* but whenever the parts A and B are separated or forced asunder, the spring-lever catch will be free to be moved by its spring, and so as to lock the foot C to the leg portion B.

I *claim* the combination and arrangement of the three levers, and the screw M applied to the section A and B of the tree, and made to operate together, substantially as specified.

I also claim the combination of the spring-lever catch with the foot C and front section B in the manner described, and for the purpose specified.

No. 13,901.—Henry E. Chapman.—*Improvement in Boot and Shoe Peg Cutters.*—Patented December 11, 1855. (Plates, p. 271.)

This implement is shaped like the ordinary float used by boot-makers, but, instead of being faced upon its lower surface by rough teeth forming a rasp, this float has rectangular openings *c c* at right-angles to its length, cut obliquely backward from the bottom upwards, the solid portions *s* forming cutters like plane-irons for the purpose of cutting away the pegs within a boot.

I *claim* the making of shoe-makers' floats, or peg-cutters, with planing-cutters, substantially as the same is set forth and described.

No. 13,914.—Jean Pierre Molliere.—*Improvement in Machines for Cutting out, Punching, and Stamping the Soles of Boots and Shoes.*—Patented December 11, 1855; patented in France July 22, 1853. (Plates, p. 271.)

The cutting out, pricking and stamping, (or numbering of the size of the shoe,) is done at one blow by means of punchers *a b* of the shape of the sole and heel, provided with prickers *d* and stamps *e* and P. *m m* and *o* are the detaching rods, the rods *m* working through holes *h* in the punching-frames; the punches are operated by eccentrics upon shaft L, which eccentrics are so set that the punches will successively, one after the other, arrive at their lowest or punching position, so as to distribute more equally power and resistance. When the punchers pass upward, the pieces of leather encounter the rods *m*, which are stationary, and are detached by them from the punches. The rod *o* serves as stamp, and also as detaching-rod for the heel-pieces. The workman holds the strip and puts it under the puncher; but, as this must be done with great rapidity, the leather finds itself guided and stopped in such a way that it can be instantly moved into its place. The guides to effect this consist of two pieces *r* forming the sides of a square—one of which is graduated and has on it the numbers of the sizes. As the puncher is always in the centre, these guides must be governed by a single movement in their approach to and retreat from it. This is done by the following mechanism: Two pieces S slide on a guide-bed, and have an oblique groove in which plays a pin fixed to the guides *r;* these two pieces S are connected by the cross-tie *t*, and controlled by the screw *u*, which, being attached to a bracket, causes the traverse *t*, of the pieces S, to move forward or backward, so that the pieces S, by their oblique grooves, push forward the guides. The stopping-piece *x* is supported upon a small axis *v;* it is kept down upon the leather on the flat by the counter-weight *y* attached to the axis, while the puncher

is cutting; a spring-catch hitches under the piece *z* and lifts up the stopper as fast as the puncher rises, which leaves time enough to remove the leather that has been cut; when it gets up as far as it can, the piece *z*, which has described the arc of a circle, lets the catch go, and being drawn down by the counter-weight *y*, the stopper falls back to its place.

Claim.—The cutting out of soles and heels by the blades *a a* and *b b*, from strips of hammered or other leather, sliding between the guide-pieces *r r*, and held in place by the stoppers *x x*, the pricking and stamping of the heels and soles, so cut out by the awls *d* and the stamp at the same time; the three operations being performed at one stroke, the detaching from the blades and awls of the pieces cut out, pricked, and stamped by the detaching-rods *m m* and *o*, and the adjustment of the eccentrics upon the shaft L in such manner that no two of the punchers can operate at one and the same time; the whole constructed and operated substantially as described.

No. 13,950.—Jean Pierre Molliere.—*Improvement in Machines for Polishing or Burnishing the Edges of Soles and Heels of Boots and Shoes.*—Patented December 18, 1855; patented in France January 5, 1855. (Plates, p. 272.)

The steam passes from the boiler through pipe *x* and into branch-pipes x^1, one for each burnishing-tool *p*, and can be let into the hollow shaft *l* and the chamber *p* within the tool *p* by opening the cock U. A number of these tools, (each one rapidly revolving,) of slightly varying sizes, are arranged in line. The polishing of the edge of a sole or heel is performed by presenting said edge to the revolving polishing-tool, and pressing it gently upon it.

Claim.—Of even date with the French patent, the rotary hollow-tools, capable of being heated to any degree by the admission of steam or other heating medium, into the chambers through the hollow shafts on which they turn, from the regulating valve-cocks U, for the purpose of polishing and burnishing the edges of soles and heels of boots and shoes, the whole constructed and operated substantially as described.

No. 13,951.—Jean Pierre Molliere.—*Improvement in Machines for Mounting the Uppers of Boots and Shoes on Lasts.*—Patented December 18, 1855; patented in France August 19, 1854. (Plates, p. 272.)

The nature of this improvement will be understood from the claim and engravings.

I *claim* the arrangement of the adjustable frame I and thumb-screw G, armed with its tooth-clamp H, which, pressing vertically upon the inner portion only of the heel, holds the last securely in its position, and gives free access to the parts thereof on which any work is to be done by the apparatus, the whole substantially as described.

No. 13,119.—Wm. Boyd and Wm. F. Boyd.—*Improvement in Bridle-Winkers.*—Patented June 26, 1855. (Plates, p. 272.)

The object of forming the winkers on metallic plates is to keep them in proper shape when exposed to rain and when rubbed by the horse.

Claim.—Forming the flaring or projecting portions *a* of the winkers A of horse-bridles on metallic plates *b*, as shown, and for the purpose set forth.

No. 13,306.—Kingston Goddard.—*Improvement in Bridle-Reins.*—Patented July 24, 1855. (Plates, p. 272.)

The driver for ordinary purposes has only the snaffle-rein *c* in hand; but in case of accident, the loop *i* of the curb-rein is always convenient at hand for the control of the horse.

Claim.—The arrangement of the reins, substantially as described, by making the snaffle-rein tubular, in part, to receive the curb-rein, substantially as and for the purpose set forth.

No. 12,397.—Wm. D. Titus and Robt. W. Fenwick.—*Improvement in Bridle Bits.*—Patented February 13, 1855. Plates, p. 272.)

Claim.—The described improvement in bits for stopping runaway horses, consisting in the application of pads, so arranged and controlled by a rein that, at the pleasure of the rider or driver, they may be made to close the horse's nostrils, and thereby check respiration, as set forth. (See engraving.)

No. 12,494.—Wm. L. Whittaker.—*Improvement in Machines for Stuffing Horse-Collars.*—Patented March 6, 1855. (Plates, p. 272.)

On table A are arranged two hoppers C sliding in ways, so that they may be moved towards or from each other; they are funnel-shaped, so as to contain but little straw at the point where the stuffing-rods pass through them, and not clog the rods. The outer sides of the hoppers are inclined and are composed of rods *b*, between which pass an inverted rack, as it were, its base *c* projecting out and resting on the straw. This inverted rack is weighted by a bar *d*, which causes it at all times to press equally on the straw and carry it down to where the stuffing-rods pass through the hopper, and thus keep a regular supply of straw at that point to take the place of that carried into the collar.

The inventor says: I am aware that a hinged rack inside of a hopper has been used, which, the inventor states, can be moved up or down to change the quantity which the stuffing-rods are to carry into the collar. It is not clear how it was done; but it differs from my plan, which keeps a regular and unvarying quantity at the spot which the rods pass through. It is deemed new, therefore, in its special application.

I am also aware that a collar has been stretched while it was being filled from one end only. This is not any part of my invention, because

the same difficulty arises as to its susceptibility of having the straw lapped.

I *claim* in combination with the hoppers the weighted racks for bringing down a regulated quantity of straw to take the place of that carried into the collar by the stuffing-rods, as set forth.

I also claim stuffing the collar simultaneously from both ends, by means of stuffing-rods which travel past each other at the centre of the collar, by which means the straw is evenly lapped at the centre as at the ends, substantially as described.

No. 13,087.—Robert R. Gray.—*Improved Expanding Block for Horse Collars.*—Patented June 19, 1855. (Plates, p. 272.)

This block is arranged for expansion, so as to lengthen and widen a horse collar.

The inventor says: I do not claim any device in the machine separately and alone considered.

But I *claim* the arrangement of the two sets of jaws B B, C C, by which the inner jaws C C alone are actuated directly by the screw G, while the outer B B are actuated by the expansion of the inner C C, and the pressure of the springs H H, both jaws being guided by the slots D D, E E, in the manner and for the purposes set forth and described.

No. 13,132.—Peter Moodey.—*Improvement in Horse-Collar Blocks.*—Patented June 26, 1855. (Plates, p. 272.)

This collar-block is to be placed upon a wooden frame, jointed or split at its centre, which frame is curved like the under section of a collar; and to this frame is to be fastened the block securely, by inserting the supporters H H, V V, into holes bored for their reception. The block is to be opened until its extremities are thrown back to the desired position; then the collar is to be secured at each end to the holders F F, with the rim up; and then slides are to be thrown out by means of levers E E, and secured there by the regulators G. While in this position, the collar is to be stuffed. After stuffing, the slides are to be drawn in and fastened by means of the regulators; then the extremities of the block are to be be brought together, and the holders F secured by slipping a ring over them.

Claim.—The combination and arrangement of the hinge, the slides D D, levers E E, and regulators G G, or severally the equivalents thereof, so as to secure the stretching, stuffing, and blocking of a horse-collar of leather, cloth, India-rubber, or other material, without removal from the block, in the manner substantially as described.

No. 13,189.—T. J. Van Benschoten.—*Improvement in Horse-Collar Blocks.*—Patented July 3, 1855. (Plates, p. 273.)

The collar G is placed over the three jaws C C B; the screw-rod D is then turned, and the two jaws C C are moved in consequence backwards and outwards, owing to the oblique position of the ways *c d*. The nut E has two spring arms *f*, the outer ends of which spring arms are attached to the front ends of the jaws C C.

The inventor says: I *claim* nothing new in the arrangement of the one screw-rod between the two jaws, nor yet in the mere arrangement of the three jaws or blocks, and the effecting of a longitudinal and lateral stretch to the collar, by the one operation of the screw, when these parts have been differently operated, as such have before been used.

But I claim the arrangement and operation together, substantially as shown and described, of the obliquely sliding back jaws C, along either side or edge of the collar, on its interior, with the stationary front jaw, to the narrow or upper end of the collar, as and for the purposes set forth, and whereby the advantages specified are obtained.

And I further claim giving to the obliquely sliding jaws C, acting separately, but in concert, increased freedom of action or play on their ways, to effect simultaneously the lateral and longitudinal stretch of the collar, by connecting the freely supported operating screw-nut E with the obliquely sliding jaws, by spring arms *f*, as set forth.

No. 13,949.—S. B. McCorkle.—*Improvement in Machines for Stuffing Horse-Collars.*—Patented December 18, 1855. (Plates, p. 273.)

It will be understood by reference to the engravings, how the lever Q is operated by means of roller K, and how the front arm of lever Q (represented in dotted lines) operates the ratchet N and roller L, the pins *h* of which, during the intermittent revolutions of the roller, draw the straw downwards from the box I and present it to the stuffing-rod C.

Claim.—The cylinder L provided with teeth or rods *h*, and operated by the roller K, lever Q, arm O, and ratchet N, for the purpose of feeding the straw to the plunger C, substantially as shown and described.

No. 13,965.—Samuel Shattuc.—*Improved Horse-Collar.*—Patented December 18, 1855. (Plates, p. 273.)

The tapering washer C turns about screw E, which latter fastens the two projections D D^1 and sections A A^1 together. The washer can be turned one quarter-circle, and the screw F secured into one of the holes C^1 so as to spread the sections A A^1 more or less by bringing the thickest part of the washer more or less towards that part of the horse-collar which rests upon the animal's neck, so as to adapt the horse-collar to the size of the neck. The slot H (in projection D), through which the screw F passes, allows the sections A A^1 to vibrate in relation to each other, so as to yield to the movements of the animal.

The inventor says: I am aware that horse-collars in one unjointed piece have been known and used.

I *claim* the key F, screw-key E, and sections A A^1, provided with

the projections D D¹, arranged as set forth, and combined with the washer C, constituting a jointed collar, for the purpose described.

No. 13,858.—Samuel E. Tompkins.—*Improvement in Metallic Saddle-Trees for Harnesses.*—Patented November 27, 1855. (Plates, p. 273.)

By elevating the seat C, as shown by bridge B and ribs *c c*, a groove *e* is formed on each side of it from the head to the tail of the tree, and thus provision is made for the insertion of the ends *f f* of the leather seat G and the ends *g g* of the skirts H H. This gives the saddle a neat and finished appearance even when simply riveted together.

Claim.—Providing metallic harness saddle-trees with an elevated bridge B, substantially as and for the purpose set forth.

And in combination with the same, employing ribs *c c* on the front portion of the under seat, substantially as and for the purpose set forth.

No. 12,171.—Cuno Werner.—*Improvement in Compositions for Dressing Leather.*—Patented January 2, 1855.

This composition consists of sixty pounds of saturated infusion of oak-bark, forty pounds of common train oil, sixteen pounds of rosin, (previously melted and incorporated with four pounds of hog's lard), and one ounce of creosote.

The advantages of this improvement the inventor alleges to be cheapness and a quicker and more intense action upon the leather.

Claim.—The use or employment of a compound for dressing leather, composed of a saturated infusion of oak-bark, (or other substances affording tannin), train or fish-oil, rosin, hog's lard, and creosote, compounded and combined as herein set forth, and for the purposes specified.

No. 12,226.—Hiram L. Hall, assignor to Jas. C. Stimpson.—*Improvement in Processes for Making Japanned Leather.*—Patented January 9, 1855.

The composition used in this process consists of two ounces of sulphur, (freed from its acid), half an ounce of alum, and half an ounce of borax. These substances are dissolved in one quart of water, and the leather thoroughly saturated therein.

Claim.—The improvement in the process of manufacturing patent or japanned leather, which consists in applying to the leather the composition herein above described, (prepared either with or without borax), and then submitting it with the varnish coatings thereon to a high degree of heat, whereby the surface of the leather is so matured as not to be affected by any temperature or change of climate.

No. 12,392.—Matthew H. Merriam and Joseph B. Crosby.—*Improvement in Leather-Splitting Machines.*—Patented February 13, 1855. (Plates, p. 274.)

The cutter-frame E slides on ways B, and receives a reciprocating motion by means of connecting-rod G and crank F on driving-shaft D¹. Thus the cutter I has a reciprocating motion, and is, at the same time, revolved around its vertical axis by means of the endless band *a*. By this means the cutter is made to act on the leather with a drawing cut. The roller *o* consists of a cylindrical part *o* and a conical part *q*, both parts being connected by a universal joint; the part *q* has its outer bearing in a lever *s*, which is so connected with hand-lever N that said conical part *q* can at any time be brought closer to or further off the roller *i*. The function of this conical part is to draw out the puckers which are found on the belly-edges of hides; when any puckers occur, the operator presses the conical part harder against the leather, not allowing it to slip as much as before until the puckers are all drawn out in consequence of the increased surface speed being made to act more or less efficiently. K is a gauge-bed, its upper surface being parallel to the plane of motion of the revolving and reciprocating cutter I. The distance between the top of this bed, or the apron L on it, and the edge of the cutter, determines the thickness of the leather when split. The cutter is vertically adjustable by a set-screw *b*. The endless apron L stretches over the rollers *j* and *i* and bed K. The spring-plate *k* presses the leather against the apron and bed K. The rollers *o i* are so geared together that the surface speed of *o* is somewhat greater than that of the apron L or roller *i*, by which means the leather is drawn "taut" between the "bite" of the rollers and the spring-plate.

The inventors say: We *claim*, 1st. The disc-cutter having a simultaneous rotary and reciprocating movement, as applied to machines for splitting leather, and other analogous purposes.

2d. We do not claim the broad device of constructing a draught-roller so that it shall have a greater circumferential velocity in one part than in another.

But we claim constructing the draught-roller *o*, so that its increased circumferential velocity may be made to act more or less efficiently as desired, substantially in the manner described.

3d. The combination of the apron L, bed K, and draught-rollers *i* and *o*, when the roller *o* is constructed substantially in the manner and for the purpose set forth.

No. 12,444.—Charles Morris.—*Improved Machine for Shaving Leather Straps.*—Patented February 27, 1855. (Plates, p. 274.)

The inventor says in his specification: I pass the two legs K into holes in the bench, with the back of the knife towards me, apply my thumb to the thumb-piece L, force back the roller H, (see fig 1,) and insert the end of the strap downward between the roller and edge of the knife, when the spring I I will force the roller forward, so as to press the leather against the edge of the knife, when, by drawing the

strap through, the knife will take off a shaving of the exact thickness of the space between the edge of the knife *a* and the gauge B, while the spring E E will yield, so as to allow the roller to conform to the thickness of the strap.

Claim.—The combination of the knife *a* and gauge B with the swinging-frame F, when this frame is supported by the frame *c c*, or its equivalent, to allow this frame F to yield to the varying thickness of the strap, and the whole is constructed, combined, and made to operate as described.

No. 12,806.—NATHAN AMES, assignor to SAMEL GREEN.—*Improvement in Machines for Polishing Leather and Morocco.*—Patented May 1, 1855. (Plates, p. 274.)

By turning the wheel C, it is apparent from the figure that in one half of its revolution the tool R will be raised up from the ellipsoidal table T, while during the other half the tool will pass as near to the table as may be desired without touching it.

Claim.—The above described method of raising the figuring or polishing-tool R, while passing back over the table T T; *i. e.*, by making the tool-holding hand in effect a fixed part of the connecting-arm F F, constructed and combined substantially as described, so that the machine, partaking of the nature both of a reciprocal and rotary motion, may operate without joint, noise, or friction, as easily and silently as a wheel revolving on its axle, and as rapidly as may be desired, and at the same time moving in a uniform ellipsoidal orbit over the table without touching it.

No. 12,878.—WILLIAM MCK. THORNTON.—*Improvement in Machines for Creasing the Edges of Leather Straps.*—Patented May 15, 1855. (Plates, p. 274.)

The collars are adjusted singly, or two, three, or more of them, according to the width of the strap to be creased, are brought together; by which arrangement a strap can be creased to any desired width. During this adjustment of the collars, the creasers on shaft H are lifted out of the way by bringing the lever D, which supports said shaft, into position represented in dotted lines in fig. 2.

Claim.—The movable collars 1, 2, 3, &c., of different sizes on shaft F, in combination with the movable metallic creasers I I on shaft H, having flanges extending below the periphery of the collars, and shoulders with grooves *b b*, operating in the manner and for the purposes herein set forth.

No. 13,071.—JOSHUA TURNER, Jr., assignor to ASA BENNETT and WARREN COVEL.—*Machine for Ruling Leather.*—Patented June 12, 1855. (Plates, p. 275.)

A, frame of the machine; directly over the reciprocating bed B there a shaft *a* sustained by two arms *b*, affixed to and projecting from

shaft *c*, whose journals are supported by standards *d* on frame *a*; shaft *a* being free to be moved up or down. Shaft *a* carries the wheels *e*, the central eyes of which wheels are of somewhat greater diameter than the diameter of the shaft, so as to enable each wheel not only to play freely up or down, with respect to bed B, or a skin placed thereon, but also to maintain the wheel in contact with an inking-roller *g*. For the purpose of stripping narrow as well as wide skins, some one or more of the stripping-wheels *e* can be thrown out of action by means of bar S and hooks *t*, as will be understood from an inspection of the engravings. Shaft *a* carries at each end a rocker-arm *u*, which has a catch-pin *v*, which pin operates in connexion with lever-catch *w*, that turns upon fulcrum *x*, the said catch having an arm *y* carrying a stud *z*. The lifter a^1, (applied to the top surface of bed B,) when carried against stud *z*, during the forward motion of the bed, raises said stud so as to lift catch *w* above pin *v*, and allow weight b^1 to so act upon arm *u* as to move it on frame A, and to cause it to elevate the series of stripping-wheels, and keep the same elevated some distance above the bed, until stud c^1 is carried by the bed, and during its backward motion, against arm *u*, or a pin projecting therefrom, so as to move said arm out of its upright into an inclined position, and thereby cause the stripping-wheels to descend towards and upon the surface of the bed; catch *w*, in the mean time, being elevated by and dropped upon pin *v*.

The top and front view in the engravings represent only one half of the machine, the other half being exactly alike.

The inventor says: I do not claim the combination of a printing-roller with a movable bed; but I *claim* my improved manner of combining each of the two stripping-wheels of the described machine with its movable bed and inking or closing roller, the same consisting in applying said stripping-wheel to its shaft in such a manner as to allow it to rotate on the same, and to play freely thereon in any direction, in a plane perpendicularly thereto, and to such extent as to accommodate itself to the changes in the surface of the leather, or article to be stripped, as specified, and at the same time keep in close contact with its coloring-roller, or cylinder.

I also claim combining with the series of stripping-wheels, arranged together and on a shaft, as described, a mechanism for raising and maintaining either one or more of them out of action with the surface to be stripped, and the coloring-roller, during the movements of the remainder of such wheels, and the bed and surface to be stripped, under them, as specified; such mechanism being a cross-bar or frame S and its set of suspension-hooks *t t t*, arranged, supported, and made to operate substantially as described.

I also claim combining with the series of stripping-wheels and the bed, a mechanism not only for raising said wheels from a skin resting on the bed, and after it has been stripped by them, but for maintaining them entirely off the skin during the backward movement of it and the bed, as specified; the said mechanism being a rocker-arm *u*, with its weight b^1, the catch or latch *w*, the lifter a^1, and the projection c^1, as applied to either one or both ends of the shaft *a*, and made to operate as explained.

No. 13,407.—JOHN B. TAY.—*Improvement in the Bed-Spring of Leather-Splitting Machines.*—Patented August 7, 1855. (Plates, p. 275.)

As the hide or sheet of leather usually varies more or less in thickness, the spring bed will accommodate itself to its inequalities without producing creases in the lower surface of it, the spring plate or guard *a* operating to prevent such. The screws *e* are for the purpose of adjusting the top surface of the plate *a* to its proper distance from the roller, which is usually placed over it, and between which and the back spring the leather to be split passes, in its course to the edge of the splitting-knife.

Figures 1, 2, and 4 represent only one end of the plate.

Claim.—The improved bed or back spring, as composed of a thin guard or spring-sheet of metal *a*, and a series of separate springs *b b b*, &c., united to or forming part of a plate B, as described.

No. 13,605.—CHAS. WESTON, T. F. WESTON, and JNO. W. WESTON.—*Improvement in Leather-Finishing Machines.*—Patented September 25, 1855. (Plates, p. 275.)

The bed *b* is made elastic by means of spiral springs *e*. A piece of rubber is inserted between the tool *h* and the bottom of the tool-stock *i*; *g* represents the piece of leather to be finished.

Claim.—In a machine for finishing leather, in combination with the soft elastic bed and elastic finishing-tool, the cord *p*, secured to the tool-stock for the purpose of keeping the tool clear of the leather, during its retrograde movement over the bed, as set forth.

No. 13,766.—JEREMIAH A. MARDEN and HENRY A. BUTTERS.—*Improvement in Machines for Splitting Leather.*—Patented November 6, 1855. (Plates, p. 276.)

When a hide is passed into the machine, it is carried under and against both the roller R and the wire S, it being held against the roller R by an attendant. Should there be any cockles in the hide, such as would be liable to produce wrinkles under the action of the feed-rollers, they will be carried against the wire or rod S, and will force it upward, and cause the arms *k* to be elevated so as to throw or permit the pawl T to fall down upon the ratchet, and thereby arrest the movement of the roller R, and in consequence of the same cause friction to be generated upon the skin, so as to retain it sufficiently to enable the feed to draw out the cockles. As soon as they are taken out, the wire S will fall, and cause the pawl to be thrown off the ratchet (this movement being insured by the action of cam U on the tilting-lever *i*, when said cam is carried against said leaver by the knife-carriage, which it will be when the tilting-lever is depressed into the path of the cam).

Claim.—Combining with the feeding apparatus a mechanism, substantially as described, by which the leather may be restrained in its delivery, so as to effect the reduction of "cockles," as specified.

No. 13,819.—THEODORE P. HOWELL and NOAH F. BLANCHARD.—*Improvements in Treating Leather for Enamelling.*—Patented November 20, 1855. (Plates, p. 276.)

The leather is placed inside the cylinder, which consists of smaller and wider ribs *k* L; and a number of iron balls *n* covered with India-rubber, to prevent their cutting the leather, are also placed inside said cylinder. The cylinder being revolved, the leather will be softened by the falling of the balls. The dust passes out between the ribs of the cylinder.

The inventors say: What we claim, in our machine for softening tanned and dry leather, is not the details thereof, separately and apart from their use in combined action.

We *claim* the combination of the cylinder as constructed with the elastic shotted-bags, as constructed and used for softening tanned and dry leather for japanning purposes.

No. 13,920.—CHARLES RICE and SYLVANUS H. WHORF.—*Improvement in Machines for Cutting Articles from Leather.*—Patented December 11, 1855. (Plates, p. 276.)

A pack of sheets of leather is laid on the bed A, and directly under the goring and forming die P; the pack-clamp R is then to be forced downwards, so as to confine the pack of leather to the bed. Next, the platen F is to be depressed by means of lever K, so as to carry the cutting-die in contact with, and cause it to cut entirely through, the pack. The plate H, which is in contact with lever K, is connected to the platen F by rods G, extending through the shelves E and F. Against the under surface of the platen there is a rotary disc L, which is furnished with a series of screw-clamps M M M, for the purpose of confining it to the platen. The said plate turns freely upon a vertical pitman N, which projects downwards through the platen; and the shaft E slides vertically and freely through them, and is supported on an elevating spring *o*, arranged and resting on shaft E.

Affixed to the under side of the rotary plate L is a cutting and goring die P, which extends downward from the plate, and has a pack-clamp R disposed within it, and so applied to the pitman N as not only to be capable of rotating freely thereon in a horizontal plane, but of being immovable, in other respects, relatively to the pitman, being moved either upward or downward by the pitman, which is operated or forced downward by a second cam-lever *r s*, which, when in use, turns in a fulcrum C, sustained by the middle shelf D. From the above it will be seen that whenever the adjustable plate L is revolved horizontally, it will produce a corresponding rotary movement of the pack-clamp R.

In order that the cutting and goring die may be accommodated to the pack of skins, or sheets of leather or cloth, or such as may be, and so as to cut up the same to the best advantage, or with the least waste of material, the cutting-die is applied to the platen by means of the rotary plate, as described, and the pack-clamps are also applied to its shaft or pitman, in manner as specified.

The inventors say: We lay no claim to any of the devices or combinations contained in the machines described in patents Nos. 6,095 and 12,128; but we *claim* combining the cutting-die with the platen by means of a rotary and adjustable plate L, in combination with so applying the pack-clamp to its pitman that it may turn thereon when the die or cutter is revolved, in the manner and for the purpose as specified.

We also claim the described arrangement of the operative mechanism of the pack-clamp, and that by which the cutter is either depressed or elevated.

No. 12,481.—Julius C. Dickey.—*Improvement in Harness Saddle-Trees.*—Patented March 6, 1855. (Plates, p. 276.)

The inventor says: I *claim* the shank-piece or prolongation of the nut C. for the purpose of enabling me to place the turrets higher up on the yoke, where they properly belong, and to prevent the reins passing through them from being too much spread at that point, as they would be if the turrets were placed at the joint, which is limited in its position, substantially as set forth. (See engravings.)

No. 13,213.—Daniel Campbell.—*Improvement in Saddle-Trees.*—Patented July 10, 1855. (Plates, p. 276.)

The act of girting this saddle to a horse will cause the side-bars to adapt themselves to the back of the animal, whether he may be fat or lean.

The inventor says: I do not claim uniting the side-bars of a saddle-tree to the pommel and cantle by means of joints; but what I *claim* is the combination of the side-bars *a a* to the pommel and cantle by means of the springs *b b*, substantially in the manner and for the purpose set forth.

No. 13,864.—Daniel Campbell.—*Improvement in Military Saddles.*—Patented December 4, 1855. (Plates, p. 276.)

The advantage of placing the connecting-strap of the holsters below the pommel of the saddle is, that the holsters can be confined much more securely, and also that a blanket or overcoat can be slung in the strap *b* which passes through the point of the pommel, without encumbering the rider. By dividing the valise into two receptacles, and securing them immediately in rear of the legs of the cantle, the cantle is not required to rise so high as usual by several inches, which enables the rider to throw himself into the saddle much more easily, and the double valise can be secured much more firmly and closely than a valise of the usual form.

Claim.—1st. Placing the arch of the connecting-strap of the holsters E below the pommel of the saddle, and supporting the holsters upon projections from the forward ends of the side-bars of the saddle-tree, or their equivalent, substantially as set forth.

2d. Covering the holsters by means of the roof-piece B, attached to the connecting-strap of the holsters, and the covers C C, which are pivoted to the sides of the holsters, substantially as set forth.

Also, constructing the valise of two connected receptacles D D, which are supported immediately in the rear of the legs of the cantle, substantially in the manner and for the purpose set forth.

No. 13,240.—Orrin D. Vosmus.—*Improvement in Open Stirrups.*—Patented July 10, 1855. (Plates, p. 276.)

By arranging the loop of the stirrup-strap D, the opening *a* in the stirrup-shank C, and the sliding-loop E, as represented in the engravings, the stirrup will always be held in proper position for placing the foot therein.

The inventor says: I do not claim an open stirrup, as it is not new; but I *claim* in combination with an open stirrup a shank-piece or arm, which passes between the stirrup-straps and is held in place by a loop, or its equivalent, substantially in the manner and for the purpose set forth.

No. 12,148.—R. Keeler, assignor to L. C. England.—*Improvement in Tanning Processes.*—Patented January 2, 1855.

The stock is prepared in the tan-pits, as usual; also the tan-liquor. Into this the oil which is to be incorporated with the stock is poured little by little, the liquor and the skins being at the same time kept in constant agitation. In consequence of this process, the inventor says, a large quantity of oil is gradually absorbed by the leather, and a larger proportion of tannin is taken up by the skins than would be if there were no oil; and hence results the greater weight, quality, and value of the article.

(No illustration.)

Claim.—The herein described improved method of tanning leather, by introducing oil into the tanning-liquor and effecting its incorporation with the leather, in combination with the tannin, substantially in the manner and for the purposes as set forth.

No. 13,403.—Geo. W. Smith.—*Improvement in Tanning Apparatus.*—Patented August 7, 1855. (Plates, p. 276.)

The outer surface of these leaches will always be saturated with water, and thus the planks of which they are composed will be better preserved than if intermittently wet and dry, as was heretofore the case.

A is one of the tan-leaches, and L the surrounding space filled with water.

Claim.—Surrounding the ordinary tan-leaches with a water-chamber, constructed in the manner and for the purposes herein set forth; not intending to limit myself to a particular form or mode of structure, but comprising any form by which the leaches are surrounded by water-spaces, substantially as described.

No. 13,443.—Otis B. Wattles.—*Improvement in Tanning-Compounds.*—Patented August 14, 1855.

Fifty sides, or the same bulk of skins, are placed in the vat. A composition of strong lime-water, 25 pounds of salt, and 3 gallons of soap, is then put into the vat, and the sides are worked in the vat until the hair is loose. When the hair is removed, the sides are placed in a vat containing soap-suds, (from 5 to 10 gallons of soap being used,) and the sides are well handled for two or three days. The sides are worked until the lime is entirely out of them, and are then placed in a strong tannin liquor made of any vegetable tannin and thoroughly mixed with from 5 to 8 gallons of soap. The sides are worked until the grain is set, the strength of the liquors being kept up until the sides are tanned, the same proportion of soap being used.

1st. I *claim* the employment or use of soap combined with salt and lime for unhairing or depilating the hides.

2d. I claim the employment or use of soap combined with the tan-liquor for tanning the hides, substantially as described.

XVII.—HOUSEHOLD FURNITURE AND IMPLEMENTS.

No. 12,689.—Samuel N. Maxam.—*Improvement in Machine for Paring Apples.*—Patented April 10, 1855. (Plates, p. 277.)

The scroll C attached to the driving-wheel A increases from its commencing point *a* to the height *b c* at its outer end. A rod D, guided by a standard K, slides with its inner end along the edge of the scroll as the latter revolves together with the driving-wheel; spring L always presses rod D against the scroll. The rod D is hinged to the lower end of a lever which has its fulcrum in E, and the upper end of which forming a toothed sector, gears into a similar sector on the end of a slotted arm F, which latter is fast on shaft G. The rod carrying the knife is hinged to the end J of shaft G, and passes through the slot of arm F. The prongs for supporting and revolving the apple are on the shaft of a pinion gearing into the cogs of wheel A. It is apparent that arm F will describe the semi-circular movement necessary to convey the knife to the surface of the apple from one pole to the other while the apple is revolved.

The inventor says: I do not confine myself to the precise form and exact arrangement of the several parts hereinbefore described, as I may choose to vary the same, while I attain the same results by means substantially the same.

Nor do I claim any particular form or construction of the knife to be used upon the machine set forth, but may use any of the known forms of straight, curved, circular, or cylindrical knives which have long been in common use.

But I do *claim* the inclined plane-scroll C, combined with the movers

D, E, and F, or their mechanical equivalents, combined, arranged, and operating substantially in the manner and for the purposes herein set forth.

No. 13,891.—Levi Van Hoesen.—*Improvement in Machines for Paring and Slicing Apples.*—Patented December 4, 1855. (Plates, p. 277.)

A is the cutter-wheel for slicing the fruit; I are the prongs for the reception of the apple, and they are revolved by the machine when C and G are in gear, or they are revolved by applying the hand to the crank H when C and G are out of gear. The rod M of the paring-knife L is connected to a wire spring *c*, so as to allow the knife to fit the inequalities of the apple. The knife is made to revolve round the apple one-half of a circle (while the apple is being pared) by turning rod M by hand.

Claim.—The combination of a paring with a slicing-machine, when constructed and combined substantially as described; that is, with an arrangement whereby the fork carrying the apple may be turned so as alternately to be brought into play with the paring-knife and with the slicing-wheel, being at the same time thrown into gear in the former case, and out of gear in the latter.

No. 12,656.—Wm. Stoddard.—*Improvement in Folding-Bedsteads.*—Patented April 3, 1855. (Plates, p. 277.)

The nature of this invention will be understood from the claim and engravings.

Claim.—The making the side-rails C of bedsteads in sections hinged together, and also to the head and foot posts, so that they will fold together substantially as specified, in combination with the slats E which support the bedding, which slats are so constructed and provided with pins or projections F near the ends of them as to brace or hold the folding-rails firm when the bedstead is extended, essentially in the manner and for the purposes set forth.

No. 12,693.—Joseph Rodefer.—*Improvement in Bedstead-Fastenings.*—Patented April 10, 1855. (Plates, p. 277.)

C is a ring open at *d*, and inserted into a circular groove in rail *a*. The circular open space *h* in post *b* contains a pin *g*, which passes between the rail *a* and the hook-end *e* of ring *c*; the post-mortise pressing firmly against the shoulder end *f* of the ring, so that the rail will resist any force to turn it in the post. The ring is easily adjusted by a tap given either against point *e* or shoulder *f*. The mortises can all be cut by circular saws.

Claim.—The circular split ring let into a segmental annular mortise in the rail, from which its upper end projects in the form of a hook, and its lower end in form substantially as described, permitting the

passage of the catch-pin in the act of insertion, affording an additional lateral bearing and a means of adjustment, as described.

No. 12,905.—Henry Gross.—*Machine for Cutting Screws on Bedstead-Rails.*—Patented May 22, 1855. (Plates, p. 277.)

The clamp *l*, holding the end of the rail, is opened and closed by the double-screw *m n;* the lever *h* works on a pivot in the middle, and is attached at each end to the nut-blocks *e;* by throwing wedge *f* to the left or right, one of the nut-blocks will be raised, and thus the left or the right screw on shaft *c* will be acted upon. The cutter is pivoted to the cylinder-head *d*, and works through a slot in the same, as seen in figure 3, and is kept in place, when cutting, by one of the screw-heads *j*. One side of each screw-head *j* is cut off, so that when the flat side is turned towards the cutter it is released, and can then be changed by pressing down the other end, which is secured in its place in the same way by the other screw-head *j*, which has only to be turned far enough to bring the rounded side of the head over the cutter at that point. The outer end of the rail rests upon a wooden block (figure 4) with a pointed iron set in the centre.

The inventor says: I do *claim* the mechanical combination and arrangement of the double-V cutter, and the manner it is secured in the cylinder-head when used by the screw-head *j j*. Also, the changes from right to left, by which changes right and left handed screws are cut with the same cylinder-head and double-V cutter. Also, the mechanical arrangement and combination of the lever *h*, the wedge *f*, and nut-blocks *e e*, when working together in the manner described, viz: the nut-blocks being right and left longitudinal sections of female screws, and used to direct the course of the shaft to which the cylinder-head is attached, the wedge by which the nut-blocks are changed, and the lever which guides the blocks and keeps them in their proper place when the change is made. Also, in combination as above, the double clamp *l* and nut *m n*, as shown in figure 1, the screw by which the clamp is opened and closed, and the rest-block, figure 4, for supporting the rail while being cut. All the foregoing I claim as a combination and arrangement for the purposes aforesaid, new, different, and far surpassing any machine now in use for cutting these screws. All else, and all other parts of machines designed for the same purpose, I disclaim.

No. 12,940.—Thomas Arnold, assignor to W. & J. S. Arnold & Co.—*Improvement in Invalid Bedsteads.*—Patented May 29, 1855. (Plates, p. 277.)

The object of this arrangement of invalid bedsteads is, to facilitate the sitting up and stepping out of bed. The dotted lines represent the inclined positions of the movable parts of the bedstead.

The inventor says: I do not claim, separately, any of the within described parts irrespective of the general construction of the bedstead; but I do *claim* forming the main frame, or bottom A of the bedstead, in three parts *a b c*, the middle part being stationary, and the head part *a* rendered capable of being elevated, and the foot part depressed, in the manner and for the purpose set forth.

No. 12,944.—E. Daniels.—*Improvement in Invalid Bedsteads.*—Patented May 29, 1855. (Plates, p. 278.)

The nature and purpose of this improvement are evident from the claim and engravings.

The inventor says: I do not claim the flap F, neither do I claim separately a hinged or swinging-body plane, for invalid bedsteads have been previously constructed so that their bottoms may be inclined at different angles in order to vary the position of the patient; but I do *claim* the combination of the body-plane B, thigh-planes formed of two parts C C, D D, the parts D D being movable, and leg-planes E E, provided with adjustable bars *n*, the movable parts D of the thigh-planes and the bars *n* of the leg-planes being operated by the racks *i m* and pinions *h p*, as herein shown, and for the purpose as set forth.

No. 13,034.—Florian Hesz.—*Improvement in Bedsteads.*—Patented June 12, 1855. (Plates, p. 278.)

The levers 12 are operated by the diagonal rods 4 and the central nut 11. When the nut is screwed down, the upper ends of the levers are pressed on the upper edges of the rails, and thereby hold them firmly to the posts.

Claim.—The four levers 12 attached to the inside of the posts, in combination with the diagonal rods 4 4 4 4, and plate 6 connected with the screw 7; all for the purpose of holding the side and end rails of the bedstead firmly to the posts, as set forth.

No. 13,188.—Hiram Tucker.—*Improvement in Spring-Bed Bottoms.*—Patented July 3, 1855. (Plates, p. 278.)

Figure 1 is part of a plan; section figure 3 represents the bearers B, when depressed by the mattress or other weight laid upon it.

The inventor says: I am aware that an inflexible bar, extended entirely across the frame, and supported on spiral springs, has been used in a bed foundation. I do not claim such, nor consider such as making part of my invention, as it is liable to sag in the middle, and is objectionable in other respects.

I do not claim an arrangement of helical springs and horizontal and transverse bands, wherein not only is each of the longitudinal bands connected to its supporting-frame by a helical spring extended from each end of such band to the adjacent end or bar of such frame, but each transverse band or strip of spring-steel is connected to the frame by four helical springs, two of which are fastened to each end of such strip.

But I *claim* arranging and connecting the inflexible bar B and lifter,

and counter-sway springs, or their equivalents, together and with the frame A, so that each, when a mattress is laid upon it, shall extend under and give support to such mattress, and operate as an elastic foundation therefor, substantially in the manner stated.

No. 13,225.—Orson Parkhurst and Daniel Bullock.—*Machine for Cutting Screws on Bedsteads.*—Patented July 10, 1855. (Plates, p. 278.)

The cutters C, the head-stocks *d d* of which are arranged at an angle of about 45°, cut a score in the tenon V of the rail R, forming a screw as the cutter-stocks are traversed by the right and left screw-shaft *g*.

We *claim* arranging and operating the rotary cutters at an angle, so that we can traverse them parallel to the rail, and cut under the concave shoulder, substantially as described.

No. 13,253.—Benjamin Eastman.—*Improvement in Invalid Bedsteads.*—Patented July 17, 1855. (Plates, p. 278.)

The patient having been previously placed upon the sacking, the frame is lowered sufficient to admit of the attachment of the sacking to the hooks at the extremities of cords Q. The frame A is then raised, elevating the sacking and patient from the bed; then, by depressing the series of arms P (to which the cords Q are attached) on one side of the shaft H, the said shaft will turn in its bearings R R, and elevate the series of arms P on the other side, thereby inclining the sacking and turning the patient on one side. The lowering of the frame will bring the patient down upon the bed on the side on which he had been turned while elevated.

The inventor says: I make no claim to elevating the patient by means of frame A with cords and pulleys, as such has been done before.

I *claim* the apparatus described, composed of a shaft H, arms P, hooked cords Q, in combination with the detachable sacking and vertically moving shaft-bearings, arranged and operating substantially as set forth for the purposes specified.

No. 13,263.—J Carroll House.—*Alarm-Bedstead.*—Patented July 17, 1855. (Plates, p. 278.)

After the clock has sounded the alarm, the hour-hand strikes an arm at the upper end of shaft *o*, rotates the latter, and thereby withdraws arm o^1 from beneath pawl F, which of its own gravity drops, and thereby relieves lever E of its support; and this in turn descends, which descent rotates shaft S, unlocking hooks *a* from catches *b*, and thus relieving frame G H of its retention, which immediately assumes an inclined position.

The inventor says: Not confining myself to any particular style or pattern of bedstead, I *claim* the employment of the tilting-frame or bed-bottom in combination with a suitable catch or series of catches,

connecting it with a clock in such manner as to be tilted at any required hour by the action of the clock, the whole constructed and arranged substantially as set forth.

No. 13,265.—Tyler Howe.—*Improvement in Bedsteads.*—Patented July 17, 1855. (Plates, p. 278.)

The slats E, of which this bed-bottom is composed, being supported by spring bearings near the middle of their length, do not sag in the centre, as is the case with sacking and other yielding bed-bottoms.

Claim.—The described bed-bottom, consisting essentially of the slats E and the springs *f*, constructed and operating in the manner substantially as set forth.

No. 13,607.—William White.—*Improvement in Bedsteads.*—Patented September 25, 1855. (Plates, p. 279.)

The rods *a*, forming a parallelogram, are pivoted to each other at *b*. It will be seen that by tightening the wedges *i i* the four posts A will be drawn towards the centre, by means of rods *d*, with an equal force in every direction.

Claim.—The jointed parallelogram of bars, provided with rods, or their equivalents, which extend to the bedstead at several points, and are secured thereto and tightened, substantially in the manner and for the purposes set forth.

No3,736.—John W. Yothers.—*Improvement in Bedstead Fastenings.*—Patented October 30, 1855. (Plates, p. 279.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—In connection with the screw-collars or tenons on the ends of the rails, the combination of the tubular segmental nuts G and the buttons H with each other and with the posts B, in such a manner that by turning the said buttons the rails A can be secured with their knobs in any desired position, and by the act of thus securing the rails the buttons themselves will be drawn so closely against the outer surfaces of the posts as to make perfectly tight and insect-proof joints between the buttons and the posts, substantially as set forth.

No. 13,803.—H. N. Sherman.—*Improvement in Forming Heads on Bedstead Screws.*—Patented November 13, 1855. (Plates, p. 279.)

The rod of which the screw is to be formed is placed between the jaws Q R, the end of the rod bearing against the end of the rod J, which serves as a stop; motion being given the shaft B, the jaw Q is moved towards the jaw R, and a piece of the rod of proper length to form the screw is cut off by the cutter *u* and firmly secured between the two jaws Q R. The levers H H are moved simultaneously with

the jaw Q, and the dies I are brought towards each other in consequence of the movement of the levers K by the cams E E, and grasp the end of the bolt, the narrow part of the dies at their inner ends coming in contact with it. The two levers H are now moved towards the ends of the jaws Q R in consequence of the prominent part of cam D acting against the end of the sliding-plate G, and the collar O of the bedstead-screw is formed in the concaves *c c*, the inner side of the collar being pressed against the ends of the jaws, the square *p* is also partially formed in the dies I. The dies are now brought closely in contact in consequence of being forced between the friction rollers *k* on levers K, the ends of levers H being inclined; and the friction rod J is then forced by projection L on cam D against the end of square *p*, and the square *p* and collar O are completed.

The inventor says: I do not claim the jaws Q R, neither do I claim the cams upon the shaft B for operating the several levers as shown, for they have been previously used for the same or for analogous purposes.

But I *claim* giving the levers H H, to which the dies I I are attached, three separate or distinct movements in succession; the first lateral movement causing the smaller parts of the dies at their inner ends to grasp the end of the rod; the second and sliding movement causing the collar *c* to be formed and the square *p* partially formed; and the third lateral movement perfecting the square and completing the head, substantially as shown and described.

I further claim the combination of the dies I I, when operated as shown, with the rod J, operated as described, the rod J serving as a stop at the commencement of the operation, and also serving subsequently as a plunger to compress the metal forming the square *p* snugly within the dies I I.

No. 13,909.—Benjamin Hinkley.—*Improvement in Bedsteads.*—Patented December 11, 1855. (Plates, p. 279.)

The bedstead rests upon an X-shaped frame, the arms A of which may have some spring. The centre of this frame rests upon a short pillar F, which stands upon the middle of another X-shaped frame B B, supported by four feet E.

The inventor says: I do not claim the cross-springs as the means of support; but I *claim* the cross bars, whether springs or not, for the support of a bedstead-frame, when the same are mounted upon a pedestal and stand, as set forth.

No. 12,479.—Chas. Crum.—*Improvement in Processes for Making Bread.*—Patented March 6, 1855.

I *claim* the suffering the dough to pass into the acetous state, then reviving it by working and breaking into it fresh, dry, unfermented flour, and the subsequent process of cutting, piercing, raising in the open air, and baking in an open oven, or an oven freely ventilated; and I claim this invention in its application to wheat-flour or any other flour of which bread is made.

No. 12,182.—Wm. Hicks.—*Improved Paint-Brush.*—Patented January 2, 1855. (Plates, p. 279.)

The guide-roller *k* is attached to an inclined adjusting-bar *l*, which fits through a socket-piece *m* on handle A, and is held in the desired position (in relation to the brush *a*) by means of a set-screw *n*. The barrel A, contains the color. The other features of the implement are sufficiently explained in the following claims of the inventor.

Claim.—1st. The arrangement, substantially as herein shown and described, of the brush-holder *b* with the reservoir-handle A, regulating-valve *g*, and branch or feed *f* conveying the color on to the top of the brush, essentially as specified.

2d. In combination with the self-feeding paint-brush or pencil the adjustable guide-roller *k*, to facilitate the run of the brush in its desired course and at a speed corresponding with a free flow and the continuous supply of color to and on the brush, and serving to form a rest at various angles of operation or hold of the brush; the said roller being arranged to run on the outside of the lateral spread or splay of the brush and on the off-side of it, as and for the purposes herein set forth.

No. 12,309.—Dexter H. Chamberlain and Jno. Hartshorn.—*Fountain Brush.*—Patented January 30, 1855. (Plates, p. 279.)

By drawing the valve C, with the brush D, more or less within the tube B A, there will be a more or less free flowage of the paint. By turning the valve C within socket B, the valve may be relieved from such liquid as may at any time become dried. When the fountain is to be supplied with paint, the brush end may be inserted in the paint, while the valve is to be drawn backwards into its socket. The person applies his mouth to the outer end of tube F, and exhausts said tube and the fountain of air. The external atmospheric pressure will cause the liquid to rush into the fountain, until float H is elevated by it so as to close the opening *a*.

The inventors say: We do not claim the combination of a fountain or reservoir with a brush or marking implement. Nor do we claim a tapering valve applied to a long rod, and working in a socket or tapering hole made through the bottom of a fountain pen-holder, the long rod extending through the fountain thereof. Nor do we claim a movable pin inserted in a conical tube extending into the body of a brush, and arranged at the lower end of a fountain-tube or reservoir, such pin, in order to increase the flow of the marking fluid into the brush, being raised by pressing the brush downwards against an object.

What we *claim* is arranging or applying the brush D, the valve C, its rod E, and the socket tube B, together as described, so that not only shall the brush be fixed directly to the valve, and be movable backward and forward and around, with, and by it, but the socket be made to so encompass the valve and brush that the marking fluid may flow down around the external surface of the brush before penetrating into its interior, the same affording important advantages in cleansing the valve and maintaining the flow of marking fluid.

We do not claim the application of a piston to the reservoir, so that by the movement of such piston, the reservoir may be filled with or emptied of marking fluid.

We claim so combining with the slide E and the fountain A a mouth-tube F, open at both ends, that such tube may not only serve to enable a person to supply the reservoir with paint or marking fluid, as described, but also to enable him to move longitudinally or rotate the rod E and its valve and brush.

And we claim the float H in combination with the opening at the inner end of the tube F, and as arranged to move on the slide-rod E and within the tube A, and to operate therewith substantially in the manner and for the purposes as stated.

No. 12,876.—James H. Stimpson.—*Improvement in Butter-Coolers.*—Patented May 15, 1855. (Plates, p. 279.)

a is the ice chamber, *b* the diaphragm containing the butter; when the lid *f* is closed, the ice chamber, diaphram, and lid are then entirely surrounded and kept from contact with the external air by a stratum of still air in the surrounding casing *d* and *g*.

Claim.—The improved butter-cooler, the same consisting in the double wall cover and reservoir, with a diaphragm or shelf between them, in the manner and for the purpose set forth.

Also, making the support for the butter knife upon the cover or handle, one or both, so that the knife cannot be put in place without closing the lid, thereby securing the economy of ice and the hardness of butter.

No. 13,291.—W. H. Elliot.—*Improvement in Devices for Sealing Preserve-Cans.*—Patented July 17, 1855. (Plates, p. 280.)

The bottle or can B, packed full, is filled with water nearly to the shoulder within the mouth; a metallic tubular stopper *p k* is placed in the bottle and sealed around its edges with wax; the bottle is then completely filled with water so that no air remains in it; then the lever *d* of the diaphragm pump *e a f* is raised, and the remaining space in the cylinder *a* and neck *r* is also filled with water. Both the pump and bottle being now perfectly filled, the tube of the stopper is placed in the mouth of the pump, and pressed gently down upon the India-rubber lining *n*, so as to insure an air-tight connection. Then, by depressing lever *d*, a large vacuum being created within the pump-cylinder, the water runs from the bottle by its own weight, leaving a vacuum in its place. When the bottle is properly drained, the lever is suddenly raised, when the liquid rushes up the neck *r*, striking the plunger *h* with considerable force, driving the plug *i* into the tube of the stopper, thus forming a perfect temporary seal, which is afterwards made permanent by wax or solder; the steel tube *j* and the tube *k* of the stopper form a perfectly continuous opening, which is insured by the steel tube being received a little way into the mouth of *k* and held there by a spiral spring.

Claim.—The use of the plug *i*, or its equivalent, in sealing exhausted vessels, with or without the tube *j* in connection with the plunger *h*, or its equivalent, operating in the manner set forth.

No. 13,667.—Elliot Savage and Noah C. Smith.—*Improvement in Machines for Double-seaming Cans.*—Patented October 9, 1855. (Plates, p. 280.)

A is a metallic frame; B and C are two shafts connected by gears D and E. The driving-shaft B can be raised or depressed by means of boxes *a* and *b* and screw F. A third shaft G is connected to shaft C, by the universal joint H. The shafts B and C respectively carry rollers I and K; the latter is conical at *c*, and has a shoulder *d*, and is cylindrical at *e*; the upper roller being intended to work within, while the other operates without the pan, which, when it is completing the first seaming of the bottom, is arranged as seen at P, figure 2. The position of the pan, when the second overlap is being performed—that is, its position with respect to the conical surface of the lower roller—is shown in figure 3. Directly above the cylindrical portion *e* of the lower roller, and so as to bear against the outside of the bottom *f* of the pan, there is arranged a bearing-roller L, carried by a lever M, which turns on a fulcrum at *g*, and is pressed towards the pan by means of a screw N applied to a movable latch O. In order to guide the pan by its rim, two sets of conical rollers S S^1 and R R^1 are employed, the two rollers of each set being arranged with respect to one another as seen in figure. They should be attached to a screw *k*, extended through a slotted arm U jointed to a slide V, and in such manner as to enable it to be turned transversely off the slide fastened in position by the screw, as seen at *i* i^1.

The inventors say: By our improved arrangement of the bearing-roller and the shoulder of the roller K, together and with respect to the rollers I K, we not only bring the periphery of the bearing-roller to operate against the outside surface of the bottom of the pan, but we are enabled to dispense with the operation of bevelling or partially bending the two edges of the body and the bottom of the pan, before their last bending for completing the operation of double-seaming.

We *claim* the arrangement of the periphery of the bearing-roller L, that of the roller I, the cylindrical portion, shoulder, and conical part of the roller K, substantially as specified, and so as to operate together, in manner and to effect advantages as stated.

We also claim the arrangement and application of two sets of conical rollers, so as to receive and work against the rim of a pan or vessel, and support it, as explained.

No. 13,707.—Stimmel Lutz.—*Improvement in Sealing Preserve-Cans.*—Patented October 23, 1855. (Plates, p. 280.)

The nature of this invention consists in providing the can *c* with an external covering E, which is slid over it so as to make it double-sided,

and consequently stronger, and also in providing a cement chamber D at the bottom so that the covering E is pressed down over the can; its lower end entering within the cement chamber, and this containing soft cement, the vessel becomes hermetically sealed.

The inventor says: I do not claim broadly a self-sealing can with a groove prepared with cement, nor do I claim a ground stopper and seat, nor a screw-cap and mouth, made air-tight, whether cement be used or not.

But I *claim* sealing a double-sided can or jar at the outside at or near the bottom, in the manner and for the purpose set forth.

No. 13,009.—Wm. S. Loughborough.—*Improvement in Fastenings or Carpets.*—Patented June 5, 1855. (Plates, p. 280.)

a^1 is a bed-piece in which the clamp-wire c^1 has an inclined axis, whereby the outer end of said clamp is made to press down upon the carpet C; and when it is turned back towards the base B, it is raised from the carpet. F is the floor.

Claim.—Securing the edge of the carpet by means of a button fixed to the floor and turning upon an inclined axis, so as to be self-clamping, as described.

No. 13,094.—Felix Miller.—*Improvement in Fastenings for Carpets.*—Patented June 19, 1855. (Plates, p. 280.)

The eyelet B is secured to the floor, and the hook D engaged into the eyelet, leaving the claws *d* in an upright position. The selvage of the carpet is then stretched over the points of the claws and down upon them, and as they appear through the carpet, the points are pressed down so as to hold the carpet to its place.

Claim.—The method of laying and securing carpets down upon floors by means and use of the claw-hook, substantially as described, operating and combining with the carpets and eyelets on the floor, substantially in the manner and for the purposes set forth.

No. 13,220.—Enoch Jackman and Edwin G. Dunham.—*Improvement in Fastenings for Carpets.* Patented July 10, 1855. (Plates, p. 280.)

The nature of this improvement will be understood from the claim and engraving.

Claim.—The method of securing carpets to floors by the arrangement and application of a socket and pin, or a plate and pin so applied that the friction which is caused by the contraction of the carpet in canting the pin in the socket may prevent the pin from slipping out of the socket, all in a manner substantially as set forth, so that the carpets may be put down and taken up at pleasure with nothing but the hand.

No. 12,578.—Gilbert L. Bailey, assignor to Gilbert L. Bailey and Mighill Nutting.—*Improvement in Castors for Furniture.*—Patented March 21, 1855. (Plates, p. 280.)

The pin or oval guide B is set in a line with the axle of the truck F, which by its action on the inside of the hole in socket E causes the truck to keep always in a right position to be moved, and also throw it from the centre.

Claim.—The pin B or oval guide put through or applied to the spindle A in any manner, or its equivalent, and attached to a straight truck-frame G with a socket hole E larger than the spindle A, in the manner and for the purpose substantially as described.

No. 12,357.—Wm. B. Carpenter.—*Improvement in Combined Chair and Crib for Children.*—Patented February 6, 1855. (Plates, p. 280.)

Claim.—The chair B in combination with the standards *c c*, and hinged thereto at A, when constructed and arranged so that by the reversal of the chair, as described, the whole forms a high and low chair and crib for children, substantially in the manner set forth. (See engraving.)

No. 12,587.—Lemuel W. Ferriss.—*Improvement in Chairs.*—Patented March 27, 1855. (Plates, p. 280.)

The nature of this invention will be understood from the engravings.

The inventor says: I do not claim a chair wherein the parallelism of the back and foot-rest rails is maintained by the arms and seat.

But I *claim* hinging the seat at its back to the back of the chair only, in combination with hinging the rails of the foot-rest to the lower end of the pieces forming the back, so that the seat shall partake of the inclination of the back and foot-rest rails, and said foot-rest rails move on a changing centre, as set forth.

No. 13,479.—Jno. Cram, assignor to Himself and Jno. S. Cram.—*Improvement in Folding-Chairs.*—Patented August 21, 1855. (Plates, p. 281.)

Claim.—Combining the platform or seat A with the back legs C C^1 by means of the turning or front legs D D^1 and the connecting links or bars E E^1, and so that said seat or platform may be either turned down horizontally so as to be supported on both sets of legs, or they and the seat be folded together.

No. 13,765.—James Sadgebury.—*Improvement in Clothes-Clamps.*—Patented November 6, 1855. (Plates, p. 281.)

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim the mechanical principle involved

in the operation of this clothes-clamp, as it is well known; nor do I claim a clothes-clamp that is made to string upon the line, there being a hole made in the clamp through which the line is passed; nor do I claim a clamp made to clasp the line by means of springs.

But I *claim* the grooved button D in connexion with the grooved protuberances A B, substantially as set forth.

No. 12,775.—H. and M. Blake.—*Clothes-Pin Machine.*—Patented May 1, 1855. (Plates, p. 281.)

The clothes-pins N are placed by hand in the holders E, as the cylinder D rotates, and during the time the inner ends of the pins *n* of the clamps F are upon the smaller portion of the rim *m*. When the inner ends of the pins *n* pass upon the larger portion of the rim *m*, the inner ends of the clamps F bind upon the clothes-pins N, and secure them firmly in the holders E; and the clothes-pins thus secured are forced against the saw B, which cuts the slot in them, the side-cutters *a* smoothing the sides of the slot, the clothes-pins then passing downwards, and the cutters K K bevelling the lower edges of the groove or slot cut by the saw. Just after the clothes-pins have passed the cutters K K, the inner ends of the pins *n* pass on the smaller portion of the rim *m*, and the inner ends of the clamps F are relieved from the clothes-pins N, which then fall from the holders E by their own gravity.

The inventors say: We do not claim the holding-cylinder D, irrespective of its construction and arrangement, and the manner in which it operates in connexion with the saw B, as herein shown; neither do we claim the saw B separately, nor the cutters K K, for they have been used for analogous purposes. But we do *claim*, 1st. The employment or use of the holding-cylinder D, and circular saw B, when both are hung on permanent shafts, and operating as herein shown, so that the cylinder rotates with a comparatively slow motion, compared with the saw, and conveys, by a continuous rotary motion, the clothes-pins over or against the saw, for the purpose of forming the grooves or slots therein.

2d. Securing the clothes-pins in the holders E of the cylinder D by means of the clamps F, secured to the periphery of the cylinder D, as herein shown, and operated by the rim or ledge *m* and flanch *j*, as herein shown, so that the clothes-pins will be firmly clutched in the holders E, while being operated upon by the saw B and cutters K K, and allowed to fall therefrom when the grooves or slots are finished.

3d. The combination of the cylinder D, saw B, and cutters K K, constructed, arranged, and operating as herein shown and described.

No. 13,447.—Saml. Pierce, assignor to Curtis B. Pierce.—*Improvement in Coffee-Roasters.*—Patented August 14, 1855. (Plates, p. 281.)

The object of the peculiar form of coffee-roaster referred to in the claim is, to completely stir and mix the coffee as the vessel is revolved in the operation of roasting the coffee.

The inventor says: I am aware that it is not new to combine a cylindrical or a spherical roasting vessel with a portable furnace or other heater, nor to make the journals of a cylindrical roasting vessel hollow; and I do not claim any such combinations or modes of construction.

I *claim* constructing the roasting vessel of a series of alernate longitudinal angular parts projecting inward, and co-extensive concave portions swelling outward, substantially as described, for the purpose specified.

No. 13,595.—Joshua E. Hall.—*Improvement in Coffee-Pots.*—Patented September 25, 1855. (Plates, p. 281.)

The coffee being placed in the coffee-pot and the water for boiling poured upon it, the cap B is placed over the spout, and the reservoir D placed in the top and filled with cold water and covered with the lid. As fast as steam is generated, it ascends to the floor of the reservoir and up into the tube E, and is condensed by the coldness of those surfaces, and dropped back into the coffee below. All the steam being condensed and restored to the coffee, all the aroma is preserved; H acts as a safety-valve.

The inventor says: I *claim* the conical tube E, with the knob F and aperture H, which serve as its continuation; this I claim in combination with the reservoir D D, as set forth.

No. 12,383.—Phineas Emmons.—*Improvement in Cracker-Machines.*—Patented February 13, 1855. (Plates, p. 281.)

When the dough is placed upon the feed-board B and motion given to the shaft I, it rotates the eccentric K, and moves (by means of rod M, lever L, and pawl N) the wheel J one tooth (the wheel J having as many teeth or notches as the polygonal bed H has sides). The feed-rollers *c c* are moved at the same time by means of proper gearing, and carry in the requisite feed of dough. Then the eccentrics R R force down the cutters *t* upon the dough for cutting it. The cutters are then withdrawn, (a clearer-plate U clearing the cutters,) and the next motion of the revolving bed-plate carries off the crackers cut, by means of the endless band.

The inventor says: I *claim* the revolving intermittent bed-plate H, operated by means of an eccentric K on a driving-shaft I, and the connecting-rod M, lever L, pawls N, and notched wheel J, in combination; and this I claim, whether the said intermittent bed-plate be or be not combined with the endless band *o* surrounding it, for the purpose of conveying away the crackers substantially as set forth; it being understood that I do not claim in general the making of the machine so as to convey the dough beneath the cutters *t*, with an intermittent motion, that having been before done in other machines by passing the dough upon an endless band, carried with an intermittent motion over a fixed table, upon which the cutters work.

No. 12,150.—P. H. NILES, assignor to NILES and RICHARDS.—*Improvement in Curtain-Fixtures.*—Patented January 2, 1855. (Plates, p. 281.)

The barrel *c*, rotating in chamber *e*, is bored out to form a chamber *g*; which chamber *g*, in addition to chamber *e*, allows the insertion of a spring F, longer than it could be if barrel *c* were solid.

Another object of the arrangement of the operative parts, as shown in the figure, is to combine them so that they may be entirely separate from the stick or roller A, and yet hold together when applied to the same.

The inventor says: I am aware that it is not new to support the pulley on a pin fixed in and projecting from a bracket; nor to make the pulley with but one flange or head *d*, and so as to have its barrel *c* work in a chamber *e*; I therefore do not claim such. But what I do *claim* is arranging the spring in that chamber of the bracket in which the body of the pulley slides.

I do not claim making the pulley-body with a chamber for the reception of a spring or for any other purpose; but what I do claim is so arranging the secondary or lesser chamber *g* with respect to the chamber *e*, that the spring F may extend into both chambers, as specified, whereby an advantage as above stated may be attained.

No. 12,271.—DEXTER H. CHAMBERLAIN and JOHN HARTSHORN.—*Improvement in Rollers for Curtains.*—Patented January 23, 1855. (Plates, p. 282.)

The spring G, mentioned in the claim, consists of a doubled (elastic) cord, the ends of which cord are tied together. The doubled ends pass through the journals E, on which the curtain-roller A revolves, and through two holes *x* and *y* in each of the heads *v* of the journal. About midway between the two journals a pin I passes transversely through the roller and between the two parts of the cord. The revolutions of the roller will of course increase the twist of the cord, and the roller will be revolved backwards as soon as left free.

The inventors say: We do not claim the application of a torsion-spring to one end only of a curtain-roller. But we *claim* our improved manner of applying the spring to the curtain-roller; that is, extending it axially entirely through the roller and its two journals, and affixing it to the roller and both its brackets, (or journals extended from and fastened to them,) substantially as specified, such not only affording the advantages which a long spring has over a short one, but also important facilities in applying the spring, or modifying its tension as occasion may require.

No. 12,661.—JOHN HARTSHORN and DEXTER H. CHAMBERLAIN, assignors to JOHN HARTSHORN.—*Improvement in Fixtures for Curtain-Rollers.*—Patented April 3, 1855. (Plates, p. 282.)

The claim and engravings sufficiently explain the nature of this invention.

The inventors say: We do not claim balancing and supporting window-curtains by means of friction upon the ends of their rods; but we *claim* the bent socket E, pivoting upon the window-jamb, and secured thereto by means of screws, as described, whereby sufficient friction may be placed upon the rod, to balance a curtain of any size or weight, without the use of springs or other contrivances for the purpose.

No. 12,524.—FREDERICK W. URANN.—*Improvement in Curtain-Rollers.*—Patented March 14, 1855. (Plates, p. 282.)

A is the curtain-roller; E the pulley, and *d* the pulley-head, extended into bracket C; *c* the cord.

The inventor says: I do not claim the insertion of the end or journal of the curtain roller in a chamber or bearing in the socket that supports it.

But I *claim* extending the pulley-head into the bracket, substantially in manner as described, and for the purpose of protecting the cord of the pulley from getting between the said head and the bracket during the process of rolling up or unrolling the curtain. (See engravings.)

No. 12,540.—WM. Z. W. CHAPMAN and JOHN W. CHAPMAN.—*Improvement in Knobs for Fastening Curtains and for other like purposes.*—Patented March 21, 1855. (Plates, p. 282.)

This improvement consists in securing carriage or other curtains in their place by means of an eyelet of metal or other appropriate material, which is fastened to the curtain, being placed so as to encircle a metallic knob that is covered with India-rubber, which, being elastic, holds it, the same being easily buttoned or unbuttoned from either side.

F, eyelet; B, India-rubber covering; A, knob.

Claim.—The combination of the eyelet mentioned, or its equivalent, with a shank or knob of metal, or other material that is covered, capped, encircled, or so connected with India-rubber, or the equivalent thereof, that by its elastic nature the said eyelet may be secured to it, as and for the purposes fully set forth.

No. 12,792.—JOHN and JACOB HARTSHORN.—*Improvement in Spring-Rollers for Curtains.*—Patented May 1, 1855. (Plates, p. 282.)

The blocks K K^1 are allowed to slide freely on rod G. The projecting trough *b* of the surrounding curtain-cylinder enters into the grooves *d* of the blocks, thereby causing them to revolve, together with the cylinder. M M^1 are right and left hand spiral springs, one end fastened to the corresponding block and the other to the rod. When the springs are allowed to run down, the blocks approach the ends of the rod and the springs expand freely, whereby a great range of expansion is attained. When the springs are wound up, the length of the coil increases and the blocks approach each other; and thus the twisting of the coil,

as represented at M¹, is avoided, which twisting is apt to destroy the operation of the spring.

Claim.—Attaching one end of the springs to the sliding-block K K¹, for the purpose of enabling them to increase and diminish in length, as they are wound up or expanded, in the manner and for the purpose set forth.

No. 12,866.—PURCHES MILES.—*Improvement in Curtain-Fixtures.*—Patented May 15, 1855. (Plates, p. 282.)

To raise or let down the curtain, the tassel C is taken in one hand, depressing the lever *f* with the thumb, thus relieving the stationary guide-cord *g* from the grasp of the arm *e* of said lever. The tassel D and curtain can then be allowed to rise or be drawn down with the other hand, the tassel C at the same time running up on the cord *g* by the winding up of cord *d* When the hands are removed, the weight of the curtain, through the cord *d*, draws the lever-arm *e* against the cord *g*, thereby securing the tassel C, cord *d*, and curtain in their position.

Claim.—The combination of the cords *d g* with the tassel C and cam-lever, the whole being arranged and operating in the manner set forth, for the purpose of making a simple, neat, and effective curtain-fixture, as described.

No. 12,881.—BENJAMIN B. WEBSTER.—*Improvement in Spring Curtain-Rollers.*—Patented May 15, 1855. (Plates, p. 282.)

By drawing cord *d* the friction bracket c^1 is moved from the roller *b*, allowing it to be operated upon by drawing the curtain or by the recoiling of the spring *a*.

The inventor says: I do not claim stopping the curtain when rolled up, or partly so, by means of friction merely, as that is done in ways not new.

Neither do I claim a spring *a*, to be or which is compressed, by unrolling the curtain so as to cause the same to roll up again when the spring *a* is let into action. But I do *claim* in combination with spring *a* the friction-spring *c*, or its equivalent, combined with and operated by a cord *b*, so as to stop the rolling up of the curtain, or to cause the same to roll, or to hold the same at any point required, substantially as set forth.

No. 13,481.—DEXTER H. CHAMBERLAIN.—*Improvement in Curtain-Rollers.*—Patented August 21, 1855. (Plates, p. 282.)

As the spool E is forced towards the jamb by spring *g*, the curtain will always be balanced, and none of the available width between the jambs B is used up by the motion of the spool, as is the case in other curtain-rollers.

Claim.—Attaching the spool directly to the spindle, and causing it to revolve with the curtain-rod, when the spool is forced towards the jamb by the spring *g*, as described.

No. 13,588.—PETER H. NILES, assignor to RALPH C. WEBSTER.—*Improvement in Curtain-Fixtures.*—Patented September 18, 1855.—Ante-dated March 18, 1855. (Plates, p. 282.)

This arrangement of curtain-roller saves the space of one-half of the spool on one end of the roller, and the whole of the knob or cap on the other end. F is the bracket.

Claim.—The combination of the bracket, having a hole of double diameter, with the spring-pin and the roller-end, either with or without a spool thereon, fitted to correspond to said hole, and dispensing with the knob or cap on the other end of the roller, substantially as described.

No. 13,931.—JOHN S. MARTIN.—*Improvement in Mosquito Curtains.*—Patented December 11, 1855. (Plates, p. 282.)

The upper bar *b* is fastened to the window-frame; the lower bar *a* can be fastened to catch *e* (see fig. 1). The curtain when freed from the catch will contract by reason of the elastic bands, and access can then be had to either of the sashes (see fig. 2).

Claim.—The mosquito curtain as made of two bars *a b*, a sheet of cloth or netting *c*, and a series of elastic bands *d*, arranged and applied, and so as to operate together, substantially as set forth.

No. 12,217.—JOHN LOUIS ROLLAND.—*Improvement in Machines for Kneading Dough.* Patented January 9, 1855. (Plates, p. 283.)

Two frames, consisting of outside bars I and alternating long and short arms H and G, are (with their long arms) attached to an axle E, and are revolved within a suitable trough B. The horizontal bar I serves to lift the dough from the bottom of the trough, and in carrying it upwards the dough passes through the spaces between the arms, and is drawn out in thin blades until the frame rises gradually to a horizontal position, when the dough falls back into the trough again, and so forth.

Claim.—The use of open frames for kneading dough, composed alternately of long and short blades projecting inwardly from the cross-bars, and operating in the manner substantially as set forth.

No. 12,640.—ANDREW MURTAUGH.—*Improvement in Pulley Arrangements for Dumb Waiters.*—Patented April 3, 1855. (Plates, p. 283.)

By suspending the waiter and weight between two cords, the use of a crane in raising the waiter is dispensed with; and the arranging of the cords double over pulleys has the advantage of giving a fixed end by which they can conveniently be drawn taut. C and D are the two cords.

Claim.—The manner shown of arranging and suspending the waiter A and weight B between the cords C D, arranged double over pulleys, substantially as and for the purpose set forth.

No. 13,834.—HIRAM CARSLEY, assignor to HIMSELF and EDMUND BROWN.—*Improvement in Nutmeg-Graters.*—Patented November 20, 1855. (Plates, p. 283.)

The piston E having been drawn back by means of wire F, the nutmeg is inserted through hole *c*. When the piston is let go, it will press the nutmeg against the rasping disc B, which is to be revolved by means of crank C.

I *claim* the combination of the box and holder, and the pressure-spring or contrivance with the rasping surface of the grater, the whole being applied and made to operate together, substantially as specified.

No. 12,419.—CARINGTON WILSON.—*Improved Griddle.*—Patented February 20, 1855. (Plates, p. 283.)

The object of this invention is to prevent the heating of the centre part before the marginal parts, incident with the ordinary griddles when used over coal fires which are smaller than the griddle.

Claim.—Constructing the griddle by attaching to the under side of the main plate, by casting or otherwise, the rim or flange *c*, into which is fitted the supplementary plate *a*, in such manner as to form an intervening space or cell *b*, substantially as and for the purpose set forth.

No. 12,860.—EZRA FAHRNEY.—*Improved Hominy Machine.*—Patented May 15, 1855. (Plates, p. 283.)

This improvement (in machines which employ a revolving shaft of radial beaters within a stationary cylinder) is to render the machine self-feeding and self-discharging, and capable of retaining within it for a definite time a certain quantity of corn to be crushed or beaten into grains of a uniform size. The cylinder A in which the corn is cracked is provided with two self-adjusting slides, one F over the feed-passage G, and the other under the discharge-passage H; said slides being arranged in such relation to the two cams K K^1 on wheel L that at every revolution of said wheel they are both operated and caused to open said passages one after the other, the discharge-passage being opened first by the forward cam, and owing to the slow motion of the wheel L being kept open until the contents of the cylinder have escaped. As soon as the cam escapes by the slide, it will by the action of spring J be closed; whereupon the feed-passage will be opened by the rear cam to admit a new supply of corn, and afterwards will be closed as soon as the cam escapes by this slide, and so on.

The inventor says: I do not claim the self-acting slides F F separately, nor the wheel L, with cams for operating the same, as these devices are well known as the feed-movement of grain-mills, seed-planters, &c., &c.; but I do *claim* the employment of the two self-adjusting slides F F with the two cams K K, arranged a short distance apart on a wheel L, having a slower motion than the beater shaft B, essentially as shown and described, and for the purpose as set forth.

No. 13,883.—G. M. MORRIS and J. NEWTON.—*Improvement in Machines for Scouring Knives.*—Patented December 4, 1855. (Plates, p. 283.)

The knife to be scoured is held between the two rollers. By screwing up the discs F F^1 more or less tight, the roller-surfaces can be made to bind more or less tight upon the surfaces of the knife.

Claim.—The machine described and shown for scouring knives, the same consisting of two scouring-rollers D D^1, and a trough C containing the cleansing material, said rollers being arranged over each other above the trough, and each of them formed of a series of woollen or other absorbent elastic discs G, arranged on a screw-shaft E, and forced and confined compactly together by two movable metallic discs F F^1, substantially as and for the purpose set forth.

No. 12,373.—WM. H. ALLEN.—*Improvement in Machines for Chopping Meat and other Substances.*—Patented February 13, 1855. (Plates, p. 283.)

The inventor says: I do not claim the use of chopping-knives on vertical sliding-heads, playing upon a block or receptacle. Nor do I claim the cam acting upon a circular corrugated disc, as a means of combining the lifting motion with a gradual rotary one, this having been done before in machines for drilling rocks.

But I *claim* the forming a machine for chopping meat and other similar substances, by attaching the chopping-knives H H H H to a central rotary spindle F, when this is operated by the combinations of the cam M and corrugated disc K, as described. (See engraving.)

No. 12,530.—JOHN C. SCHOOLEY.—*Improvement in processes for Curing Meats.*—Patented March 14, 1855. (Plates, p. 283.)

The air passes down through the ice in cellar A, and enters the curing-room B through opening *k*. The object of circulating artificially dried air in the room where the curing takes place is to free the apartment of any warm or moist air, (caused by the introduction of meats before they are deprived of their animal heat, &c.,) and maintain a uniform temperature from freezing-point up to any desired point sufficiently cold for the purpose of curing provisions, so that they will keep when exposed to ordinary summer weather.

Claim.—The process of curing meat, and preserving fruit and provisions, by means of circulating currents of air artificially dried by ice, or its equivalent, through the room wherein the curing takes place, substantially as and for the purposes set forth.

No. 13,990.—ALEXANDER LIGHTHEISER.—*Improvement in Machines for Mincing Meat.*—Patented December 25, 1855. (Plates, p. 283.)

The inventor says: I do not claim any particular shape for the cutting-edge of the knives or blades K K K.

But I *claim* the placing of the knives or blades K K K in an inclined

position on the surface of the cylinder, for the purpose of propelling the meat through the machine.

No. 12,365.—James A. Taylor.—*Improvement in Mop-Heads.*—Patented February 6, 1855. (Plates, p. 283.)

To introduce a mop into the stick, the handle A is to be turned in such a manner as to allow the bars B and D to separate a short distance to admit the mop between them, which may be fastened firmly in its place, and the parts held snugly in position, by turning the handle in such a way as to wind up the cord C. The handle A is then slightly driven into the bar D, so as to fasten it securely.

Claim.—The combination of the handle A and the bars B D with the cord C, or its equivalent, the whole being constructed and combined, and operating substantially as set forth, or in any other manner substantially the same.

No. 13,347.—Oliver D. Barrett.—*Improvement in Washing-Machines.*—Patented July 31, 1855. (Plates, p. 284.)

Claim.—Providing a pail with a foot-piece and treddle, in combination with the connecting-rods, lever, and sectors, operating the rollers; by which combination the rollers are thrown apart by their own weight, and brought together by means of the foot, and the action of the mop in being pulled out between them.

No. 13,812.—Alexander Barnes.—*Improvement in Mop-Heads.*—Patented November 20, 1855. (Plates, p. 284.)

The cross-piece being withdrawn the required distance from the bow by means of the screw, the cloth is inserted between the cross-piece and bow; and when it is adjusted, the cross-piece is screwed down upon it, and firmly holds it by pressing it upon the bow.

Claim.—Attaching the screw C to the cross-piece *d*, and riveting it in such a manner that its revolution is not obstructed; combined with the bow *a* and nut B, as described, for the purpose specified.

No. 13,125.—Samuel Eakins.—*Improvement in Ice-Pitchers.*—Patented June 26, 1855. (Plates, p. 284.)

The cover P of the spout is made self-acting by means of weight S. When the pitcher is inclined, the cover will be open; and when restored to a vertical position, the cover will be closed.

Claim.—The arrangement of the spout, lid, arm, and weight, in the manner and for the purpose described.

No. 13,400.—Edward Page.—*Improvement in Molasses-Pitchers.*—Patented August 7, 1855. (Plates, p. 284.)

v is the vessel referred to in the claim, hinged at H.

Claim.—The application to molasses-cups of a vessel to catch the molasses which drips from the cup, and the vessel to swing, as described.

No. 12,210.—Hugh L. McAvoy.—*Improvement in Refrigerators.*—Patented January 9, 1855. (Plates, p. 284.)

A represents the panes of glass or porcelain.

Claim.—The application of glass to the purpose of lining refrigerators. Glass in any form or thickness, enamelled porcelain, or anything substantially the same.

No. 13,329.—Wm. Mootry.—*Improvement in Refrigerators.*—Patented July 24, 1855. (Plates, p. 284.)

Ice being placed in the ice-box C, the lids D and E are shut down. The register J in the ceiling K being open, air from the outside passes through the holes *a* in the outer casing through the holes *b* into the space H surrounding the ice-box, thence through the register holes into the interior A of the refrigerator, and through vent-holes L into the open air. Ice-water can be drawn off by means of cock G.

The principal object of this improvement is a thorough ventilation of the refrigerator.

Claim.—1st. The application and employment of a vessel or chamber, substantially such as described, for containing both the ice and water together, serving the double purpose of a water-cooler and frigorific body, in combination with the ordinary refrigerating box, chamber, or other insulated non-conducting cooling apparatus; the whole operating in the manner substantially as set forth, and for the use and purposes mentioned.

2d. The mode of ventilation described, by compelling the outer atmospheric air, before entering the interior, to come into mediate contact with the ice or other frigorific body, operating in the manner substantially as and for the uses and purposes mentioned.

3d. The mode described of ventilating, in combination with the cooler and refrigerating chambers, as described.

No. 14,004.—Jesse D. Wheelock.—*Improvement in Sad-iron Heaters.*—Patented December 25, 1855. (Plates, p. 284.)

The flat-iron is placed upon table E, the legs of which fit into tubes *d*, and rest upon spiral springs inside said tubes; by closing the lids *c* over the table, the legs of the latter will be pressed down against the spiral springs, and the heat will be retained within the chamber. As soon as the catch fastening the two lids is withdrawn, the springs will lift the table and throw open the lids.

Claim.—The use or application of spiral springs within the tubes *d*, in combination with the tube E and lids *c c*, in the manner substantially and for the purposes specified.

No. 12,660.—Ozro A. Crane and Henry J. Lewis, assignors to Ozro A. Crane.—*Improvement in Scrapers for Removing Dirt from Boots and Shoes.*—Patented April 3, 1855. (Plates, p. 284.)

The nature of this invention will be understood from the claim and engravings.

We *claim* the method described and shown of causing the brushes *c* to accommodate themselves to any size or shape of boot or shoe, and brush off both sides at once, by so attaching said brushes that they shall be forced together by springs, substantially as specified.

No. 13,566.—Newell Cleveland and Jas. J. Johnston.—*Improvement in Heaters for Smoothing-Irons.*—Patented September 18, 1855. (Plates, p. 284.)

This improvement consists in making the heater grated. Between the bars P of this heater the fire can readily pass, and at the same time the scales forming upon the surface of the heater are thrown off better than in a solid heater.

We *claim* the grated or lattice-work heater for box smoothing-irons, substantially as described and represented.

No. 12,548.—Joel Haines.—*Improvement in Extension-Tables.*—Patented March 20, 1855. (Plates, p. 284.)

B C is a case to contain the tables when closed up. The table-frames E E E having been moved out, the slatted table-top I can be unwound and drawn out.

The inventor says: I *claim* the construction and arrangement of the top so as to wind up in the case, substantially as described; it being understood that I do not claim, in general, the device of the chain of slats to wind up, as that has already been used in window-blinds and shutters but only the peculiar purposes for which it is applied to the table-top, as set forth.

No. 12,588.—Henry A. Frost.—*Improvement in the Mode of Supporting Table-Leaves.*—Patented March 27, 1855. (Plates, p. 285.)

B is the leaf; C swing-brace attached to the leaf by loops E, which allows the brace to swing freely when the leaf is raised; when the leaf is raised, the brace swings down to the shoulder-piece D. In order to lower the leaf, the brace must be swung up under the leaf; when it is dropped, the brace occupies the space between the leaf and the bed-piece of the table.

The inventor says: I do not claim the idea of using a brace to support table-leaves, as such.

But I *claim* the application to table-leaves of a self-acting swing-brace or support, which shall operate by its own weight when the leaves are raised, substantially as set forth.

No. 12,765.—Lucius Paige.—*Improvement in Combined Table and Writing-Desk.*—Patented April 24, 1855. (Plates, p. 285.)

The box C can be raised out of recess B, from position figure 1, into position figure 2, it being hinged at *a*. The desk-board H can be either slid into horizontal grooves *g*, as in figure 1, or into inclined grooves *f*, as in figure 2. A paper-rack E is supported on central journals *d*, around which it can be swung to reverse its position, so as to bring the papers or the openings of the recesses of the rack directly against either one or the other of the two sets of doors *b* or *c* of the rack-case, in order that access can be readily obtained, either when case C is horizontal, as in figure 1, or when it is vertical, as in figure 2.

Claim.—The combination of the desk-recess B and the hinged box or case C with the table, so as to operate therewith as specified.

Also the combination of a reversible paper-rack with the hinged box or case, provided with two sets of doors on its opposite sides, as specified, and adapted to a table, so as to fold into and out of the same, in manner as described.

No. 12,518.—Elijah Morgan.—*Improvement in Washing-Machines.*—Patented March 14, 1855. (Plates, p. 285.)

The full and dotted lines represent positions of the parts of the machine, during the process of washing; the broken lines represent the wings *c* c^1 of the rubber open for the reception of the clothes.

Claim.—Suspending a reciprocating rubber C between the yielding-bar D and wash-board B, in such manner that said wash-board and bar may both have a vertical motion during the action of the rubber, and at the same time an expansive action or motion, due to an over-accumulation of the clothes between the rubber and wash-board, as described. (See engravings.)

No. 12,658.—Geo. W. Edgecomb.—*Improvement in Washing-Machines.*—Patented April 3, 1855. (Plates, p. 285.)

When the disc G is rotated, and when the face of the large end of one of its ribs *o* passes over the small end of a rib I on the bottom of the tub, the clothes will be forced towards the smaller ends of the two ribs, at the same time that they are forced forwards; the action of the next two ribs (when the smaller end of rib *o* passes over the large end of rib I) will force the clothes in an opposite direction, and so forth.

The inventor says: I am aware that a wash-board has been made of a conical form, having its surface higher above the bottom of the tub at the circumference than at the centre, with radial ribs of the form of a half-cone attached to it and to the bottom of the tub, with their broadest end outwards, and with spaces between them of such width and depth as to receive the clothes between them in such manner as to turn them over, and has been used before, in the washing-machine of Joel Wisner, patented November 8, 1853; and therefore I do not claim such as my invention, for the reason that I have made a marked improvement thereon.

I *claim* the alternating radial arrangement of the tapering rubbers O and I, upon the under side of the actuating disc G, and upon the bottom H of the tub, substantially in the manner and for the purpose set forth.

No. 12,757.—Jason W. Corey.—*Improvement in Spring Connecting-Rods for Washing-Machines.*—Patented April 24, 1855. (Plates, p. 285.)

The eccentric E on shaft F being revolved, the coiled spring C imparts a reciprocating motion to dasher B, which is made to slide on guides D D. The dasher agitates the water and beats the clothes against the slats L L. The binder K, being movable to any point around the eccentric, regulates the coiled spring, increasing or diminishing its stiffness. This arrangement of the coiled spring prevents, by reason of its pliancy, too great pressure and strain upon the clothes.

Claim.—The coiled spring C, combined with the eccentric E, or its equivalent, for the purposes specified.

No 12,996.—Lewis W. Colver.—*Improvement in Washing-Machines.*—Patented June 5, 1855. (Plates, p. 286.)

The connecting-rod E imparts to the crate C a reciprocating motion, which at the same time moves the crate around its axis. The rod E is connected with a pitman, crank, fly-wheel, etc.

The inventor says: I am fully aware that clothes have been washed in machines by being put in a crate or basket and rotated in a suds-box; but in these the clothes scarcely ever change their positions, and there is no way of driving the water through them (which really performs the washing). I make no claims to such means or method.

But I *claim* the washing of clothes by placing them in a crate, basket, or creel, which has a reciprocating motion through the ends or wash-box, and at the same time a rotary motion around its own axis, by which means the position of the clothes is constantly changing while they are forced through the water, and are washed without being rubbed or injured, the motion of said crate, basket, or creel being obtained by means substantially as described.

No. 13,222.—Wright Lancaster.—*Improvement in Washing-Machines*—Patented July 10, 1855 —(Plates, p. 286.)

The rods B are intended to float when the box is properly filled with water. The box is represented in the engraving with the front part broken out so as to show the floating rods.

The inventor says: I *claim* the floating-rods marked B, which are claimed to be an improvement on any former machine, for their freedom of action, their adaptation to the washing and cleansing of clothes by friction without damage to the finest fabric, and the facility and speed with which this otherwise laborious process is performed by the use and application of this improvement. And to all other parts of the above machine I hereby disclaim all and any right to letters patent,

and confine my claim especially to the aforesaid improvement B by the use of floating rods.

No. 13,372.—Samuel M. Yost.—*Improvement in Washing-Machines*—Patented July 31, 1855. (Plates, p. 286.)

I *claim* the arrangement of two corrugated rollers, one above and mashing into the other without coming in contact with the lowest lines, and each being tightly covered with canvass or other strong material, the whole combined and operating in such a manner as to effectually wash any cloth submitted to it, and without breaking the buttons or other hard substances upon the linen or cloth.

No. 13,344.—John H. Atwater—*Improvement in Washing-Machines.*—Patented July 31, 1855. Plates, p. 286.)

By turning crank-wheel *t*, motion is imparted to the washing-frame, and at the same time the platform of slats is made to move forwards or backwards by bringing pawl *x* or *y* in gear with its ratchet-wheel *e* or *f*. The pawls are operated by hand-levers *a* and *b*.

Claim.—The arrangement of the washing-frame *m n o v*, and the endless platform of slats *h h*, together with the respective parts combined therewith in such a manner that the same first mover will, at the option of the operator, simultaneously impart a reciprocating movement to the washing-frame, and a forward or a rearward movement to the said platform, or operate the said washing-frame substantially in the manner and for the purpose set forth.

No. 13,356.—Josee Johnson.—*Improvement in Washing-Machines.*—Patented July 31, 1855. (Plates, p. 286.)

The pounder is suspended upon a cord C, each end of which is secured to an upright spring B. The pounder is composed of a disc perforated with a number of holes, through which a number of pestles *d* are inserted, which by small pins through the upper portion are prevented from falling through the holes. Spiral springs J allow the pestles to accommodate themselves to the uneven surface of the clothes in the tub A, when the pounder is worked up and down.

Claim.—The arrangement and combination of disc D, pestles *d*, and spiral-springs J, or their equivalents, which form the pounder, as described and set forth.

No. 13,635.—John A. Bills.—*Improvement in Washing-Machines*—Patented October 9, 1855. (Plates, p. 286.)

The partition *i o* is stationary, but the other two partitions *i i* swing on the central axis for the purpose of distributing the clothes (which have been introduced through the door *d*) around the inside of the machine in such a manner as to balance the machine and cause it to re-

volve with ease. The partitions are perforated to let the water pass through.

The inventor says: All I *claim* is the movable partitions *i i*.

No. 13,682.—Joseph Keech.—*Improvement in Wash-Boards.*—Patented October 16, 1855. (Plates, p. 287.)

The face of the wash-board *f* is elevated at *m*, and depressed at *n n*. The hand will naturally rest in the valleys *n*, and draw the article over the protruding middle *m*, pressing it upon the said middle portion, and rendering the corrugations on that part as effectual in cleaning the article as if the hands were directly applied at said middle portion.

The inventor says: I disclaim expressly the curving of the corrugation, as patented by Lester Butler in 1852; but I *claim* constructing the operating-face of wash-boards of a laterally depressed and centrally elevated corrugated surface, substantially as specified, for increasing the effective operation of the board, in the manner set forth.

No. 13,692.—Chas. Love.—*Improvement in Washing-Machines.*—Patented October 16, 1855. (Plates, p. 287.)

The operation of this machine will be understood from the claim and engravings.

The inventor says: I make no claim to rollers or brushes, as applied to washing-machines and separately considered; but I *claim* the construction within the tube and above its bottom of a rack composed of radial fluted cones *r*, each capable of an independent rotation, arranged and supported as described, and operating as set forth, for facilitating the washing operation.

No. 13,751.—Daniel Haldeman.—*Improvement in Washing-Machines.* Patented November 6, 1855. (Plates, p. 287.)

The position of the parts of this machine, represented in figure 1 in dotted lines, sufficiently elucidates the nature of this improvement, as set forth in the claim.

Claim.—The combination of the hinged arms F, crank-shaft *i*, restraining-hooks *m*, and rubbing-board E, for the purpose of holding and operating said rubbing-board in its proper position whilst washing, and to enable the operator to raise it out of the machine, to replace the clothes by simply throwing back the restraining-hooks, and drawing the shaft (still pivoted to the arms) towards the end of the machine, as set forth.

No. 12,340.—George A. Meacham.—*Window-Washer.*—Patented January 30, 1855. (Plates, p. 287.)

Claim.—The arrangement of a sponge or brush E at the end of a hollow-handle or tube D, connected by a hose or pipe C to a body of water B higher than the object to be washed, so that the water flows through the said sponge or brush at the very time it is rubbed or scrubbed against the window.

No. 13,482.—Jno. J. Crooke.—*Improvement in Window-Shades.*—Patented August 21, 1855. (Plates, p. 287.)

The nature of this improvement will be understood from the claim and engraving.

Claim.—So constructing and hanging a window-shade that the roller thereof shall be capable of being raised and lowered, and at the same time shall roll or unroll the shade, and this without interfering with the fixtures for raising the bottom of the shade in the ordinary manner, as described.

No. 13,684.—John McLaughlin.—*Improvement in Wringers for Clothes.*—Patented October 16, 1855. (Plates, p. 287.)

The clothing is passed over hook H and confined in drum B between the serrations *f h*, arm D, and lever C, being pressed and held together by engaging one of the serrations *l* of lever E with pin *i* on lever C. The drum is then revolved so as to wring the clothes.

Claim.—The serrated rotary drum in combination with the ratchet levers C and E, constructed, arranged, and operating as and for the purposes specified.

XVIII.—ARTS POLITE, FINE, &c.

No. 13,044.—Edgar A. Robbins.—*Method of Tuning Accordeons.*—Patented June 12, 1855. (Plates, p. 288.)

The inventor says, in his specification: I construct an accordeon or flutina after the plan of the French semi-toned instruments, without the double semi-tone key, and apply my invention by simply tuning the reeds, as shown by the figure. The figure shows that as the scale of C fingers, the scales of E and A*b* finger; that as D fingers, so do the scales of F♯, F, B*b*; as E*b* fingers, so do those of G and B; and as the scale of F fingers, those of A and D*b* also finger; thus requiring but four modes or forms of fingering to perform the twelve major scales.

Claim.—Such mode of tuning the reeds of accordeons and flutinas as will require but four modes or forms of fingering to perform twelve scales any number of octaves within the compass of the instrument, as described.

No. 12,279.—William Ives.—*Book-Brace.*—Patented January 23, 1855. (Plates, p. 288.)

A A is the brace in the form of a book on one side; and extending its whole length is an adjustable slide B, which may be secured in its

proper place by the thumb-screw C. To the upper end of the slide is attached a pointed spring-bolt D, into the lateral slot E of which the shank of the bolt may be drawn when the brace is to be placed on or taken from a shelf. To secure the foot of the brace to the shelf, there are two spurs F F. If the brace be placed at the end of a row of books on a shelf, with the slide adjusted so as to bring the shelf above within reach of the bolt, it will be seen that by detaching the shank of the book from the rest, the shelf will be pierced by the point of the bolt, which with the two spurs will hold the brace firmly in its place. The object of this invention is to confine books in an erect position on the shelves of a library, &c., thereby preventing them from falling or attaining an inclined position. The slide serves to make the brace available on transferring it to various shelves having spaces between them of greater or less width.

Claim.—The combining with the brace the pointed spring-bolt and spurs, substantially in the manner and for the purpose described.

Also, the application of the adjustable slide to the brace, substantially in the manner and for the purpose set forth.

No. 12,954.—GABRIEL LEVERICH.—*Apparatus for Paging Books*—Patented May 29, 1855. (Plates, p. 288.)

To the slide B there are attached two frames B¹, one above and one below said slide; and to these frames levers *b* are attached, two at the front and two at the back edges of frame B. To the ends of these levers platforms C C are attached to support the book to be paged. The levers are so arranged that when one platform is depressed the other will be elevated in a corresponding degree, (the levers and platforms to be raised and lowered by operating thumb-screw *c*,) for the purpose of compensating for the unequal heights of the two sides of the book, which, of course, are of equal height only at the middle of the book. *j* are the type-wheels, which at proper times are brought down on the pages.

The inventor says: I do not claim simply placing type on the periphery of a rotating wheel for the purpose of printing, for that has been previously done in machines termed mechanical typographers; but I *claim* in combination with the type-wheels the adjustable platforms C C, for the purpose as set forth.

No. 13,166.—CHAS. FOLSOM.—*Improved Book-Clasp.*—Patented July 3, 1855. (Plates, p. 288.)

This clasp can be applied to books already bound, and may be adjusted to those of any size or thickness. *b* is a tightening-screw.

Claim.—The described book-clasp, constructed and operating in the manner as substantially set forth.

No. 13,302.—F. O. DEGENER.—*Improved Paging-Machine.*—Patented July 24, 1855. (Plates, p. 288.)

A number of cylinders *a* are fitted into each other, each cylinder having on its circumference a stop-flange *c*, a guide-flange *g*, (except the last cylinder, which needs none,) a pawl *f* to operate it, and a stop-spring to hold it in its place. The face of the cylinders I divide into ten equal parts, and place on those ten divisions of each cylinder the figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 0; each figure to correspond with a notch in the stop-flange, and a notch in the ratchet. One of these ten divisions in the stop-flange I divide again into two equal parts *t*, into which the stop-spring *d* catches, when the machine is being set, before commencing operation, so that no other figures will show except those which count, as shown at K, where the first cylinder has moved from the commencing place and counted one, 1. When the first cylinder has counted nine, 9, then by the next move the second pawl, which has been resting on the guide-flange of the first cylinder, will drop into the ratchet of the second cylinder or wheel, which counts the tens; and when the odd of the first cylinder comes opposite the figure one, 1, of the second cylinder, then both will move together to the proper place and count ten, 10. In this manner the first cylinder, by each revolution, will move the second cylinder one figure till they count ninety-nine, 99, when at the next move the third pawl, which thus far has been resting on the guide-flange of the second cylinder, or has been supported by the second pawl by means of a stop-finger *l*, during the tenth revolution of the unit cylinder, will drop into the ratchet of the third cylinder, and then move the three cylinders or wheels and count hundred, 100. In this manner it will operate until the last cylinder or wheel has moved around, when the machine will have to be set again. The third pawl has a stop-finger *l* which rests on the second pawl, thus causing the third pawl to be supported by the second pawl, when the notch in the guide-flange of the second cylinder is brought under the pawls, when it counts 90; the second pawl supporting the third pawl by means of said stop-finger on the third pawl, during the tenth revolution of the unit cylinder, or unit series of figures. Each succeeding pawl after the second pawl must have a stop-finger, to rest on the succeeding pawl, for the reason already explained. The pawls are attached to a rotating, reciprocating, or vibrating arm D; said arm D is operated by a cam-shaped piece E, which cam E gives to the arm D and paws *fffff* their requisite motion and time of rest, when the machine is being used.

A round disk or inking-table *m*, figures 1 and 2, is placed in the type-cylinders or wheels, so that the inking-table shall be surrounded by the figures or type. A spring *n*, figure 2, is attached to the shaft or inking-table *m*, to keep said inking table in its proper position, and allow it to be raised when ink is being applied to it. An inking-roller is affixed to a jointed arm *p*, to be operated by a cam F, to take ink from the inking-table and ink the type. A face-plate *g*, figures 1 and 2, is attached to the machine in such a manner that it shall allow the inking-roller *a* to pass under it, to take ink from the table, and then ink the type. Said face-plate has an opening *r*. Upon this face-plate and directly over this opening *r* is that part of the article laid which is to be num-

bered, when the platen *s* will carry it down with the face-plate and print it, and then relieve it from the type after it has been printed. The joint *p* in the roller-arm will allow the roller *o* to be pressed down when the impression is given, so as not to interfere with the face-plate.

The inventor says: I lay no claim to producing combinations by means of movable figures, in whatever position they may be placed; but,

1st. I *claim* the guide-flange or guide-flanges, in combination with the pawls, stop-finger or stop-fingers, and ratchet, for the purpose as described.

2d. I claim the cam or cam-shaped piece E, in combination with a rotating, reciprocating, or vibrating arm D and pawls *f*, for the purpose of operating movable series of figures, so as to produce different combinations; and giving to them, by means of the cam E, the requisite motion and time of rest, when the machine is in operation.

3d. I claim the combination of the inking-table being surrounded by the figures or characters to be printed.

4th. I claim the combination of the inking-table and spring, for the purpose described.

5th. I claim the combination of the spring-hinge, or joint, with the roller-arm, for the purpose described.

6th. I claim the mode of adjustment, by raising or lowering the machine, in the manner and for the purpose described.

No. 13,477.—Wm. C. Demain, assignor to A. B. Ely.—*Machine for Paging Books, &c.*—Patented August 21, 1855. (Plates, p. 289.)

The gate F, which works in ways E, carries the wheel-shaft G and other operating parts of the machine. When F is raised, the ratchet-wheel L on shaft G engages with pawl M attached to the frame, and shaft G is turned a portion of a revolution. Drum N is loose on shaft G, and is held by a carrying-ring P attached to a bracket Q projecting from the gate. R, S, S¹, etc., are the numbering-wheels, each of them having ten arms *x* with the numbers from 0 to 9 on. R is fast to the shaft. The wheels S S¹, etc., are carried by the drum; each of the latter wheels has a spring-bolt *d* which enters one or other of the grooves *f g* in the surface of the drum. When the bolts are in one of grooves *f*, the wheels are in position to be operated; when in groove *g*, they are not. *h* is a spring upon the side of wheel R, which, on arriving opposite cam T upon gate F, is pressed in, and thus as R is again revolved by the rise of the gate, the spring strikes one of the arms *x* of wheel S, by which means S is carried a short distance (the length of the cam-face); the spring, having passed the cam, flies out and disengages wheel S until R and the spring have again made another revolution, when the same operation will be repeated. Wheel S thus continues to move one notch, or one number, until, when S has made an entire revolution, spring *k* (see fig. 4) is brought opposite to spring *h*, and then the spring *k*, actuated by means of spring *h*, will operate upon the second wheel S¹ in the same manner as *h* operated upon wheel S, as above described; and R and S, moving together, will actuate S¹ until the latter has also completed one entire revolution, when the springs upon R S and S¹ are brought in a line, when S² will commence to be actuated by its spring, in the same manner as was previously done with S¹ and S, and so on with any number of wheels. For the purpose of repeating, if desired, the same number a given number of times, before the wheels are changed to give the next number, the repeating-wheel L¹ is attached to shaft G, so as to allow it to revolve with slight friction upon the shaft; the broad-footed pawl X is inserted in place of pawl M; the notches *t* are deep, to allow the pawl to enter deep enough to catch the teeth of L, and turn the shaft. When, however, the pawl falls into the shallow notches *r*, it is held off from L; and when the gate rises the repeating-wheel is carried round upon the shaft without turning it, and the numbering-wheels remain unchanged. Thus, the same number will be printed twice in succession. Figure 6 represents a repeating-wheel with nine shallow and only one deep notch, by means of which the same number will be printed nine times in succession.

The printing apparatus is not exhibited in the engravings, as it does not form part of the claims.

Claim.—Operating the numbering-wheels, by means of the springs *h k*, whereby the first wheel is caused to actuate all the others, and the operation of the machine is rendered automatic, in the manner set forth.

2d. The repeating-wheel operating according to the form and frequency of the notches thereon, substantially as described.

3d. The drum, with its notches *f g*, in combination with the numbering wheels.

4th. The gate F, in combination with the numbering wheels, and the parts which set them in motion.

No. 13,501.—M. Riehl.—*Machine for Trimming Books.*—Patented August 28, 1855. (Plates, p. 289.)

The nature of this invention will be understood from the claim and engravings.

I *claim* hanging or attaching the knife H to the cross-piece B of the uprights A A by the arms *a a*, as shown, whereby a drawing or oblique cut of the knife is obtained, and operating the knife by means of the worm-wheel E, screw F, and connecting-bar D.

No. 12,477.—E. C. Benyaard.—*Self-Catch for Breast-Pins, &c.*—Patented March 6, 1855. (Plates, p. 289.)

This invention consists in combining together two slotted cylinders, the one within the other, the outer one being soldered to the back of a piece of jewelry with its slotted side up, and the inner cylinder fitting nicely within the outer one, so as to be capable of being rotated therein, by means of a thumb and finger piece fixed thereto; so that the point-end of the pin proper may be admitted or released at pleasure through the slot when they are matched or brought together, and held securely when the inner cylinder is so as to close the slot in the outer cylinder.

The inventor says: I do not claim the application of a safe-catch generally, for the purpose of holding the point-end of the pin or a piece of jewelry.

But I *claim* the application and use of a safe-catch constructed substantially as described, for the purpose of holding safely and securely the point-end of the pin of breast-pins, cuff-pins, chatelaines, or any other piece of jewelry requiring a catch and pin.

No. 12,700.—ALBERT S. SOUTHWORTH.—*Plate-Holder for Cameras.*—Patented April 10, 1855. (Plates, p. 290.)

This plate-holder consists of a stationary casing A B E F. B is a zinc plate in front of the daguerreotype-plate Y, and contains a square opening C equal to one-fourth of the plate Y. The hollow square space within part E of the casing is of proper dimensions, so that when the frame G, holding plate Y, is successively slid into the four corners of said hollow space, the parts 1^1 2^1 3^1 4^1 of plate Y will be successively exhibited opposite the opening C, ready to receive the picture. The plate-holder G is brought into said four positions by moving the square knob I into the four corners of opening *k* in the rear part F of the casing. This motion can be made so quickly that the four pictures can be taken without covering the aperture of the camera from first to last. When exhibiting 3^1 and 4^1 the knob rests with its under surface on the top surface of the hinged block L, which block is then in a vertical position close to frame F. To exhibit 1^1 after 4^1 the block L is brought into position shown in fig. 4, the knob is slid down along edge *a* till its corner rests in groove *c*, and then passing the knob to the other end of said groove, 3^1 is exhibited. The object of this arrangement is to obtain rapidly a succession of pictures, timing them differently in order to select the best, and also to take stereoscopic pictures with one camera.

Claim.—The within described plate-holder in combination with the frame in which it moves, constructed and operating in the manner and for the purpose substantially as herein set forth.

No. 12,344.—DAVID N. B. COFFIN, Jr.—*Improved Daguerreotype-Plate Holder.*—Patented February 6, 1855. (Plates, p. 290.)

b is the block, *a* the frame, and *c* the bed-piece. The block *b* is of about the same length and width as the plate which is to be held, and is provided with a pin *m* at its centre, about which the bed-piece turns. The plate is held upon this block by the frame *a*, as follows: The projecting part within the corners of the frame *a* overlaps the corners of the plate, and draws them against the depressed corners of the block; the frame is made to act on the corners of the plate and force them to conform to the space between the projections within the corners of the frame and the depressed corners of the block by the force of the hand or by the action of the bed-piece, which is as follows: the plate is placed on the block, and the frame slipped on and over it; the bed-piece is slipped on to the pin *m*, so that its ends may pass within the

frame; then the bed-piece is turned, so that the ends of the bed-piece pass between the frame and the block, and the surface of that part of the frame at *p* and *q*, with which the ends of the bed-piece come in contact, is inclined to the surface of the block, so that as the bed-piece turns, its ends pass up the inclines *p* and *q*, and the block is pressed further into the frame, and so held there.

Claim.—The peculiar combination and arrangement, substantially as described, of the block-frame and bed-piece, for the purposes specified, the same being constructed and operated substantially as set forth.

No. 12,560.—DAVID SHIVE.—*Machine for Polishing Daguerreotype-Plates.*—Patented March 20, 1855. (Plates, p. 290.)

Spur-wheel I is attached to the bottom of eccentric H, the shaft E passing loosely through both. Spur-wheel K is fixed to shaft E. Spur-wheels M N are of one piece. The circular pieces C D are carried round by shaft E and arms F, they being connected therewith by cranks G, and (the eccentric H being confined in the centre of the lower circular piece D, and driven at a different speed from that of the shaft E, upon which it turns) the circular piece C, with the fixed-block P, to which the plate is attached, is necessarily caused to gyrate, and the polishing-pad B being held down upon it, the plate will be polished.

The inventor says: I do not claim effecting a gyratory motion of the pad for polishing the surfaces of daguerreotype plates, or other like surfaces, by means of machinery, as such has been so effected before for similar purposes.

But I *claim* the shaft E, with its arms F, cranks G, the pieces C and D, or their equivalents, and the eccentric H, with its spur-wheel I, in combination with the united spur-wheels M and N, and the spur-wheel K, when constructed and arranged substantially and for the purposes as described.

No. 13,196.—EDWARD BROWN, assignor to THE SCOVILLE MANUFACTURING COMPANY.—*Machine for Bevelling and Polishing the Inner Edges of Daguerreotype Face-Plates or "Mats."*—Patented July 3, 1855. (Plates, p. 291.)

The face-plate O^1 is placed over frame O, and motion is given to shaft J and arm K and burnishing-roller *f*; the plate is pressed against the burnishing-roller by means of lever P, and the roller forms a bevel on the edge of the aperture of the plate, and also polishes the bevel. The lever P is operated by hand, and the frame O is allowed to yield in order to allow for the difference between the diameters of the aperture, or, in other words, for the variation in distance from the centre of the plate of the several points forming the shape or pattern of the aperture.

Claim.—The combination of the rotary burnisher *f* and vibrating or yielding frame O, arranged and operating as shown, and for the purpose set forth.

No. 13,410.—HALVOR HALVORSON, assignor to HORACE BARNES.—*Improvement in the Manufacture of Daguerreotype Cases.*—Patented August 7, 1855. (Plates, p. 291.)

The composition referred to in the first part of the claim consists of gum shellac and some fibrous material dyed to the color required, and ground with shellac and between hot rollers, so as to be converted into a mass which, when heated, becomes plastic. The other features of this improvement will be understood from the claims and engraving.

The inventor says: I am aware that boxes have had sheets of paper or pasteboard glued or cemented to their surfaces; I therefore do not claim the mere application of paper by such means.

I *claim* the improvement in the manufacture of picture-cases or other articles of like character from a composition of shellac and fibrous material, as described; the same consisting in making said case or article of the said composition and one or more sheets of paper, and pressing and combining the whole together in a press or between dies, as described, so that the paper shall combine or connect itself directly with the composition without the aid of cement interposed between them, and sure to add great strength to the article so made.

And I claim the improvement of ornamenting the surfaces of the impression of the die with burnished gold, substantially as set forth; the same consisting in applying the gold to the surface of the sheet of paper, or its equivalent, burnishing it while on said surface, and laying the said burnished surface in contact with the surface of the die, and pressing said paper and the plastic composition together and into the die, so as to force the burnished gilding paper and composition upon it, and produce the result as specified.

I also claim the extension of the paper up the inner surface of the sides of the case, and by means of pressure in the mould; the same being for the purpose of enabling me to affix to the side the velvet-covered frame for the support of the picture, the mat, and the glass thereof.

No. 13,665.—DAVID SHIVE.—*Improved Daguerreotype-Plate Holder.*—Patented October 9, 1855. (Plates, p. 291.)

The part *a*, with the hooks *b b*, is attached to the part A, and the part a^1, with the hooks b^1 b^1, is attached to the part A^1; so that when the two parts A A^1 (which are held apart by a spiral spring between them, which latter is not represented in the engravings) are compressed. the parts a a^1 will recede from each other (see position fig. 1) so as to make room for the insertion of the plate.

The inventor says: I do not claim a two-part daguerreotype plate-holder, nor do I claim actuating the two parts by means of springs and the force of the hands.

But I claim a daguerreotype plate-holder, so constructed that when its under side is compressed by the hand of the operator, as described, its upper side shall expand so as to admit of the plate being placed between the hooks *b b* and b^1 b^1 thereon; and so that when the pressure of the hand is relaxed, the said upper side shall contract, causing

the hooks *b b* and b^1 b^1 to catch upon the outer edges of the plate, and hold it firmly upon the face of the holder, substantially as described and set forth.

No. 13,701.—SAMUEL S. DAY.—*Improved Daguerreotype-Plate Vise.*—Patented October 23, 1855. (Plates, p. 291.)

The clamp *e* is actuated by the combined operation of the screw-rod *c* and cam-piece *f*, whereby the screw on the rod furnishes the means for holding plates slightly varying in size; while the cam-piece acting on the screw-rod, as the latter is turned, becomes a ready means for clamping the plate 5 or plate 6 to the holder, or releasing the same therefrom.

Claim.—The combination of the clamp *e* with the screw-rod *c*, bow *d*, and cam-piece *f*, to hold the daguerreotype-plate between and beneath the lips 1 and 3, or 4, and *g*, in the manner as specified.

No. 13,516.—JOS. ALEXANDER ADAMS.—*Improved Machine for Electrotyping.*—Patented September 4, 1855. (Plates, p. 291.)

The sliding-carriage P being at the front end of the machine, the mould to be coated with the material is placed indented side upwards on the turn-table Q, and the powdered plumbago is sprinkled over it; the crank-wheel D is then turned. As the brush M vibrates, the carriage and mould move slowly under the brush. When the mould has entirely passed under the brush, the motion of the crank-wheel is reversed, and the mould re-passes under the brush. The turn-table and mould are then turned at right-angles to their former position, and again passed forward and backward under the vibrating-brush as before, and the mould is sufficiently coated. As the mould advances at the same time that the brush descends, the advancing sides of the indentations of the mould are acted upon more efficiently by the brush, and are thus better coated than in case the mould remained stationary.

By the above operation, each of the four sides of the mould is in turn the advancing side; thus all the sides, as also the bottoms of the indentations and tops of the projections of the mould, are acted upon by the brush.

I *claim* the reciprocating or vibrating brush, operated as shown, or in an equivalent way, for the purpose of covering or coating the moulds for electrotyping purposes with any proper powdered substance; the said vibrating brush being combined, when necessary, with a carriage N, arranged as shown, or in an equivalent way, so that the whole surface of the moulds may be presented gradually or successively to the action of the brush, as the moulds pass underneath.

No. 13,521.—AARON D. FARMER and RANSOM RATHBONE.—*Improved Mould for Backing Electrotype-Shells.*—Patented September 4, 1855. (Plates, p. 291.)

The shell is laid face down upon the bed-plate A. the top-plate C is then put on, and, by means of the clamps, the whole tightly secured together. The mould is then placed on end, having the handle thrown backwards and downwards, which inclination prevents the metal from coming in contact with the tinned surface of the shell while running down into the mould.

We *claim* the use of the mould-frame B, or its equivalent, in combination with the bed-plate A to plate C, and clamps and handle G, or their equivalents, for the purpose substantially as described for backing electrotype-shells.

No. 12,841.—HENRY WHITNEY, Jr.—*Improved Inkstand.*—Patented May 8, 1855. (Plates, p. 291.)

The piston *c* being depressed so that its circular ribs *d* will enter the corresponding cavities *b* in the bottom of the ink-stand, the ink, being prevented from flowing outwards by the air between the ribs, rises through *m* into the dipping-cup *f*. The cap C, it is apparent, is not required to fit with an air-tight joint.

Claim.—The well *k* and the cylinders *b b b*, in combination with the piston *c* and the cylinders *d d d*, for the purpose of raising and sustaining the ink above its level in the inkstand, without the necessity of using the tight-packed joints heretofore required.

No. 13,515.—ALBERT BINGHAM, assignor to HIMSELF and A. J. BAILEY.—*Improvement in Inkstands.*—Patented August 28, 1855. (Plates, p. 292.)

By moving the hand against the part of the bow-lever which is in front of and above the cover, the latter may be raised up and a pen held in the hand may be inserted into the ink-port B. As soon as the pen is withdrawn and removed from the wire or bow-lever, the cover will fall by its gravity and cover the ink-port.

I *claim* arranging and combining with the hinged-cover G of the pen-port B, substantially as described, the bow-lever H, whereby the cover may be raised under circumstances and in the manner specified.

No. 13,902.—CHARLES T. CLOSE.—*Improved Fountain-Inkstand.*—Patented December 11, 1855. (Plates, p. 292.)

Figure 1 represents the inkstand when being filled, and figure 2 when filled and ready for use.

Claim.—The arrangement and combination, substantially as specified, of the upper tube or passage *b*, connecting the top or air-space of the reservoir with the pen-cup, at or immediately below the level; the ink is designed to stand in said cup, the latter being connected with the reservoir in manner shown, or equivalently thereto, and the ink in the pen-cup forming a fluid-valve, that, upon the insertion of the pen and the withdrawal thereof, alternately opens and closes the lower end of the upper connecting tube, for the free, rapid, and certain admission of fresh air at intervals in the reservoir as required.

No. 12,713.—JEREMIAH CARHART.—*Improvement in Melodeons.*—Patented April 17, 1855. (Plates, p. 292.)

Space B communicates with the air-receiving chamber of the bellows through apertures E, the air following the direction of the arrows in the figure. The key N being pressed downwards, rod *a* acts upon lever H and the valve D is raised; the air passes up through the reed *r*, which is arranged on the *under* side of the reed-board C, and out at E. The hammer I is arranged *underneath* the reed, and not between it and the bellows. In its upward motion it strikes the buff M (a strip of soft leather, one end of which is secured and the other is left free) and intermediately through this buff the reed *r*, by which arrangement the percussion of the hammer is prevented from affecting the tone of the reed. The whole of the striking action, with the exception of the hammer-rail J and hammer, can be removed at once through the front of the case, all except those parts attached to a rail K, which (its ends running in dovetail guide-grooves *d* in the side-board L of the case) can be drawn forward by hand when the front of the case is open.

The inventor says: I am aware that a similar arrangement of the reed has before been adopted, and the air forced upwards through it to produce the tone by the bellows from below, and the hammer caused to strike the reed from beneath; but this has only been done in instruments employing a forced current of air produced by the blowing action of the bellows, and the hammer has necessarily been arranged within the wind-chest, or between the wind-chest and reed, and intermediate of the current passing from the bellows to the reed, whereby much inconvenience arises in the removal of the hammer and adjustment of the reed, and to remove the hammer destroys or stops the operation of the reed for tuning or playing; this I do not claim.

But what I do *claim* is the arrangement herein shown and described, in instruments operated by exhaustion of the air, of the reeds, valves, and hammers, in relation to the exhausting bellows or passage, so that the hammer is caused to operate outside of the influence of the bellows, and not between the bellows and the reed, and whereby the hammer may be readily detached and taken out of the instrument for repairs, tuning, or adjustment of the reed, without destroying the capability of the reed to speak or play.

Without claiming the application of buffs, consisting of strips of leather, to musical instruments generally, or for any other purpose than that which I have specified, I claim their application to reed instruments in connection with hammers, substantially as and for the purposes herein fully set forth.

No. 12,938.—Thomas Foster Thornton, assignor to George A. Prince and Thomas Stephenson.—*Improved Swell for Melodeons, &c.*—Patented May 22, 1855. (Plates, p. 292.)

The swell C *c* is divided into two halves C and *c*, the hand-lever E acting only upon the half C. Figure 1 represents the swell when closed, figure 2 when open, and figure 3 when half open and half closed.

The inventor says: I do not claim the whole swell when acted upon by the foot pedal J, the rod *g*, and levers *h h*, when the swell is not divided. as I am aware that it is now so constructed and used.

But I do *claim* the *divided swell*, constructed substantially as set forth, so that one-half (or part) may be used separately when desired, for producing more variety in the tone of reed instruments, such as melodeons, melo-peans, seraphines, and reed-organs, all of which are very similar in construction.

No. 13,021.—William C. Whipple and William C. Bowe.—*Improved Melodeon.*—Patented June 5, 1855. (Plates, p. 292.)

By pressing down one of the keys, for instance C, the pitman *h* will force down the extreme end of lever *c*, raise the contiguous ends of *c* and *d* at *g*, and thus open the valve at B, which is under the key C^1, so as to sound the octave. Thus the instrument will have the same power as if made with two sets of reeds.

Claim.—The use of two sets of levers, located in the wind-chest under the valves, and so connected as to enable us to play any desired note and its octave, when the whole is constructed, arranged, and made to operate substantially as described.

No. 13,048.—Henry W. Smith.—*Improved Coupling for Organs and Melodeons.*—Patented June 12, 1855. (Plates, p. 292.)

a a are the two banks of keys of a melodeon, with two sets of reeds *c c*; *b b*, two sets of valves. One end of lever *f* is attached by a hinge to the upper surface of a key of the lower bank, and has a slot *s* through which the valve-rod *e* plays; the slot, however, is too narrow to let the valve-rod shoulder *h* pass through. The other ends of all the levers *f* rest in a groove in the cross-rail *g*, which latter is hinged (by means of two arms *t*) at both its extreme ends to the key-frame, so as to allow the rail to rise and fall, and thereby elevate or depress the ends of the levers *f*. When the coupling-rod *k* is pulled towards the performer, the end of arm I, which rests on the rear extension *u* of rail *g*, forces down the rail and all the levers until they rest upon the surface of the keys. When the rod *k* is pushed back towards the action, the rail and levers are elevated by the springs *l*. When a key on the lower bank is depressed, the shoulder will rise above the surface of the key if the coupling apparatus is not adjusted. If the coupling-rod be pulled out, and the levers are forced down on a line with the lower keys, and the lower key be then depressed, both sets of valves must be opened by means of the action of shoulder *h* on lever *f*. Thus both banks of keys

are coupled in such a manner that the lower bank will play both sets of reeds.

Claim.—The combination of the lever with the shoulder on the valve-rod, operating in the manner and for the purpose described.

No. 13,704.—George G. Hunt.—*Improvement in Melodeons.*—Patented October 23, 1855. (Plates, p. 292.)

A reed-board of ordinary construction is divided along its central line, and the two parts are removed a short distance apart, as shown at *a a*. Upon these is placed another ordinary reed-board *b*, but having no valves of its own, and in which the reeds are placed at the same distance apart as are those in the first board, whereby each pair of reeds of the upper board will be in the same vertical plane with a pair of the lower board. The divisions between the reeds of board *b* must be continued through space *c* to the lower face of board *a*, (as indicated at *d*,) and in each of these spaces a block *e* is put as a guide for valve-rod *f*. One valve *g* covers the slot in the lower reed-board, and this slot is just so much longer as the two parts *a a* have been removed asunder. Two other sets of reeds may be added by removing the parts *a a* still further and dividing board *b* as before described for *a*, when another reed-board may be placed upon that.

Claim.—The described construction whereby two, four, or more sets of reeds may be operated by one and the same valve, in the manner set forth.

No. 13,959.—Thomas F. Thornton.—*Improvement in Organ Melodeons.*—Patented December 18, 1855. (Plates, p. 292.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Providing an additional set of valves F and one or more additional sets of reeds E E, arranged as described, in a position the reverse of the usual arrangement of valves and reeds, and extending the keys backwards in rear of the fulcrum to actuate the additional set of valves through push-up pins, to play on the additional set or sets of reeds at the same time as they actuate the other sets of valves D, through the push-down pins to play the reeds C C, which are below them, substantially as described.

No. 12,628.—Gustavus Hammer.—*Improved Valve for Wind Musical Instruments.*—Patented April 3, 1855. (Plates, p. 293.)

1 is the valve which works in the cylindrical case 18, and is operated by means of bow 15 and string 16, which passes around the top of the valve and is prevented from slipping by being held with the screw 19. By arranging the attachment for working the valve between the bearing and the valve, the uneven wear of the latter is avoided.

Claim.—The combination of the bow 15, string 16, and the screw

19, for working themselves and preventing the string from slipping, all for purposes set forth.

Also, the privilege of applying the improved valve to all musical instruments to which such valves are commonly attached.

No. 12,724.—Isaac Gallup.—*Improved Apparatus for Turning the Leaves of Music-Books.*—Patented April 17, 1855. (Plates, p. 293.)

When the leaves are placed between the prongs of the fingers C and the first leaf is to be turned, the performer depresses the knob 1, and thereby forces the key G and lever-bar F down. The lever-bar in descending causes the barrel-pulley D to turn, thereby extending the spring H and allowing spring I to contract. Spring H is thus prepared to bring back the finger and leaf, and the contraction of I aids in turning the barrel-pulley which carries the finger. As soon as the finger C occupies the position C^1, (shown in broken lines in fig. 1,) the spring-catch K has caught the stop J of the key, and thus prevents its rising and the finger returning with the leaf. When all the keys (or as many as there are leaves to be used) have been operated, the keys are moved laterally to a small extent, which the oblong form of the key-holes *h* permits. Thereby the keys are freed from their catches, and they are elevated to their original position by the springs H, in doing which they cause the fingers, with the leaves, to return to their former place. As the fingers are returned by the force of the springs H, they and the leaves would be injured were not the force of said springs counteracted by springs I; and after the fingers are at rest, they would be subjected to strain, if it were not for the counterbalancing action of springs I.

The extension *a b* of the fingers is intended to facilitate their supporting the leaves, and to turn them more evenly.

The inventor says: I do not claim the revolving, self-adjusting pulleys or finger carriers; but I do *claim*—

1st. The employment and arrangement of the swinging-bars F F F F and keys G G G G, in combination with said revolving self-adjusting pulleys or finger-carriers D, substantially as and for the purpose set forth.

2d. The employment, substantially as herein shown, of the spring I in combination with the spring H, for the purpose set forth.

3d. Providing a stop J on each of the keys G, and a spring-catch K on the under side of the top A^1 of the case A, to fit against said stop, substantially as and for the purpose set forth.

4th. Providing each of the fingers C with an extension from *a* to *b*, for the purpose herein specified.

No. 13.001.—Wm. Fischer.—*Method of Composing Music.*—Patented June 5, 1855. (Plates, p. 293.)

Divisions *a b c*, &c. contain three cards each A B C, each of which has four numbered musical phrases a^1 b^1 c^1 d^1 for the composition of a musical piece. Of these twelve phrases, one may be chosen from several or from all of the divisions, and they will become a coherent and rounded musical composition, perfect in itself.

Claim.—So arranging a certain number of musical phrases on each of a number of cards, that by selecting and combining one from each card, as described, a number of musical and perfectly melodious pieces can be composed, all of them differing from each other.

No. 13,365.—George S. Shepard.—*Improvement in Musical Reed Instruments.*—Patented July 31, 1855. (Plates, p. 293.)

The air to act upon the reeds is made to enter each end of the reed-chamber J through the oblong openings *g g* from the bellows. Sounding-posts *n n* are inserted between the socket-board *c* and the bottom *s* of the valve-chamber I, which serve a purpose similar to what they do in stringed instruments. By opening to their full extent the valves *e e*, and thereby allowing the air to escape freely from the valve-chamber into the sounding-chamber A, tones of increased fullness and power will be produced; and by nearly closing said valves, the softest tones will be produced. The auxiliary sounding-chamber B adds to the vibrating surface of the instrument, and prevents the air in the valve-chamber from reacting against the reeds when the valves *e e* are nearly closed, thereby adding to the fullness and evenness of the tones.

Claim.—The combination of the auxiliary sounding-chamber B and the swell-chamber A with the valve-chamber I, substantially in the manner and for the purpose set forth.

No. 13,642.—Daniel George.—*Wind Regulator for Organ-Pipes.*—Patented October 9, 1855. (Plates, p. 293.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—Constructing the lower part of each or any of the pipes of an organ with a transverse seat fitted with a plug *b*, like that of a faucet, having a suitable passage or passages. the area of which is regulated by turning the plug, for the purpose of regulating the tone of the tube and tuning the instrument, substantially as described.

No. 13,668.—J. C. Stoddard.—*Apparatus for Producing Music by Steam or Compressed Air.*—Patented October 9, 1855. (Plates, p. 293.)

A is the steam-chest, (constantly supplied from a boiler) B are the whistles attached to it. The valves are placed in valve-boxes C between the whistles and the steam-chests, with their stems *a* protruding from the said boxes to enable the valves to be opened by the keys. The valve has two puppets *b* b^1, one end of its stem *a* passing through stuffing-box *c*, and the other end through guide *d*, being exposed to the steam. b^1 is a trifle smaller than *b*, so that the pressure of the steam tends to keep the valve tight when closed. The steam escapes at *g*.

The valve remains open only as long as the finger is on the key, and is closed as soon as the finger is off by the steam-pressure on the stem.

Claim.—1st. The musical instrument described, consisting of a number of what are commonly known as steam-whistles, of such tones as to produce a musical scale, arranged in a convenient manner, upon a steam-chest, chamber-pipe, or generator, and furnished with valves and a rotating studded-barrel, finger-keys, or other suitable mechanical means of opening the said valves to allow the escape of steam or air to the whistles, substantially as set forth.

2d. As a part of the said musical instrument, the described valve, with its two puppets and seats of unequal size, and with one end of its stem exposed to the atmosphere.

No. 13,946.—H. B. HORTON.—*Machine for Registering Music.*—Patented December 18, 1855. (Plates, p. 294.)

This apparatus is intended as an aid to music composers, by registering the notes played upon a sheet of paper D, which has a slow motion. The notes played are marked, as the keys H, when depressed, allow the supporting rods *i* to descend and the markers *h* to descend upon the paper.

Cla m.—1st. Attaching the markers *h h*, by which the notes are registered, to high springs or flexible-bars *g g*, which are so supported by the keys H, when the latter are raised or not in operation, as to hold the points out of contact with the roll D, or other travelling sheet, upon which the notes are registered, until their respective keys are depressed, when, losing that support, the points fall or are gently pressed upon the surface of the sheet, substantially as set forth.

2d. The within described method of operating the bar-marker *o m*, by which the bars are registered, by making it sufficiently elastic to hold its point off the sheet while it is left free, and striking it down in contact with the sheet at intervals of time bearing a proper relation to the movement of the sheet, by means of a hammer applied substantially as described, and operated by a cam *s* on one of the rollers, which supports and moves, or is moved by, the sheet.

3d. The vibrating indicator *u*, arranged so as to be visible by the player, and operated substantially as described, and the cam *c* on the axle of one of the rollers, which drives or is driven by the sheet, for the purpose of marking the time, to lead or guide the player.

4th. Attaching all the note-markers and the bar-markers, and the upper guide of the rods through which the keys support the note-markers, to a frame *k k*, so that the whole can be moved simultaneously in a lateral direction to mark in different lines, substantially as and for the purpose set forth.

No. 12,255.—R. L. HAWES.—*Machine for Making Boxes of Paper.*—Patented January 16, 1855. (Plates, pp. 294, 295, 296, and 297.)

Almost all the features of this machine can be well understood from the engravings and claims. A more detailed description would occupy too much space.

Claim.—1st. The pasting apparatus, consisting of rollers 20 21, working in the open bottoms of vessels containing paste or other adhesive material, said rollers having cavities or cells to receive paste from the paste-vessels, and transmit it to such parts of the roll or piece of paper, or other material, as may be necessary, as the paper passes between them before entering the machine, substantially as described.

2d. The employment of a series, consisting of any suitable number, of moulds G 1 to G 6 of proper form for the boxes, arranged so as to work radially, or nearly so, upon or within a revolving mould-wheel I J outside a series of tables N N, in such a way that a piece of paper or other thin material, to form a box, is taken between each of the several moulds and their respective tables, and drawn between the edge of a projection *b* and of a clamp *t*, or other edges attached to or forming part of the wheel, for the purpose of bending the paper up the sides of the mould, substantially as described, and thus forming three sides of the box.

3d. Attaching to the mould-wheel, between the moulds, a number of blades *c c*, corresponding with the number of moulds, so arranged at equal distances apart, and at equal distances from the axis E of the wheel, that the distance between their cutting-edges shall be equal to the required length of paper to form the box, and that they are severally and successively caused, by the revolution of the mould-wheel, to act in combination with a fixed knife *d*, suitably arranged in any way substantially as described, and cut the paper or material from the roll in proper lengths to form the boxes.

4th. The clamps *t t*, arranged one at the side of each mould, and actuated and operating substantially as described, for the purpose of lapping the part 37 of the paper or material over the mould, to form part of the fourth side of the box.

5th. The presser P, arranged relatively to the mould-wheel, and operating substantially as described, for laying down the edge of the part 37 of the paper or material, and confining it till the part 38 is lapped over it.

6th. The presser R, arranged relatively to the mould-wheel, and operating substantially as described, to lap the part 38 of the paper or material over the part 37, to complete the fourth side of the box, and at the same time lap the part 40 over the end of the mould to commence the end of the box.

7th. The levers V V, working as described, on or within a wheel, or its equivalent, which rotates with the mould-wheel, and successively so operated as described, by coming in contact with a fixed tongue 33, or other fixed part of the machine, during the revolution, that each at the proper time folds the part 41 of the paper or material, and laps it over one side of the part 40, as represented.

8th. The arm U, arranged as described, carrying the plate 15, by coming in contact with which, the part 42 of the paper or material is folded and lapped over the opposite side of the part 40 to that covered by the part 41, also carrying the plate 14, which is caused by the action of studs *l l* on the wheel H, or its equivalent, to be moved from the

central shaft to lap the part 43 over the part 40 41 42, and thus complete the formation of the bottom of the box.

9th. The stationary smoothing and pressing-plate 16, arranged as described, to smooth and finish the bottom of the box by the revolution of the latter in contact with it.

10th. The arrangement and mode of operating the roller 44, to take the glue or adhesive material from a fixed trough 47, and distribute it over the bottom of the box, to prepare the same for sanding.

11th. The shears 62 69, arranged and operating as described, at the end of the table 61, along which the printed string of labels passes, from the printing apparatus, in combination with the intermittent motion of the said printing apparatus, for the purpose of moving forward the labels at proper intervals, and cutting them off one by one, as required, to be presented to the boxes.

12. The table 71, attached to or supported above the shear-blade 69, so as to move with it for the purpose of receiving the cut label, and applying it to the box, as set forth.

13th. The arrangement of and mode of operating the tongs 74 75, substantially as described; that is to say, the said tongs being arranged so that each box will pass them after being completely formed, and being operated to move towards the mould-wheels with open jaws, and to close upon the box when it is between them, so that the mould, by a movement in the direction of its length, may be withdrawn from the box, and then to move with closed jaws from the mould-wheel to carry the box to a trough or box of sand 76.

14th. The hook 88 attached to one jaw of the nippers, and operated upon substantially as described, so that as the said jaws descend with the box towards the sand-box, it throws up the mouth of the box to bring it to a nearly upright position, to dip the bottom in the sand, substantially as set forth.

15th. The rod 92, arranged and operated upon as described, to knock over the finished box from the sand-box.

16th. The general arrangement, and combination of the several portions of the machine, as described, either with or without the labelling and sanding apparatuses and their appendages.

No. 12,786.—JOHN A. SMITH and S. E. PETTEE.—*Machine for Making Paper Bags and Envelopes.*—Patented May 1, 1855. (Plates, p. 298.)

The paper, cut into the proper form, is placed in the box H, and paste or gum in the trough P, and motion given to shaft U (the bars I and L being in position figure 1); the bar I turns up in the direction of arrow, figure 1; and after it passes the bar L, the box is lowered a little to allow the bar K to take the weight of the pile partly off the end of the under sheet, and to insure the bar I to draw or slide back the under sheet, as shown in figure 2. The bar L, then following, lifts the box and paper away from it, and the bar L passes over the end of the sheet, as shown in figure 3; the bar I then returns to former position,

and the bar L, continuing its motion, brings the paper between them, as shown in figure 4, ready for the jaws E to take it.

Now the table (which consists of two parts, x and x^2, connected together by springs W W) moves back far enough to allow the former A to be lifted; it then moves forward, as also do the jaws E, carrying the lifter M into the box H, lifting the weight off the under sheet, to allow it to be drawn out without disturbing the others; the former A lifting enough to clear the fore part of the jaws, and to open them by pressing against the roll on the back end of the lower jaw, keeping them open until they pass over the paper, the jaws stopping the former A by dropping a little, thereby allowing the spring to close the jaws on the paper. The jaws now, moving back, draw the paper out of the box H, the bar L turning a little to be out of its way, and afterwards turning to place in time for bar I to pass it to take another sheet; the table moving back with the jaws receives the paper, and the former A is closed on the paper with its edges in the proper position for the folds, and part C^2 (figure 6) of the paper lying on the bar B, and the sides B^2 B^2 lying on the guards G G; the former A, pressing the lower jaw down, removes the paper from the points in the upper one. The table x now moves forward, carrying the former A under the bar B, thereby folding the part C^2, as in figure 7, the guards G G guiding the sides B^2 B^2 over the folders D D, and to pass under the sponges and pasters, which (having been dipped into the paste whilst the table is receiving the sheet) pass outward as the paper passes under them, so as to spread the paste along the straight edges of B^2 B^2; the side-folders D D now move on simultaneously, whilst the part C^2 is held smooth by bar B, as in figure 8, and press the sides on the pieces F F, casting off the springs W W; the part x of the table now moves back, the folders D D holding the paper on to x^2, when the former A is drawn out the width of the envelope, or so as to cover only D^2; the whole table then moves back, carrying the folded part beyond the bar B, when the springs T T lift it, and the table moving forward, again it is folded over the former A and lap D^2, finishing the envelope; the table, moving far enough forward to bring the whole work by the bar B, delivers the work on its return, the bar B serving to hold whilst the table is moved back for another sheet; the springs T T in passing under the bar B are pressed down sufficiently to allow the former A to slide over them, allowing x and x^2 to come together before they get clear forward, the finished work falling on to a band, which, passing over a roll V, carries it into a suitable receptacle.

The inventors say: We do not claim the exact form or arrangement of any of the parts, but only the following points:

Claim.—1st. The bar K, to relieve the end of the under sheet of the weight of the pile, partially or wholly.

2d. The friction-bar I, to separate the under sheet.

3d. The guide-bar L in connexion with bar I, to hold the sheet in place for the jaws.

4th. The lifter M, to relieve the sheet from the weight of the pile.

5th. The feeding from the bottom of the pile.

6th. The combination of the weight-bar, friction-bar, guide-bar, and lifter, constituting a feeding apparatus.

7th. The jaws, to place the paper in position.

8th. The former A, to fold the paper over or around.

9th. The pasters and side-folders.

10th. The combination of the table, the bar B, the side-folders and pasters, all constructed as herein set forth, or any other substantially the same.

No. 12,736.—T. J. BALDWIN.—*Improved Paper-Ruling Machine.*—Patented April 17, 1855. (Plates, pp. 298 and 299.)

Power being applied to the roller C, the apron B moves around rollers C L D, and the sheets of paper a^1 are fed in between the apron and the cords *b*. The front edges of the sheets strike the pendant *f* and rotate the shaft N a trifle, so as to throw the recess *e* in the pulley O off the pulley M; and as the peripheries of the two pulleys are then in contact, the shaft N rotates, and the prominent parts of the cam Q raise the lever T, and lever T in rising throws the spring-catch S out of the collar *l* and hub *i*, and spring *m* consequently forces the loose pulley R against the fast pulley K, sufficiently tight to cause the loose pulley to rotate, and the projections V (on pulley R) tilt the pen-beam W. and the pens are raised from the paper.

Projections V are to be of proper length, and to be so arranged as to operate the pen-beam as desired. The pulley R may make one revolution during the passage of each sheet of paper underneath the pens, and the pulley O also makes one revolution in the same time; the recess *e* fitting over the pulley M, and preventing any casual movement of the shaft N. The stop *g* and lever U serve to stop the motion of the shaft N at the termination of every revolution.

Claim.—Lifting the pens X from the sheets of paper a^1 at the proper intervals by means of the mechanism herein shown and described, viz: having the front edges of the sheets a^1, as they move along on the endless apron B, strike against a pendant *f* attached to a pulley D^1 on a transverse shaft N on the frame A; said shaft being provided with a pulley O at one end, having a recess or groove *e* cut in its periphery and a cam Q; the pulley O working on bearings on a pulley M underneath it; said pulley M being driven by a belt *d* from the driving-shaft C. The cam Q operating a lever T, by which the spring-clutch is allowed to act and connect the pulleys K R at one end of the drum L; the projections V on the lower pulley R raising the pen-stock so as to leave the blanks or spaces at the desired parts of the sheets, as herein set forth.

No. 12,945.—E. W. GOODALE.—*Improved Machine for Making Paper Bags.*—Patented May 29, 1855. (Plates, p. 299.)

The feed-roll G receives an intermittent motion to feed at proper intervals a suitable length of paper; I, stationary blade; I^1, vibrating blade for cutting off the paper after it has been delivered to the endless apron L. They are so bent as to cut the paper after the line 3 3

3^1 3^1 (see the form of paper represented in fig. 4). J J are the stationary and J^1 J^1 the movable blades of two pairs of shears for cutting out the slides 3 1, so that when the piece is folded in the line 1 1 (fig. 4) to bring part 3 on top of part 4, the side parts 2 2 of the other half may lap over it to close the sides of the bag. The stationary blades are all attached to bridge-piece I^2. Shear-blade I^1 is pivoted in *i* to a fixed stand i^1, and its other end is operated by a cam and rod i^2. Blades J^1 J^1 are on shafts j^1 sliding in guides j^2, and are operated up and down by cams; they (blades J^1) are set slightly out of parallel with the blades J, and are connected by spring j^3, which tends to draw them together, and while cutting to throw their edges slightly across those of J J; but their downward movement in contact with J J forces them gradually apart. Apron L receives the cut piece, and while on the apron the under faces of the side margins are pasted ready to receive the lapping-pieces 2 2; they receive the paste from rollers *c* revolving in a trough, and alternately raised and lowered to take up paste and give it to the paper.

The intermittently revolving folder consists of two plates M secured to a shaft M^1, the whole length of the folder being nearly equal to the length of the bag-piece, but considerably narrower. O^1 is the intermittently revolving creaser-shaft; the creasers consisting of arms O, of such length and at such distances apart that each pair forms a mould upon which to fold the bag. As soon as the piece is deposited on the folder, the creaser-shaft O^1 makes a portion of a revolution (see arrow), and brings down a pair of creasers upon part 3 of the bag-piece; then the folder makes half a revolution (see arrow), and folds part 4 over on to the part 3. During the folding operation, the operating pair of creasers has been supported by the stands *d d*, and then remains below the creasers after the folding operation and during the operation of lapping the sides, which is performed by means of lappers N N hinged to the folding-stands, which, during the preceding operations, have been thrown back, (see dotted lines fig. 2). As soon as the side-lap has been completed, the lappers N N are again thrown back, and the movement of the creaser-shaft to bring another pair of creasers into operation takes place; but previous to this, the stands *d d* move farther apart to allow the creasers to pass. This is done by means of a cam acting on lever V^2 and elbow-levers *u u*. The removal of the bag (before entering between the pressing and delivery rollers S S) is commenced by the sharp teeth of roller T.

The bag piece is represented in the figures in strong broken lines.

Claim.—1st. Giving the blades of the side-shears J J^1 J J^1 a curved angular or irregular form near the point, for the purpose of cutting out each by a single cut the whole piece necessary to leave the lap on that side of the bag.

2d. Hanging the movable blades J^1 J^1 of the side shears on shafts or pivots j^1 j^1 perpendicular to their faces, for the purpose of allowing them to cut slightly across the fixed blades by a slight lateral movement, which they receive simultaneously with the movement usually given to shears, substantially as described.

3d. The intermittently rotating folders, arranged and operating substantially as described, to receive the bag-pieces from the feed-apron

L after the cutting and pasting operations, and to support or partly support them until the creasers come into their operative positions, and afterwards to fold them over the creasers.

4th. The combination of the side lappers N N and the laterally moving folding-stands *d d*, operating in conjunction with the creasers, substantially as and for the purposes herein set forth.

5th. The toothed roller T, hung in a frame T^1 from the axle of one of the pressing-rollers, and operating substantially as described, to commence the removal of the bags from the creasers.

6th. The general arrangement and combination of the several working parts of the machine, substantially as herein described.

No. 12,982.—Francis Wolle.—*Machine for Making Paper Bags.*—Patented May 29, 1855. (Plates, p. 300.)

The working parts of the machine, with the exception of the printing and drying apparatuses, are erected upon a bed A, and the movements of all the parts are derived from the main shaft B. The paper from which the bags are made is on a roll C, of a width suitable to the depth of the bags. One end is led between feeding-rollers D, caused to revolve and unwind a sufficient length of material to form a bag, and then remain stationary for a time. The paper which has been drawn between the feed-rollers lies upon an inclined plane, and is cut off by a shear-blade; other blades also cut away part of one edge, so that the remaining part of the same edge can, when the piece is doubled, be lapped over it to form the bottom of the bag. The blade *r* creases the sheet, and folds it by driving the crease through a slot far enough to be seized by a pair of rollers *s*, which draw the folded piece through the slot, and, assisted by two other rollers s^1, carry it into a swinging-frame Q, whence it passes upon an endless apron U. The apron has an intermittent motion, and receives one movement for every revolution of of the driving-shaft B. One of these movements of the apron serves to carry the folded paper from the conveyor Q to the bottom-pasting and lapping apparatus 38, where the bottom of the bag is closed; and the next movement to carry it from the bottom pasting and lapping apparatus to the side-pasting and lapping apparatus, where the side of the bag is closed. Each of these parts consists of paster, paste-feeder, lapper, and creaser. The bag is printed by means of a type-cylinder revolving suitably with the velocity of the bag to be operated on and inked by rollers. The bags b^5 b^6 b^7 are dried in a chamber 73 at the end of the machine, through which a current of air circulates, and into which they are carried by an apron or series of cords 74 and 99.

Claim.—1st. The conveyor for conveying the folded paper to the apron, by which it is carried to the folding and lapping apparatus, substantially as set forth.

2d. The construction of the lappers 20 and 38, and their connexion with their respective lapping-tables 21 and 68, as shown and described.

3d. The arrangement of the drying chamber, and the aprons which convey the bags through it, as described, so that the bags are severally delivered to the aprons with their sides in a positive oblique to the direction in which the aprons move, and thus, as they are successively deposited, have the net-laps of their sides and ends left uncovered by their successors.

4th. The general arrangement and construction of the whole of the machinery described, whereby a piece of paper of suitable length is cut from a roll, cut out to the proper shape, folded, pasted, lapped, printed in any desirable manner, and dried, at one continuous operation.

No. 13,349.—Jno. A. Elder and Jno. Richardson.—*Improved Machine for Ruling and Paging Paper.*—Patented July 31, 1855. (Plates, p. 300.)

The railways M are fastened to the frame A, as also the rails G G and F F; the rails H H and J J are jointed to the rails G, and the rails L L and K K to F F; the circular rails X and 24 are jointed to frame A. The tables B travel on said rails by means of gear-wheels T taking into rack-teeth 12; I are the pens. The dogs Z, at each end of the tables, raise at proper times the arms *c* of the pen-clamp D and the pens from the table. 16 and 17 are rocker-shafts, to which the nippers 14 and 15 are attached, the latter being held together by spring 27 applied to arms 4 of said rocker-shafts. Lever *o* jointed to frame A in 29; lever 6 7 jointed to arm 13, projecting from frame A; 9, inking-roller; 11, weight. The roller 9, by passing backwards, takes the ink from the under side of plate 23, and in passing forward transfers it to the type at the lower end of type-rod 5. Springs 19 press against rails L. When the wheels *u* of the lower table B stand on H, and wheels *v* on K, then, by moving crank P forward, T will be turned, carrying along B; the front end of B will depress rails L till they rest on M; and when *u* passes over J, pin 26 will lift lever Q extending from K, and thus raise K; *u* will then pass under K and down on 24. Pin 25 lifts R, and lifts at the same time rail X and lets *u* pass under it and along on rail M; *u* will then lift H until the latter sinks down, (and rests again on M,) when *u* passes the end of M; *u* will then pass up over rail H; the weight of the table depresses L. Spring 19 raises L, for wheels *v* to pass under rails L and along on M; wheels *v* lift 24 and J, and travel up the rail X. Cam N works O, so as to press the type-rods down on the paper while B stands at rest, the rails 24 being so shaped at their ends that the table will not move during the depression of the type-rods. At the same time the bar 2 moves forward and opens arms 4, and the nippers receive the edge of the paper; the table moves back, and the paper falls down on the lines Y.

Claim.—1st. The arrangement of machinery for the ruling, printing, and paging paper for the manufacture of blanks, books, or other like purposes; when the ruling, printing, and paging are done before the paper is removed from the car or table where it is ruled, as specified.

2d. The combination of a car or table B, and ratchet-bar, with its type-rods 5, or their equivalents, for the purpose described.

3d. The pliers or nippers for the purpose of removing the paper from the car or table, when operated as described.

No. 13,647.—E. W. Goodale.—*Machine for Making Envelopes, &c.*—Patented October 9, 1855. (Plates, p. 301.)

a are the blanks on table C, from which the envelopes are to be ormed. Table C is attached to shaft C^1, which works in guides *c c*, and is operated by cam C^2, which latter has not a complete rotary motion, but only turns far enough to enable the cam to raise the table up to bring the top blank in contact with the under side of the gluten dish *b*, said cam being operated upon for the above purpose, by spring *d* applied to cord d^1. The head E is carried by two cranks d^1 d^1 on shafts *d d*, and has attached to it the paste-box *e*, which carries the paste to stick together the three flaps of the envelope; the gluten die *f*, which takes the gluten from the gluten dish *b* and puts it on the seal-flap; and a screw *g*, which gives pressure to the stamp which stamps the seal on the seal-flap. The cranks are geared together, and operated by lever F^1 and cam F, so as to give, at proper times, one-third of a revolution to shafts *d* and cranks d^1, so as to carry the head E from position figure 3 (where the gluten die is in the gluten-dish) to position figure 1, where the gluten die rests on the top sheet of the pile of blanks, the head being returned again by the action of spring *i*. The bottom of box *e* (the horizontal form of which corresponds with the margin of the flaps) is closed, except at the proper time to apply the paste, by means of a spring-valve *j*; this valve is opened, at proper times, by lever j^1 striking stand j^2, attached to gluten-trough *b*. The gluten die *f* corresponds in form with the shape of the seal-flap of the envelope. The seal-stamp consists of two dies, one covex *h* and one concave h^1. *h* is attached to an arm *i* secured to slider F^*, which receives a movement back and forth by elbow-lever j^* operated upon by cam G and spring j^1. The wedge i^1 at the front end of arm *i* passes under the top blank, to make room for die *h* to get under; said top blank being, at the time the wedge arrives, momentarily raised a little by the gluten die, as the latter commences rising after putting on the gluten; and the table with the remainder of the pile being, at the same time, lowered a little by the action of cam H upon arm H^1, and pawl *k* upon ratchet-wheel I, which latter is fast on the shaft D of cam C^2. The top die h^1 is attached to arm l^1 working in bearings l^2 attached to slider F^*.

During the return of head E, the nippers *o* o^1 come into operation to remove the top blank to the folding-stand J. The nippers are opened and closed by the movement back and forth which they receive, for the purpose of carrying the blank. The nippers go backwards open to receive the blank, and at the end of this movement are closed by the release of lever r^1 from spring-catch *r*, the release being effected by the catch being thrown inwards by passing inside a fixed incline r^2. After the nippers have advanced with the blank far enough to place it on folding-stand J, lever r^1 comes in contact with fixed stop r^3, and the concluding portion of the movement of slider K^1 throws back lever r^1 till it is again caught by catch *r*. These movements are effected by means of cam L and elbow-lever L^1. Attached to the four sides of the stand J are the lappers t^1 t^2 t^3 t^4, which crease and fold the envelopes, by means of levers u^1 u^2 u^3 u^4 pivoted to the stand, and operated by means of rods v^1 v^2, etc., levers M^1 M^2, etc., and cams N^1 N^2, etc. The lappers are thrown back after the creasing and folding operations, by springs applied to their hinges. When the blank has arrived on the stand, the plunger P descends upon it, the lappers rise to a vertical position, the plunger withdraws again, and the lappers close upon the envelope. The seal-flap receives no preparatory creasing operation like the other three flaps; and as, when the folding operation takes place, the plunger P is raised, two creasers W (the engraving represents only one) are employed, which are attached to lever R; which latter works transversely of the machine on a fixed pivot w^1, and is operated by lever M^1, by which lapper t^1 is operated to throw the fingers *w* down upon the envelope at the time the lapper t^4 commences to operate. The finished envelope, after the lappers have been thrown back, is lifted up and removed by nippers *y* y^1. The lifting up of the envelope from the stand high enough to be caught by nippers *y* y^1, is effected by lifter 10; which latter is flush with the stand until, at proper times, it is raised by stud 8 striking lever *g*.

I *claim*, 1st. The employment, in a machine for making envelopes or bags, to support the blanks during either or all of the operations of pasting, stamping, and applying the gluten, of a self-adjusting table C, supported by a cam, whose position is so controlled by a spring or its equivalent, applied to its shaft, that as the blanks are removed one by one, the table is caused to rise, to bring the next one to the proper height or position to be pasted, stamped, or have the gluten applied, substantially as set forth.

2d. Giving the self-adjusting table a drop movement, substantially as described, by means of the cam H, the lever H^1, pawl k^1, ratchet-wheel I, or their equivalents, acting on the shaft of the supporting cam C^2.

3d. Applying the gluten which makes the envelope or bag self-sealing to that part of the blank which is to form the seal flap or closing flap of the envelope or bag, by a die, while in the machine, at the commencement of the process, substantially as described; whereby the said die serves the two purposes of applying the gluten and of lifting the blanks one at a time from the pile, or retaining the top one while the remainder of the pile is lowered away from it.

4th. Applying the two dies *h h* to the arms or jaws *i l*, which are connected together by a hinge or its equivalent, arranged at the rear of the table C, and have a sliding motion back and forth, substantially as described, to move the said dies out of the way of every successive blank, till the latter has had the gluten applied, and been separated from the pile, and then to bring them forward again, to receive the separated blank, and to receive the pressure of the screw *g*, or its equivalent.

5th. Attaching the paste-box, the gluten die, and the screw *g*, or other equivalent device, which gives pressure to the stamp which produces the seal, to a head E, receiving such a motion as is described from a pair of cranks, or their equivalent.

6th. The employment of a pair of nippers *o* o^1, having a motion of a positive length in the line parallel with the line in which the blank is required to move, from the pasting to the folding apparatus, either to

take a cut blank from a table, or to draw the material before it is cut from a roll, and measure off the proper length to be cut, substantially as set forth.

7th. The method of giving the necessary movement to the lappers t^1 t^2 t^3 t^4, by means of the bent levers u^1 u^2 u^3 u^4, and the springs t^* applied to their hinges, substantially as described.

8th. The creasing-fingers W, arranged and operating substantially as described, to hold the blank in position and crease it in the line for folding the seal flap, substantially as described.

9th. The nippers *y y*, arranged and operating in a lateral direction, substantially as described, to remove the printed envelopes or bags at one side of the folding stand.

10th. The lifter 10, applied, substantially as described, to the folding stand, and operated by the lever which carries the nippers *y y*, for the purpose of lifting the finished envelope or bag at one side thereof from the stand, to enable it to be taken by the nippers.

11th. Applying a stamp V, to work through the table C, substantially as described, for the purpose of stamping a card, &c., on a bag during the process of manufacture.

12th. The general arrangement and combination of the several working parts of the machine, substantially as set forth.

No. 13,838.—EMANUEL HARMON.—*Improved Envelopes.*—Patented November 20, 1855. (Plates, p. 301.)

This improvement consists in preparing envelopes with lines *a* ruled or otherwise made in such manner that the lines shall not appear externally, and shall become visible when the face and back of the envelope are brought together, so as to guide the hand in writing the address.

Claim.—The manufacture or preparation of envelopes with parallel lines on the interior of the back, as set forth.

No. 12,301.—NEWELL A. PRINCE.—*Improved Fountain-Pen.*—Patented January 23, 1855. (Plates, p. 301.)

Claim.—1st. The elastic spring C unfixed in the feeding-tube, whether the said spring be placed under or above the pen, it being so placed that it is made to vibrate by the action of the pen in writing, substantially as described.

2d. The under recess, formed by inserting the feeding-tube in the lower end of the main reservoir tube, the said under recess acting as a receptacle of the ink, which re-flows when the point of the pen is turned upward, substantially the same as described.

3d. The combination of the conical part of the piston-rod with a conical seat for the same in the screw-cap, so that when the piston-rod is drawn outward in charging the main reservoir tube with ink, the hole in the screw-cap is closed ink and air tight, substantially as described. (See engraving.)

No. 12,727.—HUGH K. MCCLELLAND.—*Improved Fountain-Pen.*—Patented April 17, 1855. (Plates, p. 301.)

The valve *e* is operated during the writing by tapping the key *h* with the fore-finger.

The inventor says: I do not claim separately any of the within described parts; but I do *claim* the construction of the implement as herein shown and described, viz: Having a bag or receptacle B placed within a tubular handle A, the lower end of said bag having a tube C attached to it, which tube is provided with a valve *e* and button or spur *c*; the tube, valve, and button or spur being enclosed by the pen-holder D, which contains a sponge G, and is provided with openings or channels *j*, through which the pen is supplied with ink as the valve *e* is operated, as herein shown and described.

No. 12,734.—WILLIAM H. TOWERS.—*Improved Pen-Holder.*—Patented April 17, 1855. (Plates, p. 302.)

The writer by dipping this pen in the ink has to insert the nibs sufficiently far below the surface of the ink to enable the sponge to become saturated with ink. By pressing the fore-finger upon the knob C the lower end of lever A will press against the sponge D, and the nibs will be supplied with ink, &c., till the sponge is exhausted.

Claim.—The combination of the sponge with the lever and pen, arranged and operated in the manner and for the purpose herein described.

No. 13,534.—GEO. W. WHITE.—*Improved Fountain-Pen.*—Patented September 4, 1855. (Plates, p. 302.)

B is the inner tube and C the outer tube, with the pen-holder E attached to it.

I *claim* the manner of constructing the holder by having two small tubes, one fitting close over the other; the inner tube joined to the main band, and the outer tube having the holder for the pen attached, and having a hole drilled through both tubes on the side that the pen is attached to, so that the ink may flow out into the pen *r*. When the outer tube is turned or revolved around on the inner tube, the holes are turned away from each other and the holder closed; this outer tube to be turned and regulated by means of a small projection on each tube to the place desired.

No. 13,995.—NEWELL A. PRINCE.—*Improvement in Fountain-Pens.*—Patented December 25, 1855. (Plates, p. 302.)

The pen is provided with a bead C, to prevent it from lifting too much in writing; the pen is notched at A B so as to interlock with the notched part A^1 B^1 of the feeding-tube T, and prevent the moving laterally or slipping out of the pen.

The inventor says: The claims I now make are for improvements in addition to those already made and patented January 23, 1855.

I *claim*, 1st. The elevation or bead on the back part of the pen, near its heel, being designed to keep the pen, by coming in contact with the inside of the main reservoir tube, from lifting too much, substantially the same as set forth, as described and shown.

2d. I claim the pen, notched near its heel, and the combination of the same with the feeding-tube, correspondingly notched; so that, the two placed together and infixed in the main reservoir tube, the pen cannot get out of its position, substantially the same as shown and described.

No. 12,722.—WALTER K. FOSTER.—*Improvement in Moulds for Casting Pencil-Sharpeners.*—Patented April 17, 1855. (Plates, p. 302.)

The conical core of the mould is seen at D; the shape of the pencil-cutter at E and F. A small spring-holder G is inserted through an opening in the side of the mould for holding in place a blade or cutter H. The side of the mouth I is furnished with a flat sliding-core J. The spring-holder is pushed in sufficiently to allow the blade to be slipped in between the spring ends of the holder. The holder is then drawn back until the flat sliding-core J will come against the side of the blade so as to stop the metal composition from coming to the bevel edge or back of the blade, and at the same time hold the edge of the blade to its place in the groove of the conical core D, the object of this groove being to drop the edge of the blade to make it take the wood in cutting. The mould is then placed upon the base A, with the sliding-core at a sufficient distance from the gauge K to admit the flat core of the other part of the mould L to come between it and the gauge K, which gauge is for the purpose of varying the depth to which the edge of the blade shall be placed in the groove of core D in order to make a thicker or thinner shaving. The mould-piece L is placed on the base, with the sliding-core P touching the gauge. This core is for the purpose of shutting off the composition from the front edge of the blade, in order to form a throat for the passage of shavings. The ring *m* is placed on the mould, and the composition is poured in. The finished pencil-cutter is seen at *o*.

Claim.—The arrangement of the spring-holder G, sliding-plates J and P in relation to the grooved core D and gauge K, for the purpose of adjusting and holding the blade H in the mould, and the forming of the slot in the pencil-sharpener, as herein set forth.

No. 12,391.—WILLIAM S. MAC LAURIN.—*Method of Teaching Penmanship.*—Patented February 13, 1855. (Plates, p. 302.)

This method consists in having a series of diagrams, figure 1, figure 2, and figure 3, etc., marked or engraved on a slate or tablet, each diagram forming a continuous or endless curve. The pupil, with a pencil, stilus, or other hard point, follows the mark or groove in the tablet as rapidly as possible without ever raising the stilus from the groove, increasing in speed until the hand becomes perfectly accustomed to the form.

Claim.—The employment of figures such as described, marked on or formed in the surface of a tablet, slate, or other surface, for the purpose of aiding the hand in guiding the point of a pen, pencil, or stilus, in retracing therewith the lines of the said figures an indefinite number of times, as described, to train the hands of pupils in teaching them the art of writing.

No. 13,885.—ISAAC REHN.—*Improved Photographic Bath.*—Patented December 4, 1855. (Plates, p. 302.

The reservoir 1 being filled with solution, and supposing it to have been used, is covered with a film. By pouring some additional solution into the receiver 2, the current passes through opening 3 into receiver 1, causing the fluid to flow over the lower wall of the reservoir 1 into a conducting-trough 4, along which it is carried into a proper receptacle, from which it is to be again used as before.

The overflowing of the fluid carries with it all the scum or film, leaving the surface entirely clean; which scum, when allowed to come into contact with the plate, is apt to adhere to it, and cause a stain.

Claim.—The overflowing bath with the conducting-trough and receiving-chamber, or their equivalents, as set forth.

No. 12,188.—DWIGHT GIBBONS, assignor to FRED. STARR.—*Improved Brace for Piano-Frames.*—Patented January 2, 1855. (Plates, p. 302.)

The part of the plate marked F shows the suspended point of the plate. The part H of the plate forms the back of the frame. L M is a brace which extends from the right-hand front corner of the frame or plate to near the middle of the back, which are the two weakest points in the instrument. Thereby the instrument is to be better kept in tune than by any of the means heretofore in use.

The inventor says: I do not claim any method of bracing from the suspended point of the plate F to the iron frame, rest plank, or back, knowing them to be in use.

But I do *claim* making use of a diagonal brace extending above the plate and strings, operating in the manner and for the purpose substantially as herein described and set forth.

No. 12,315.—ALEXANDER HALL.—*Improvement in Piano-Fortes.*—Patented January 30, 1855. (Plates, p. 302.)

This improvement relates to the celestial piano patented in April, 1854, which is provided with octave strings in addition to the normal strings.

The octave string d^3 passes very near to the normal string d^2 at the commencement, where the motion from vibration is very slight. Further on, however, the string recedes from this normal string and descends

to the bridge *a*, which is low enough to allow the octave string to vibrate clear of the normal string. From this bridge the octave string passes through perforations *e* in the usual bridge, and to the depressed hitch-plate *c*, the face of which is on a level with the perforations *e*. Thus the octave string requires but little extra room. Pieces of leather *n n*¹ are attached to the curved strip *m*, which project over and are struck by the hammers up against the strings in such way as to imitate the thrumming upon the harp. In order to adjust the distance between the octave and normal strings, the normal strings are carried over a bridge-pin *p*, which is vertically adjustable by means of its screw shank. The top of it has channels *r r* on its sides, and at the rear apex *s* there are notches *t t* for confining the strings. The octave strings pass round or against the common form of bridge-pin *o*. When the bridge-pin is turned to the right or left it carries both normal strings with it, and thus increases or diminishes the distance between them and the octave strings.

Claim.—1st. Sinking the middle octave bridge *a* below the level of the normal strings, so as to be clear of their vibrations as set forth.

2d. In combination with the depressed bridge *a*, the perforations in the bridge *b* on the level with the top of bridge *a*, for the purposes set forth.

3d. The extra hitch-plate *c*, in combination with the depressed *a* and perforated bridge *b*, as set forth.

4th. The adjustable bridge-pin for the normal strings, furnished with a screw, and the notches and channels on its two sides; so that the normal strings can be regulated in their relative distances from the octave strings, either vertically or laterally, as set forth.

5th. Making the buff stops of two qualities of leather, a hard and a soft, for producing the harp effect, as set forth.

No. 12,362.—James A. Gray.—*Improved Sounding-Board for Piano-Fortes.*—Patented February 6, 1855. (Plates, p. 302.)

The inventor says: I do not confine myself to any particular form or number of corrugations, but any number that may be necessary.

But what I *claim* is the improvement of the sounding-board of the piano-forte by corrugating its surface, thereby increasing its sounding surface, and giving it sufficient stiffness or strength, without gluing cross-bars on either side.

No. 12,432.—Henry S. Ackerly.—*Improvement in Piano-Forte Frames.*—Patented February 27, 1855. (Plates, p. 302.)

A is the wrest-plank; *a* and *b* are the strings; the diagonal part *c* of the wrest-plank is more elevated than the part *d*, for the purpose of allowing the strings to be arranged in two tiers (*a* the upper and *b* the lower tier).

The inventor says: I do not claim the arrangement of the strings in two tiers crossing each other, nor the construction of the wrest-plank with one part elevated above the other.

But I *claim*, 1st. The arrangement of the wrest-plank of a square piano-forte along the front and across one of the front corners of the instrument, as described, to receive two tiers of strings, of which the tier comprising the longest strings is arranged nearly parallel with the front and back of the instrument, and the shorter ones diagonally across the same, said arrangement being for the purpose fully set forth.

2d. The construction of the metallic plate B B, with the straight brace *e* across the back, and the arched moulding or brace *f* running from the said straight brace to the front of the instrument, as and for the purpose set forth.

3d. Constructing the plate B B with a recess to receive the wrest-plank, so that it may be firmly secured against the tension of the strings, substantially as set forth.

No. 12,737.—Stephen P. Brooks.—*Improved Piano-Forte Action.*—Patented April 17, 1855. (Plates, 303.)

The object of this improvement is to bring the greater bulk of the action of an upright piano below the line of the keys, thereby economizing the space required for the upper portion of the instrument, and obviating the necessity of casing the top to protect the action. The front of the key-lever being depressed, the fly *c* strikes against butt *d* which projects from bar *e*, said bar being hinged to the frame in *h* and *h*¹; thereby the hammer *m* is raised and strikes the string *n*. As soon as the hammer falls back, the bar *e* in its descent moves somewhat towards the string, as apparent from the figure, and the damper *o* is brought against the string *n*, the damper being hinged at *r* to the bar.

The hammer can be held close to the string after the blow has been given, so as to be in readiness to strike the string again, without moving through its whole arc, by means of a projection S attached to bar *e*, against which projection, after the fly *c* has been thrown off the butt *d*, the end of the key-lever strikes and thereby partly lifts the bar and the hammer, keeping it close to the string as long as the key-lever is depressed.

Claim.—Transmitting the blow from the key-lever to the hammer, by means of the vertical bar, arranged and actuated substantially as described, whereby I am enabled to place the action below the level of the keys, as above set forth. I also claim attaching the damper-arm to the vertical bar in such a manner that the up-and-down movement of the said bar will alternately bring the damper against the string and relieve it from the same, as set forth; I also claim the means used for keeping the hammer close to the string after the blow has been given, the same consisting of a butt attached to the vertical bar, and actuated by the key-lever, as described.

No. 12,763.—William Munroe.—*Improved Piano-Forte Action.*—Patented April 24, 1855. (Plates, p. 303.)

When the finger-end of the key A is depressed, the jack D rises and throws the hammer into position figure 2. During this upward mo-

tion of the jack, the inclined escapement F comes in contact with the hammer-rail M, and is pushed therefrom, carrying with it the jack and check G. The hammer in rising acquires a momentum, and is projected beyond the positive action of the jack so as to strike the string; the reaction of the string causes the hammer to fly back, where it is caught by the check acting on the hammer-butt, which prevents the hammer from rebounding against the string. When the finger-end of the key is allowed to rise through a small portion of its movement, the jack descends proportionally, and the weighted check causes the end of the jack to move forward and engage the end of link E, whilst the hammer is held up by the top of the check in a position ready to repeat the blow. In repeating, the finger does not allow the key to rise its full stroke; consequently the hammer does not descend and bear on cushion N, but follows and rests on the top of the check G, whilst the surface *d* is disengaged from contact with the hammer-butt, and the jack is drawn by the weighted check partially under link E, and obtains sufficient engagement therewith to give the repeating blow without its being necessary for the key to traverse the whole of its stroke. The uniformity of the resistance of the inclined escapement is intended to avoid the inequality of touch occasioned by the abrupt resistance of the ordinary escapement.

Claim.—1st. The combination of the escapement-jack and check, co-operating to sustain the hammer in position to repeat and to prevent its rebound, substantially in the manner set forth.

2d. The inclined escapement as applied to piano-forte and other similar actions, substantially in the manner herein set forth.

3d. The application of the toggle-joint to piano-forte and other actions, in combination with the jack and hammer, for the purpose herein set forth.

No. 13,091.—Robt. M. Kerrison.—*Improved Piano-Forte Action.*—Patented June 19, 1855. (Plates, p. 303.)

The hammer-butt has an angular notch C, at the apex of which the impulse is applied to drive the hammer against the string; A is the impeller, with two branches *b a*, the action of which will be understood from the engravings; H is the key; figure 2 represents the key when depressed.

The inventor says: I *claim* solely the means I employ to check and hold the hammer after the blow. I claim, as part of those means, the impeller made of the form described, substantially in the manner and for the uses set forth.

I also claim the hammer-butt, of the form described, suitable and proper to receive the action or pressure of two parts or branches of the impeller at two different points, in the manner and for the purpose substantially as set forth.

I claim the impeller and the hammer-butt as described, or their equivalents, acting conjointly in the manner substantially as set forth.

I claim them conjointly, as a means of checking and holding the hammer after the blow.

No. 13,236.—Andrew Stoeckel.—*Machine for Cutting Legs for Pianos, Tables, &c.*—Patented July 10, 1855. (Plates, p. 303.)

The frame C with the stuff Y is first moved to the right as far as necessary to bring the disc Q over the end of the stuff. Motion is then given to the shaft T, and the cutter-disc Q, drum V, and the stuff are rotated. Carriage B is then moved along by turning shaft L by hand, and the frame C and stuff are raised and lowered by the patterns, or rather by means of projections attached to frame N, against which the patterns bear, frame C being kept elevated by operating lever I by hand, and the stuff will consequently be turned in form corresponding to the patterns. When the stuff is turned, the frame N is raised in order to free the stuff from the cutter-disc, and the drum V is also raised, or the swinging frame to which the drum is attached. Carriage B is then moved back to its original position, and the stuff secured in any proper manner so that it cannot turn. The frame C is then again raised by means of lever I, and motion given to shaft U, and shaft *o* and cutters *i* rotate, and the carriage is moved as before, and the cutters *i* will plane a flat surface on the stuff. The carriage is then again moved back, the stuff turned a proper distance, and second flat surface is planed, and so forth.

The inventor says: I do not claim turning the stuff the required forms by means of patterns, for that has been previously done; neither do I claim the cutter-disc Q, nor the rotating cutters *i i;* but I *claim* the arrangement of the carriage B, with the vibrating frame C attached, cutter-disc Q, and cutters *i i* on the shaft O, and drum V placed in the swinging-frame W, substantially as shown, for the purpose set forth.

No. 13,924.—Francis Taylor.—*Improved Piano-Forte Action.*—Patented December 11, 1855. (Plates, p. 303.)

b represents the key; *a* the key-board.

The inventor says: I do not claim the button *m* taking the second knuckle of the hammer-butt, as this has been used as an attachment to the key. But I am not aware that this button *m* has ever before been made as a permanent attachment to and moving with the fly of the jack, in the manner as specified, whereby the fly of the jack is held to the knuckle 3 by the button *m*, until the hammer is sufficiently raised for said button *m* to clear the knuckle 2, and also replaces the said fly of the jack beneath said knuckle 3 immediately that the key is released, and the hammer descends but a short distance, producing an instantaneous and uniform repeating action.

Therefore I *claim* the regulating-button *m*, permanently connected to, moving with, and governing the fly of the jack in its action on the butt of the hammer, the whole arranged and operating substantially as specified.

No. 13,942.—Spencer B. Driggs.—*Improvements in Piano-Fortes.*—Patented December 18, 1855; patented in England November 1, 1855. (Plates, p. 304.)

The object of the various features of this improvement is to produce more free and prolonged tones in all parts, particularly the treble of the instrument.

The inventor says: I *claim*, 1st. Securing the sounding-board H within a metallic frame I, or its equivalent, substantially in the manner and for the purpose set forth.

2d. Combining the sounding-board and its enclosing frame with upward projections from an open metallic base frame B, and with a wrest-plank and an upper metallic frame or hitch-plate D F; by which I am enabled to make a piano-forte without using wooden blocks or other wooden supports for the wrest-plank, sounding-board, and upper metallic frame, substantially as set forth.

3d. In connexion with the combination of the upward projections from the open metallic base frame with the metallic sounding-board frame, the wrest-plank C and the upper metallic frame, combining a thin bottom-board *b* with a shallow wooden frame A, which encloses the said open metallic base frame, substantially as set forth.

4th. In connexion with the enclosure of the thin sounding-board within a metallic frame, and the combination of said frame with the upper metallic frame, the wrest-plank and the open metallic base frame; also the combination of the said enclosed sounding-board with the thin bottom-board of the instrument by means of a sounding-post *l*, for the purpose of adding additional stiffness and vibratory power to both of said boards, substantially as herein set forth.

5th. Supporting the strings upon metallic saddles *n*, which stride the sounding-board bridge, and are combined with said bridge *k* and with the sounding-board, substantially in the manner set forth.

No. 13,580.—John S. Morton.—*Piano-Forte Action.*—Patented September 18, 1855. (Plates, p. 304.)

The movement of the key A is transmitted to the hammer (which latter is attached to the end of hammer-rod *i*, and is not represented in the engraving) by means of jack C applied to the key operating on the hammer-butt *a*. The lever *b* is hinged to C by pin *d*; at about the middle of its length it rests upon the cushion-headed pin *e*, which works freely in the lower arm of the jack, and rests upon the jack-bottom D which is secured to the key. As the front end of the key is depressed, to throw up the hammer to strike the string, the movement of the jack in escaping carries the lever under the block *c*; and when the hammer falls, the block *c* falls on the end of the lever, and causes the hammer to be arrested a very short distance below the string (see fig. 2). While in this position the hammer is ready for repeating the blow, to effect which it is only necessary previously to allow the front end of the key to rise about a sixteenth of an inch. As the hammer falls on the raising of the front end of the key, the rounded face of block *c* acts in such a way on the end of lever *b* as to have the effect of returning the point of the jack into the notch of the hammer-butt. The spring *g* prevents the jack flying too far out of the notch when it is let off.

I *claim* the arrangement and operation together, shown and described, of the lever *b* pivoted to the jack, post, or cushion *e*, and block *c*, with the jack and hammer, to effect the repeat; and whereby, while the use of an additional spring or upright is dispensed with, the weight of the hammer operating on the lever returns the jack to its notch in, or position under, the butt, essentially as set forth.

No. 13,960.—Hubert Schonacker.—*Improved Piano-Fortes.*—Patented December 18, 1855. (Plates, p. 305.)

i is the sounding-board; *b* the bridge upon the sounding-board; and *g* the bridge upon the wrest-plank *h*; *a a* are the hitch pins, and *c* a metallic fret. In order that none of the vibrations of the strings be wasted, the screws *e e* are employed; each one of which has fixed bearings, and passes through a movable nut *f*, to which nut the string is attached, or the two ends of the string where a double string is employed for each note.

I *claim* constructing the instrument so that the strings shall rest on a fret at the nodal or octave points, or substantially similar rest, upon the bridge of the sounding-board, whereby free vibration is allowed to the whole length of string between the hitch-pins and bridge on the wrest-plank, substantially as described.

2d. Though I do not of itself claim connecting the two strings of a note with a single horizontal turning-screw, I claim the connexion of the two strings with the same screw, when that is combined with the employment of fret *c* or other rest, merely supporting the string on the sounding-board at single points, and not confining it, substantially as set forth.

No. 13,014.—Samuel J. H. Smith.—*Improved Portfolio.*—Patented June 5, 1855. (Plates, p. 305.)

The bars A B are parallel to each other, and united at their two adjacent ends by elastic band springs *c c*, which will permit these bars to be moved apart from one another, and to return towards one another when the separating force is withdrawn from them. To each of the bars is connected a sheet of pasteboard C, which may be hinged to the bar; there is applied to both bars an elastic back D, which should be made of a width as great as it may be desirable for the bars to be separated. The letters are clamped between the bars, and the elastic back will be extended in proportion as the mass of paper filed is increased; the back serving to protect the papers from being injured or forced from between the bars.

The inventor says: I do not claim a bill or paper file composed of two straight bars or plates, and elastic bands uniting them together at

their ends, when such bars or plates are so arranged that one may be parallel and above the other.

But I *claim* combining such with two covers and a flexible, elastic, or extension back, so as to constitute the file portfolio for the retention and preservation of papers or letters, and protecting the mass or file of them on both sides and the back of the same.

No. 12,118.—David Baldwin.—*Improved Apparatus for Feeding Paper to Printing-Presses and Ruling-Machines.*—Patented January 2, 1855. (Plates, p. 305.)

Frame B consists of two arms *e e* suspended loosely upon shaft C, and arms *e e* carry horizontal tube E, provided with a series of tubes *f* projecting downwards. Connected with tube E is air-pump F, which has its bearings *g g* on shaft C, which turns loosely through them. Piston-head G of pump, and piston-rod H, are worked (through a slot in the cylinder) by pinion I, which is firmly attached to shaft C. Through slot *j*, in connecting-rod K, passes shaft L of cylinder A; pin K, on connecting-rod K, works against cam M on shaft L; shaft L passes also through slot *m* in connecting-rod *o*; pin m^1, on connecting-rod *o*, works against cam o^1 on shaft L; feed-table Q is pivoted in *p p*; arm U, which carries roller-wheel T, is pivoted in *s* to arm V projecting from rock-shaft X; arm Y projecting downwards from shaft X fits into end of rod Z, which works through bearings *u u* attached to main frame; pin *w*, on rod Z, fits into slot *v* of arm A^1.

Operation: motion communicated to shaft L; and if tubes *f* are over the sheets *x* (see figure 1), cam o^1, operating against pin m^1, causes rod *o* to turn shaft C, and pinion I draws up the piston; thereby a vacuum is formed in tubes E and *f*, and the sheet of paper underneath is forced against the tubes by the external atmospheric pressure. Cam M now operates against pin *k* and vibrates frame B, which moves the tubes *f* with the sheet of paper towards cylinder A until the sheet is caught by cords *a a*. At this point, pin m^1 is released from the cam, and spiral spring P turns shaft C back; the piston descends, destroying the vacuum, and releases the sheet. Pin *k* is now freed from its cam, and frame B falls back to commence the above operation again.

When frame B returns to its original position, arm g^1 strikes the end of lever U, thereby moving rock-shaft X and arm Y. This moves forward rod Z, and moves pin *w* off the tooth against which it rested in slot *v*; spring R throws up the front end of table Q the distance of one notch in slot *r*. This upward motion of the table serves to keep the sheets always close to the tubes.

Claim.—1st. Feeding sheets of paper, singly or one at a time, to a printing press, paper-ruling, or other machine requiring the feed of a single sheet at a time, by means of a vibrating frame B having at its lower end a series of tubes *f*, which, as the frame B vibrates, pass over the sheet to be fed to the machine, and also over a portion of the cylinder or other device for receiving the sheet; a vacuum being formed and destroyed in said tubes *f*, by means of an air-pump F attached to the frame B, and operating as herein shown, for the purpose of causing the tubes *f* to convey the sheets from the feed-table to the receiving device of the machine.

2d. The self-adjusting feed-table Q, constructed and arranged as herein shown, or in an equivalent way, so as to be operated by the vibrations of the frame B, and keep the sheets *x* close to the ends of the tubes.

3d. The tubes *f*, arranged as herein shown, on a vibrating frame, when said tubes, with the aid of an air-pump, are employed for conveying the sheets to the press or machine.

No. 12,178.—Stephen Brown.—*Improved Press for Printing different Colors.*—Patented January 2, 1855. (Plates, p. 305.)

The type being placed upon the platens P P P, and motion being given to the shaft B, the cam C is made to rotate, and first acts upon friction-roller *d* and depresses the ends of the horizontal arms of the bent levers K K. This movement throws the ink-rollers I (each of them being charged with a distinct color) across the platens, inking all of them simultaneously. This is done by means of lever K drawing lever F towards the centre of the machine, thereby pushing the arms H the same way, to the ends of which arms the boxes J are attached which support the ink-rollers; projecting-pins on the boxes and the horizontal grooves *a* (in the side of the frame of the machine) serve to confine the rollers to a horizontal motion across the platens, which latter slide in vertical grooves *f*, and are supported at the proper height for the operation of the inking-rollers by small pins *h*. The cam C now acts against the segment M, and throws the rollers back to their original position; and the cam then raises the movable bed N, and the bed raises the sectional platens P, and forces them simultaneously against the paper, which is between the platens and the upper bed-plate U, producing a simultaneous impression in different colors.

The sheets of paper are fed in by the fingers R, attached to bar Q on one of the upper boxes J (see figure 4). As the fingers are moved forward with the ink-roller, the lower end of the screw *t* depresses the back end of the upper jaw *k*, which is caught by the spring-catch *n*, leaving the jaws *j k* open (see dotted lines, figure 2). The fingers move over and beyond the platens in an open state till they pass under the bar T, at which point the fingers reach the sheet, the edge of which passes between the jaws and the spring-pin *r*, throwing the catch *n* off from jaw *k*, which closes by means of spring *m*, and the fingers return with the sheet, the bar T rolling backwards to allow them to pass. The sheet, being thus brought over the platens, receives the impression, and is then conveyed back with the return motion of the fingers and caught by the fly-rollers.

Claim.—1st. The employment or use of a series of platens P P P, (two or more,) arranged as herein shown, or in an equivalent way, so that the form or type on said platens may be inked simultaneously with separate and distinct colors, and operated or pressed simultaneously against the sheet, as set forth.

2d. The arrangement herein shown of the cam C, bent levers K K, and arms F F, which are connected to the bent levers, for the purpose of operating the movable bed or platen N, rollers I, and fingers R, as herein shown and described.

3d. Operating the fingers R by means of the screw *t* and rolling-bar T, whereby the fingers are made to convey the sheet to and from the platens P, as herein described.

No. 12,183.—SIDNEY KELSEY.—*Improved Printing-Press.*—Patented January 2, 1855. (Plates, p. 306.)

The sheet of paper e^2 is passed over the platform A^1 and through the slot d^1, so that its front edge reaches into the space between the projection *i* on the part *g* of the carriage and the edge of the part *h*, this space being held open by means of small springs *j j* between said part *h* and projection *i*. As the pulley L rotates, it winds the band *t* around it, and the carriage H is drawn underneath the platen B and over the form on the bed G; and as the band *t* is attached to the projection K on the part *h*, the edge of said part *h*, adjoining the projection *i*, will overcome the power of springs *j j* and bear against projection *i*, and thereby the edge of the sheet will be grasped between them. The sheet is thus carried between the platen B and bed G. Just before the carriage gets underneath the platen B, the cord c^1 acts upon the pulley b^1 and turns the shaft X, the rods *z* being turned over in a horizontal position and occupying the place the carriage left, the pulley being retained in proper position by the pawl Y, which catches against the notch d^2. When the carriage is between the platen and bed, it is retained there by a spring-catch; the platen descends and presses the sheet against the form on the bed. The pulley I is now rotated, and the carriage is drawn back by means of cord *l*, the rods *z* of fly W fitting in the notches *s*, in the outer end of part *h* of the carriage, the sheet of paper passing over the rods *z*. Just as the carriage reaches again its original position, the pawl Y is thrown up, the spring a^1 throws the shaft X around, and also the rods *z*, to their original position, the sheet being deposited thereby upon a proper fly-board.

Claim.—1st. Feeding or conveying the sheets to the form by having the carriage H formed of two parts *g h*, and arranged substantially as herein shown, so that the edge of the sheet may be grasped between the two parts of the carriage as it is moved between the platen and bed.

2d. The fly W, operated as herein shown, viz: by means of the pulley b^1 attached to the carriage H by a cord c^1, said pulley being hung on the shaft X, which is provided with a spring a^1, as set forth.

No. 12,185.—JAMES LEWIS.—*Improved Printing-Press.*—Patented January 2, 1855. (Plates, p. 306.)

The paper is placed upon feed-board indicated at a^1. The cylinder B is then rotated; and when the bent end *y* of the rod H comes in contact with the bent rod *v* attached to the upright *a*, the fingers *w* on the rod H are raised from the cylinder, and the edge of the paper is slipped underneath them, the fingers falling upon the paper when the bent end *y* has passed the bent rod *v*. The sheet, being thus carried round with the cylinder, is pressed between it and the form b^1 on bed C, which is moved by cog-gearing *c e*. When the fingers *w* get near the point at which they receive the next sheet, the pins *u*, at the ends of the cylinder, act upon bent-levers *r*, the inner edge of bar G is depressed, and the edge of the printed sheet c^1 is caught between the bar G and lips *h* of the bar F; the buttons *p p* now come in contact with the bar E of the fly D, force it back till the lower ends of the upright *f* strike against pins d^1 projecting from frame A, and the uprights *f* assume the position shown in dotted lines in figure 2, the rod *l* passing over a bar e^1, which causes the inner end of bar G to be depressed, and the printed sheet falls upon fly-board I. Spring *k* serves to press the edge of bar G close against the lips *h*, when the bar is left free to the action of said spring.

At this time the cogs *c* have passed the rack *e*, and bed and fly are brought back to their original position by the action of a weighted cord A^1.

Claim.—1st. The employment or use of the fly D, constructed, arranged and operating in the manner and for the purpose as herein set forth.

2d. The combination of the fly D, cylinder B, and bed C, when the above parts are arranged and operated as herein shown and described.

No. 12,213.—ROBERT NEALE.—*Machine for Printing from Engraved Plates.*—Patented January 9, 1855. (Plates, p. 307.)

The engraved plate, with its bevelled edges, is secured between the cleats K I, which project from the plate-holder a^1, and which are correspondingly bevelled on their inner sides, so as to fit the bevel of the engraved plate. The plate-holder is movable around a central pivot v^1, which projects from the bed-plate H, which latter is so attached to an endless chain G that it travels with it and around the drums A B. M and D are the press-cylinder, and E E are cog-wheels on the axle of the lower press-cylinder, which gear into the links of the chain and move it along. Immediately after having passed through the press-cylinders, the projection b^1 on the plate-holder a^1 strikes against a stud on the frame of the machine; so that the plate-holder, together with the engraved plate, will assume an oblique position, as represented in figure 3. This is for the purpose that the ink may not be wiped out from the engraved lines, which are parallel with the edge of the plate, when afterwards passing over the wiping and polishing belts and rollers; which wiping out will be apt to be the case with all the lines which lie in the direction of the motion of the bed-plate, the chains, and the wiping and polishing belts and rollers.

The plate, after having travelled around drum A, arrives in front of the inking-roller X. This roller receives the ink from the distributing-roller W. By employing inking-rollers of various lengths, various widths of the plate can be inked. The length to which the plate is to be inked is regulated by the strips or bearers d^1 d^1, which are made to

correspond to the length of the portion of the plate which is to be inked. As soon as the strips d^1 strike against the end e^1 of the levers Y Y, which support the axle of the inking-roller, the end e^1 will be depressed and the inking-roller will be elevated and pressed against the surface of the plate. When the strips have passed over the end e^1, the inking-roller will fall back from the surface of the plate. The plate then arrives over the wiping-belt *g g*, which passes around two rollers *f e*, and is destined by its contact with the surface of the plate to wipe off the ink from said surface. The pressure with which the belt operates upon the surface of the plate can be regulated by pressure-roller i^1 and by lever f^1 (to which is suspended the axle-box of belt-roller *f*) and a weight h^1. The belt is to be kept clean by means of a scraper *h*, which is kept in contact with its surface. The plate then passes over the polishing-rollers *i i*. These rollers *i i* are to be kept clean by their being in contact with an endless belt *q*, which is impregnated with whiting or similar substance, which it receives by travelling over a roller o^1, which is arranged within a suitable box filled with said substance. The belt passes from roller o^1 over a revolving brush P^1, which removes the grit, &c., from the surface of the belt. The plate then travels around roller B and arrives between the press cylinders, where the sheet of paper is fed in over the belt u^1. Of course, all the above-mentioned belts, rollers, &c., have a width corresponding to the greatest width of plates to be printed on this press.

Claim.—The combined apparatus herein explained for inking, wiping, and polishing engraved plates used in copper and other plate-print; the same consisting—

1st. In the attachment of the engraved plate to an endless chain, with which it revolves while undergoing the several processes of inking, wiping, polishing, and printing, substantially in the manner herein before described.

2d. In the bed-plate H, with its movable plate-holder a^1 and its strips or bearers, as constructed and operating substantially in the manner described.

3d. In the mode of inking the plate, so as to confine the ink to the engraved portion, substantially as described.

4th. In the mode of regulating the pressure of the wiping belt upon the plate, substantially as described.

5th. In the mode of keeping the polishers clean by an endless belt of cotton or other proper cloth, itself kept in proper order by the application of whiting or other suitable drying powder, and preserved from dust and grit by the action of the revolving brush.

No. 12,401.—A. B. Childs and Henry W. Dickinson.—*Machine for Feeding Paper to Printing-Presses.*—Patented February 20, 1855. (Plates, p. 307.)

When the fan in *a* is revolved, the air enters trunk *c* (the valve c^2 being open) through the slit in the lowermost part of trunk c^1, and escapes from the fan-case into the tube *f*, and thence into trunk *i*, and out from the slit in said trunk *i*. These currents of air (an inward current through *d*, and an outward one through *i*) raise the uppermost sheet s^1 from the pile *s*. The sheet adheres to trunk *d* over the slit, and the outward blast from *i* serves to raise up and separate the whole length of the sheet from the pile. As c^1 revolves, (see arrow *x*,) it carries the sheet around. When it has made a half revolution, the valve c^2 is closed, and hole *m* covers over the mouth of pipe *g*, and the hole connected with trunk *e* comes opposite the mouth of pipe *f* (the trunk *d* is attached to trunk c^1, extending nearly the whole length of the latter; within trunk c^1, and extending nearly its whole length, is a trunk *e*, having a slit e^1, extending nearly its whole length; just beyond the end of slit e^1 is a hole through trunk c^1, which, as the trunk revolves, comes opposite to the open end of blast-pipe *f*, and at other times is open to the air). The inward draught through *d* is now succeeded by an outward blast through the same, and also an outward blast issues from *e*, thus throwing off the sheet on to the table ready to be seized by the fingers of the press. The force of the blast is regulated by valve *h*.

Claim.—The raising and delivering the sheets by means of the inward and outward currents, said currents being produced and operating in one and the same trunk, through one and the same slit or opening, by means of the fan or its equivalent, trunk *c*, valve c^2, revolving-trunk c^1, pipe *g*, and aperture *m*, and in combination therewith the outward blast produced through the trunk *e*, by the means set forth.

Also, in combination with the inward blast through the revolving-trunk c^1, for raising the paper, the outward blast through revolving-trunk *i*, for separating the sheets, as described.

Also, the projecting trunk *d*, in combination with the main trunk c^1, in the manner and for the purposes set forth.

Also, the combination of the regulating and supply-valve *h* with the shut-off valve c^2, in the manner and for the two-fold purpose as set forth.

No. 12,553.—Chas. Keniston.—*Improved Hand-Press for Printing.*—Patented March 21, 1855. (Plates, p. 307.)

The arm D, to which are attached a piston and type, operates upon a swivel. There are two pads H H attached to the bed F of the press; one for inking the type, the other for the article to be placed on when printing. The press is operated by turning the arm over the pads, and striking a light blow upon the top of the piston alternately.

Claim.—The arrangement and construction of the press described.

No. 12,568.—Lemuel T. Wells.—*Improved Printing-Press.*—Patented March 21, 1855. (Plates, p. 308.)

The object of this invention is to facilitate the feeding and accurate placing of the sheets. The platen U, instead of having a uniform vibration with the arms V, is capacitated for a distinct rotation upon pivot *x*, which distinct rotation is effected by the reaction of the stationary pin *n*, (projecting from the frame,) when the lower portion of the platen impinges against it; the platen at first moving with the arm

a sufficient distance to lift the sheet square off of the type, then impinging against the pin, the lower edge is held nearly stationary, while the outer or upper edge immediately sinks, so as to present the platen in any approach to a horizontal position that may be deemed to best facilitate the action of feeding.

Claim.—The platen U, hinged or pivoted to vibrating arms V, in combination with the stationary pins or pin *n* and retracting springs X, or equivalent devices, for the purposes explained.

No. 12,634.—Ebenezer Mathews and Wm. D. Siegfried.—*Apparatus for Feeding Paper to Hand Printing-Presses.*—Patented April 3, 1855. (Plates, p. 308.)

c c are sliding clamps, moving freely upon the guide-rods *d*, and moved by cords attached to the cam-levers *f f*. The cords pass from *f*, under the pulleys *e e* on the platen, and from thence to the clamp to which they are fastened; other cords, attached to the back edge of the clamp, pass over the pulleys *e*[1] to the weights *j*. The mode of operation is as follows: Supposing the guide-rods raised up and resting against the top of the press, the frame with feed-board, etc., slid back on its ways, clear of the form, the paper is now placed on the board *a* and the inking apparatus properly adjusted; the frame is then slid forward into the position represented in the figure; the guide-rods, with clamp, weights, etc., are then lowered into their place; the top sheet is now fed into clamp *b* and its front end properly clamped; the form is next run in, and the impression made; the clamp *c* has followed the sheet, until it arrived at the edge of the platen, when the additional pull given by the movement of the cam-lever *f* striking against *l*, the jaws of it pass beyond the edge of the sheet; at the same instant the teeth *x x* on the edge of the platen, striking catches *y y*, close the clamp on the margin of the sheet, the carriage is run back, bringing the printed sheet fast in the clamp *c*, until it arrives at the stationary bar *g*, which presses it open, the sheet is dropped, and the catches *y* are hooked at the same moment. The clamp *b* had been opened (by the fingers *k* striking and pushing back the spring-catches *r*), by means of which the clamp was closed down, when the form was run in, and thus returns open, ready for another sheet.

Claim.—The feeding hand-presses automatically, by means of the operation of the clamps, guide-rods, cords, weights, pulleys, catches and springs, arranged in the manner and for the purpose set forth.

No. 12,702.—John Bishop Hall.—*Apparatus for Feeding Paper to Printing-Presses.*—Patented April 10, 1855. (Plates, pp. 308, 309, and 310.)

The finger-shaft has its bearings in sockets E. It consists of a solid shaft *f* within a tubular shaft *e*. To this shaft *e* there is secured a series of plates *g*, and also to the inner shaft *f*, one set of plates *g* being directly above the other, their ends being in contact and forming fingers

kept together by spring *h*, which passes around two arms *i j* secured into each shaft *e f*, the two arms being close side by side. The figures 1 and 2 exhibit two of the finger-shafts F. Driving-shaft B transmits motion to cords D D around pulleys C on shafts B B, their slipping being prevented by collars *a* on the cords fitting in recesses *b* in said pulleys. The ends of the cords are fastened to the sockets E of the finger-shafts, the sockets also fitting into corresponding recesses in the pulleys. The cords drawing the finger-shafts along, the grooved hubs *q* at one end of the shafts run on ways H, and the outer friction-rollers *l* on the arms *i* run on ways G G[1], keeping the fingers steady. Friction-roller *l* in its way ascending the curved front end of way G, the finger-shaft is gradually turned in its sockets, and roller *n* at the end of arm *m* is depressed and catches against the curved end of way H, and falls into recess *p*. The finger-shaft moving still forward, it is turned about one-half of a revolution, the other roller *l* following guide G, which is so curved that the fingers are properly presented to the edge of the sheet of paper, which has been raised up by nippers Z. Now the inner roller *l* strikes projection j^2, and arm *j* is kept nearly horizontal, while outer roller *l* follows the curve of the guide projecting nearly horizontally a short distance, forming a jog; the two arms *i j* are consequently expanded, the fingers *g* are opened, and when the roller has passed off projection j^2, the fingers grasp the sheet in consequence of spring *h* and carry it down and around pulleys C, the sheet receiving its impression during its travel from the front to the back pulleys underneath. When travelling further on around and above the back pulleys, the inner roller *l* strikes projection *z* on way H, the roller passes underneath the same, and depressing arm *j* opens the fingers *g*. Now, cam N having passed and having left free the end of rod M, spring L throws down frame K, and the sheet is pressed into receptacle I. Cam N then causes frame K to return to its original position. The nippers Z operate as follows: Stocks S S[1] slide in vertical ways R; and both being alike, a description of one will be sufficient. Stock S is moved upward by cam W acting on rod V, crank g^1, shaft T, and suspending links b^1 d^1. When the cam frees the rod V, the stock S descends by its own weight, assisted by spiral spring *g* on shaft T. The stock being elevated, the nippers Z present a sheet of paper (represented in the illustration in thick lines) to the fingers *g*, (see fig. 2,) and while in this position arm 10 (projecting from pulley C) strikes and raises roller m^2 on the outer end of lever H[1], and causes thereby the inclined projection n^3, at the inner end of lever H[1], to act against roller x^1 on bar A[1], thereby forcing this bar (which is linked to the stock by arms t^1 t^1) obliquely downwards. The bar A[1], being arranged between the jaws p^1 p^1 of the nippers Z, forces, in its descent, these jaws apart and the sheet of paper from them, just after it has been grasped by the fingers *g*, which are now commencing to withdraw the sheet of paper. The stock descends now, and roller *i i* on bar A[1] strikes projection f^3, which is screwed to the main frame A of the machine, whereby bar A[1] is moved a little back. The jaws p^1 p^1 (still in a distended state) are pressed upon the uppermost sheet of paper of the pile upon platform I[1]. The jaws are pressed upon the paper by the weight of the stock,

and with a force equal to the power of springs o^1. The pressing down of the jaws causes the portion of the sheet between them to rise to a certain extent. This being done, cam C^1 acts against roller b^2 of bar B^1, and the outward bent front end of bar B^1 striking roller w^1 moves arm v^1 (projecting from bar A^1) inwards, thereby elevating bar A^1 to its original position. The jaws, being freed from the distending action of bar A^1, grasp firmly the ridge of the sheet of paper between them. Cam W now again acting on rod V, causes stock S to ascend till the edge of the paper is brought against rod E^1 and properly presented to the fingers *g*. The springs S, slightly depressing the sheet of paper just behind rod E, insure its outer edge bending upward. The jaws are more or less extended according to the thickness of the paper, by adjusting projection f^3. The extension of the jaws being properly adjusted, they cannot grasp more than one sheet at a time. The arrangement hereafter described serves to prevent two sheets being drawn off the pile, on account of their sticking together by moisture, &c. When the nippers press upon the uppermost sheet, the points of hooks w^2 w^2, which are attached to eccentrics v^2 v^2 on shaft K^1, just bear upon the back part of said sheet, and also rollers u^2 u^2 on the same shaft. They remain so till the nippers elevate the paper, when the upper inclined parts of projections 6 on bars 5 (which are secured to the stock) touch rollers 7 on both sides of platform I^1, (which slides in horizontal grooves,) and move said platform outward, (see arrow 1, fig. 5,) and shaft K^1 is turned simultaneously by means of rod z^2, so that the points of the hooks pass through the upper sheet, which is grasped by the nippers, and consequently does not move outward with the pile. After having passed through the upper sheet, the ends of the hooks, owing to their curved form, rest upon the second sheet without passing through this, as it moves with the platform and in the same direction with the hooks. The second sheet and those underneath it have the weight of shaft K^1, with its rollers w^2, &c., upon it; for the hooks in turning elevate the shaft K^1 with its appendages (see fig. 5). Now projection 6 leaving rollers 7, the platform moves inward, (see arrow 2, fig. 5,) actuated by spring 4, shaft K^1 is turned back, and the hooks pass out from the perforations their points made in the uppermost sheet, leaving the rollers upon the second sheet and the weight of shaft K^1, just previous to the withdrawal of the raised sheet by the fingers *g*.

Claim.—1st. Lifting or picking up the sheets of paper from the feed-boards, or piles of paper to be printed, by means of nippers, pincers, or tweezers Z, constructed as herein shown, or in an equivalent way, and operated by any suitable mechanism, so that the jaws of said nippers may, when slightly open, press upon the sheets of paper in such a manner that when closing they may grasp or nip the upper surface of the top sheet, or the ridge of the sheet formed between them by their pressure, as herein described, and for the purpose as set forth.

2d. Separating or detaching the uppermost sheet of paper on the feed-board, or pile of paper to be printed, so as to prevent the removal therefrom of more than a single sheet at a time by means of the hooks w^2 w^2, or by pins or points so constructed and operated as to answer the same purpose; and rollers u^2 u^2 attached to a shaft K^1, or other

suitable fixtures, and in connexion with said hooks and rollers, by means of a reciprocating motion of the platform I^1, feed-board, and pile of paper, the said hooks, pins, or points acting conjointly with the said movable platform, substantially as herein shown and described.

3d. Conveying the raised sheets of paper from the feed-boards to the form to be printed, and also from the form when printed to the proper boxes or receptacles, by means of the fingers *g* attached to the tube and shaft F, which is secured to endless bands or cords D D, which are provided with collars or teeth to prevent them slipping in passing around suitable pulleys C, or by means of other fixtures which would be equivalent to the above named parts, when they are used in connexion with a vibrating or movable frame K, or its equivalent, for properly adjusting the printed sheets in the boxes or receptacles i when released from the fingers, as set forth in the body of the specification.

No. 12,733.—Caleb A. Thompson.—*Improvement in Making Printers' Ink.*—Patented April 17, 1855.

The object of this improvement is to produce ink which is tenacious and adhesive, and which, when dried, adheres firmly to the surface of the paper. The inventor takes for ordinary inks four pounds of litharge, two pounds of acetate of lead, and forty gallons of linseed oil. Before using the linseed oil it is subjected to heat of six hundred degrees Fahr., after adding litharge and lead as dryers. It is subjected to the action of heat from forty-eight to sixty-five hours, as to the desired quality of the ink. Thereby the inventor intends to eradicate the greasy nature of the linseed oil. The oil having been prepared as above, gum copal is added—four pounds of it to one gallon of the oil (as above prepared). For news-ink the following ingredients are used: fifteen pounds of the above oil, ten pounds of resin (common), two pounds brown resin soap, and five and a half pounds lamp-black. These proportions vary for other inks. (No illustration.)

Claim.—The composition of oil-varnish, made in the manner herein set forth, to be mixed with resin-soap, lamp-black, &c., for printers' ink.

No. 12,761.—Isaac B. Livingston and Miles Waterhouse.—*Machine for Feeding Paper to Printing-Presses.*—Patented April 24, 1855. (Plates, p. 309.)

Motion is transferred from driving-shaft N to cog-wheels W S and K^1, with the latter of which the crank-shaft K is revolved. This crank-shaft works between arms *a a* attached to levers G G. When the crank-shaft in its revolution strikes the upper part of arms *a*, it raises said arms and the front end of levers G and the cross-bar E, to which the ends of the pliable tubes D are attached. Continuing its revolution, it presses against the front side of arms *a*, pushing the levers G with cross-bar and tubes forward along the guide-ways F. A crank-pin on wheel K^1 and pitman *c* are so arranged that when the tubes have been raised and carried forward, the exhausting apparatus C

shall blow off the paper that was attached to the tubes; and when crank K has pushed back the tubes, and allowed them to drop upon the paper, the crank K will commence to operate the exhausting-apparatus so as to exhaust the air from the tubes, which causes the paper to adhere to them by suction; the crank K in the mean time has passed the top of arm *a*, raising levers G G, cross-bar E, and tubes, and carrying them forward as described.

Claim.—The use of the angular guide-ways in combination with the cross-bar, or its equivalent.

The use of a crank, or its equivalent, working between the arms of levers, as described, in combination with levers and cross-bar, as described.

The raising-table in combination with the cams, shafting, and gearing, (forming said table), or their equivalents, as described.

The inventors add: We do not claim the raising of paper by atmospheric pressure, as that has been before used for that purpose.

But we do *claim* the combination of machinery, as described, for carrying forward the paper, a sheet at a time, and feeding it to printing-presses.

No. 12,989.—JAMES ALBRO.—*Improvement in Registering Blocks for Printing Oil-Cloths.*—Patented June 5, 1855. (Plates, p. 310.)

The cloth D (represented in the engravings in strong broken lines) is placed upon table A, and the straight edge C pressed down upon it; said straight edge being exactly parallel with the ends of the cloth. The heads of the screws *d d* are then placed against the back flanges of the stops E, and the head of screw *e* is placed against the side of the projection of the left-hand stop. If the screws are properly adjusted, the figure on the block F will be printed in proper position on the cloth, as by means of said adjustment the parallelism of the transverse and longitudinal lines of the block is preserved. The block is elevated after each impression, and placed between the adjoining two stops. The recess *c* affords a space to receive the right-hand stop E, so that no adjustment of the stops is required. The matching of the rows is at a point on a line with the ends of the projections of the stops E, because the blank surface *b* of the face of the block occupies the space between the stops; consequently, in adjusting the cloth D, the edge of the printed surface is brought to this line.

The inventor says: I do not claim a transverse bar or straight edge C applied to a printing-table A separately, for it has been previously used; but what I *claim* is the bar or straight edge C with T-shaped stops E attached permanently to it, in combination with the guide-screws *d d e*, in blocks, and the recess *c* in the right-hand corners of the blocks, and smooth surface *b* on the faces of the blocks, as shown, and for the purpose as set forth.

No. 13,069.—JOEL G. NORTHRUP, assignor to JAMES D. MATHER.—*Improvement in Printing-Presses.*—Patented June 12, 1855. (Plates, p. 310.)

The nature of this improvement will be easily understood from the claims and engravings.

R, bed; Q, stand; P, connecting-rod; *a*, wrist-pin; O, chain.

The inventor says: I *claim* the manner by which I give motion to the bed of a printing-press by means of a vibrating connecting-rod; one end of which is attached by a stud-pin, or wrist, to a stud that projects from the lower side of the bed; the other end being connected by a similar wrist to an endless chain which passes around two wheels which revolve, thus producing an elongated crank-motion.

I do not claim the application of a chain for this purpose; but I *claim* the manner of attaching, combining, and communicating its motion to the bed, substantially as described.

No. 13,183.—A. H. ROWAND.—*Machine for Feeding Sheets of Paper to Printing-Presses.*—Patented July 3, 1855. (Plates, p. 310.)

The sheets of paper W to be fed to the press are placed in a pile upon bed B, and springs force the paper up against the rollers G G on shaft F of swinging-frame E. Motion being given to driving-shaft K, the rollers G G first move the uppermost sheet of paper backwards against guides T T, and projection Q on arm N then strikes against shaft F on swinging-frame E and raises it, and consequently rollers G G are freed from the uppermost sheet of paper, and arm P is also moved back, and the lip *q* is depressed or forced downward in consequence of bar S being operated by eccentric O, the slot *s* moving segment *r* at the proper time. Arm N and bar P are now moved forward, and lip *q* catches the back edge of the uppermost sheet, which was previously moved backward, and the lip closes and grasps the edge of the sheet, which is shoved forward (see figure 5) and caught by nipper or other devices, by which it is passed to the press.

The plan figure 2 represents only one half of the machine, the other half being similar; *x x* is the centre line.

Claim.—The employment of the swinging-frame E, provided with the rollers G G, in combination with the vibrating arm N and clamp or lip *q*, operated by the slotted bar S. The parts being arranged as shown, and operating in the manner and for the purpose as set forth.

No. 13,197.—WM. MCDONALD, assignor to R. HOE & CO.—*Machine for Mitreing Printers' Rules.*—Patented July 3, 1855. (Plates, p. 311.)

The bed H can be raised and lowered to the required angle, and causes the rule R, which rests on said adjustable bed, to be properly presented to the plane D, so that the end of the rule may be bevelled as desired.

The inventor says: I do not claim the plate A and plane D, for they are well known and in general use.

But I *claim* attaching to the bed A and framing B a sector guide-plate E, to which plate the bed F is secured by a set-screw G, the bed F having a curved projection *e* attached to it, which projection works in a recess or groove *a* in the plate E, by which the bed F may be adjusted at the desired angle with the plate A, and the ends of the rules bevelled or cut, as shown, and for the purpose set forth.

No 13,333.—ANDREW CAMPBELL.—*Machine for Feeding Paper to Printing-Presses.*—Patented July 24, 1855.

A description and engravings to illustrate this invention would necessarily be too extensive to be given in this Report.

The inventor says: I do not wish to be understood as making claim to the method of lifting sheets of paper from a pile by means of an exhaust bar or surface acting on the principle of suction, as I am aware that this was first done many years ago by M. Remond, in Europe, in a machine for making envelopes.

But I *claim*, 1st. The mode of operation, substantially as described, by which the pile or piles of sheets is or are moved up and down, and kept in position as the sheets are taken from or laid on the pile, that the upper sheet of the pile may at all times be in the proper position to be acted upon by the mechanism which removes it or which deposits it; which mode of operation consists in lifting or depressing the table or tables on which the pile is placed, by the mechanism described, or the equivalent thereof, in combination with the gauge and holding-bar, or any equivalent therefor, which rests on the top sheet to hold it down, and which, by its position on the pile and its connection, governs and controls the movements of the lifting or depressing mechanism, substantially as described, the said mode of operation being employed to govern the position of the pile on the feeding and receiving tables, or either, as set forth.

2d. The mode of operation for holding the upper sheet of the pile on the receiving table on which the sheets are in succession deposited, so that as the sheets are drawn over the pile in succession, the sheet previously deposited shall not be moved from the position in which it was deposited, the said mode of operation consisting in the use of a wing or plate, which rests on the upper edge of the pile, at that end of it over which the sheets move as they are drawn over the pile, and which then rises to permit the newly deposited sheet to fall, and again descends to hold it preparatory to the introduction of another sheet, the said wing or plate being operated in the manner substantially as described, or any equivalent therefor. And this I claim whether the said wing or plate be employed for the sole purpose of holding the upper sheet of the pile on the receiving table, or for this and for the purpose of gauging and controlling the mechanism which depresses the receiving table.

3d. Making pressure on the surface of the pile of sheets on the feeding-table, and within a short distance of the edge which is to be lifted, for the purpose of forcing the sheets at that end of the pile to open fan-like, that the separation may be more effectually made, substantially as described. And this I claim, whether the required pressure be made by the rounded surface on the exhaust-bar, or by a separate bar having the like mode of operation.

4th. Making the surface of the exhaust-bar concave, substantially as described, so that the upper sheet which is to be removed from the pile shall be drawn into the said concavity, and thereby draw its edge within the edge of the pile, the more effectually to insure the separation, as set forth.

5th. Placing the concave surface of the exhaust-bar so that it shall overlap or extend beyond the edge of the pile, substantially as described, that the whole of the portion of the sheet which is to be acted upon by the exhaust may be within the concavity of the exhaust-bar, thus causing the inward current to pass upwards under the projecting concave surface of the exhaust-bar, and across the edges of the pile, to insure the separation of the edges of the sheets, as described.

6th. Blowing in a current of air at one or both ends of the concavity of the exhaust-bar, substantially as described, to insure the separation of the top sheet from the rest of the pile preparatory to removing it from the pile, as set forth.

7th. The employment of the transferring or holding-bar, connected with the exhaust and blowing bellows, or equivalents therefor, substantially as described, in combination with the exhaust-bar, substantially as described, by means of which the end of the top sheet, which has been separated from the pile, is transferred from the exhaust-bar to and held by the said transfer-bar until it is taken by the gripers, or any equivalent therefor, that the exhaust-bar may be removed preparatory to carrying off the top sheet as set forth.

8th. The method of thumbing the edge of the pile to insure the separation of the edges of the sheets where they are liable to adhere, by means of the rotating spring flippers, substantially as described, or any equivalents therefor.

9th. The mode of operation, substantially as described, by which the griping ends of the jaws which gripe the sheet of paper are made to maintain a fixed position relatively to the edge of the sheet held by the transferring and holding-bar during the entire operation of griping the sheet, and during a portion of the operation of reversing the jaws, by the continued motion of the endless chain or band with which the rear parts of the jaws are connected, as set forth.

10th. Removing the sheets in succession from the pile by griping one end of each sheet in succession with griping-jaws, after the end has been separated and lifted from the pile by other means, and rolling it off the pile by the motion of the griping-jaws towards the other end of the pile, substantially as specified, by which all tendency to disturb the sheets below is avoided, as set forth. I do not claim broadly the fact of rolling off the sheet from one end of the pile towards the other, but limit my claim to the mode of operation specified, by which I attain this end in a practical and efficient manner.

11th. Making friction on both surfaces of the sheet when brought over the pile on the receiving table, substantially as described, in combination with the gripers, so that the moment it is liberated by the jaws the friction on both surfaces shall hold and leave it in place on the

pile, substantially as described, whereby the accurate deposit of the successive sheets is made to depend solely on the period of opening the jaws, as set forth.

12th. Making pressure on and packing the pile of sheets on the receiving table as each sheet in succession is deposited, by means of a perforated plate, substantially as specified, the perforations in the plate giving free access to air, that the plate may be lifted without drawing up the sheets with it, as set forth. I am aware that pressure has been made on the top sheet of a pile in the operation of depositing the sheets, by means of bars called a fly; and therefore I do not claim broadly making pressure on the pile, except by means of a perforated plate extending over the entire pile to pack down the entire surface, as specified, the small perforations preventing the sheet from being lifted, while they do not prevent the packing down of the pile. And finally, the employment of pointed punches to punch holes in the sheets as they are piled on the receiving table, substantially as described, so that the pile may be transferred and moved without shifting the position of the sheets relatively to each other in the pile, as set forth.

No. 13,335.—Merwin Davis.—*Improved Printing-Press.*—Patented July 24, 1855. (Plates, p. 311.)

Taking the distance between axes b and d^2, and dividing it into a number of equal parts, apportioning a certain number to the length b and the bed b^2, the others to the radius of motion of the platen d, and then dividing the radius of the platen into the same number of parts, and taking the same proportional distance from the axis to the periphery that the platen bears to the bed, the point x is determined on which the circle is struck which the segment platen is formed on; this is the curve that meets the straight line of the oscillating bed b^2. The distributing-rollers f deliver the ink on the distributing-plate b^3, from which it is transferred, at each forward vibration, on the inking-rollers e e, under which plate b^3 passes. The leaf of paper is placed at g, against little gauges h^1 at the front edge and under fingers h^2 on the slide h; when the sheet is placed, the fingers are let down upon it and hold it steadily; slide h is connected with arm h^3 on an axis just below, from which axis projects downwards arm h^5, so as to be struck by the front part of the bed, by which the slide is thrust out towards the platen to deliver the sheet; the slide at the same time turns the gauges h^1 down out of the way, and the fingers i on the platen seize the paper.

Claim.—1st. The oscillating bed, having a plane surface, and operating substantially as described, and contradistinguished from a rotary bed or sliding bed by oscillating between two given points.

Also, the construction and operation of the platen in combination with said bed, as specified.

Also, the adoption and combination of the well known fly n, for laying the sheets, the slide h for the reception and the delivery of the paper, and the inking apparatus b^3, e e, and f, to the new construction and arrangement of the bed b^2 and platen d, substantially as described.

No. 13,376.—James Melville and Jos. Burch.—*Machine for Printing Textile Fabrics.*—Patented August 7, 1855. (Plates, p. 311.)

Q is a longitudinal slide-rest bed, having upon it carrier S, with adjustable head-stocks T U for the support of the printing-roller V; g is the bottom color-supplying roller, and i the color-box; the roller g supplies the color to the endless feed-band j, which latter passes over rollers g and k and presses against the printing-roller. The carrier S, with the printing-roller and coloring apparatus upon it, can be traversed by rack-gear t u, and set by pawl x and serrated plate v; the serrations correspond to the particular repeats in use at any given time in printing, a new serrated plate being attached at each change in the repeat.* The shaft o is grooved longitudinally, and wheel c (fitted upon it with a key) revolves with it, at the same time being free to traverse on said shaft. The carrier-wheel b also gears with a wheel e, set loose on a stud in the head-stock, and made to drive wheel f fast on the overhanging end of the shaft of g. This shaft is carried in bearings in the standards h of a separate adjustable carrier, the base of which is dove-tailed to traverse upon slide-rest carrier S at right-angles to the traverse of such carrier. The piece to be printed is stretched over the periphery of main cylinder D, and the printing-roller, previously prepared, is then shipped upon the head-stock centres of the slide-rest apparatus. The printing-roller is then set up to the end of the slide-rest bed, as in figure 2, and the end portion of the pattern is printed as at 1. For the next repeat of the pattern, the rack-gear t u is operated to traverse the entire printing apparatus along the bed to a distance equal to the width of the repeat, the main cylinder being moved from printing contact by proper means. The serrated plate serves as an accurate set for the printing-roller at the termination of the shift for the repeat. The main cylinder is then again moved into printing contact, and the above operation repeated, and so on until the whole width of the pattern has been printed, and the same process is repeated with the rest of the colors, inserting for each new color a new coloring apparatus.

In printing lengths of goods, as in carpeting, the different colors are laid on by a corresponding set of surface rollers, set one in advance of the other, as regards the direction of revolution of the main cylinder, each roller and color apparatus being carried upon a slide-rest, as above described.

Claim.—1st. The mode of printing in two or more colors by means of a movable color apparatus, in connexion with the pattern printing-roller traversing laterally on a slide-rest, by means of which the colors in a repeat are printed without shifting the printing-roller, as described.

2d. The application of a slide-rest guide apparatus for guiding and regulating the action of the pattern printing-roller, when the mode of connecting such slide-rest apparatus with the impression cylinder is by means of a grooved shaft traverse movement, as described.

3d. The mode of adjusting the position of the printing-roller at the

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*. *Repeat* means the traversing of the printing-roller for repeating the length of the pattern comprised within the longitudinal limits of the roller.

repeat shifts, by means of notched or serrated plates set to correspond to the different repeats.

4th. The mode of printing carpeting and other fabrics, by means of printing-rollers corresponding to the several colors in the repeat, set, one in advance of the other, in the direction of the main cylinder's revolution, that revolution being continued until the colors are duly impressed upon or into the fabric.

No. 13,423.—Dexter H. Chamberlain.—*Improved Hand-Press for Printing.*—Patented August 14, 1855. (Plates, p. 312.)

In order to adjust the bed I to the surface of the types, the nut L is loosened, and the block E is forced down upon the bed (see figure 2). The bed then assumes the required position, and may be fastened so by tightening nut L; and if the plate at any time be replaced by another of a different thickness, the adjustment is to be repeated.

Claim.—1st. The described percussion hand-press, consisting essentially of the block or type-carrier E sliding upon the lever C, the ink-roller G and bed I, operating in the manner and for the purpose substantially as described.

2d. The method, substantially as described, of adjusting the head to the surface of the types, whatever may be the thickness of the plate which carries them, for the purpose set forth.

No. 13,462.—John Hope and Thomas Hope.—*Machine for Engraving Calico Printers' Rolls.*—Patented August 21, 1855. (Plates, p. 312.)

One end of the cylinder S (to be engraved) is supported by rollers *g h*, and the other end by rollers *e f*, extending into the groove i^1, formed around the surface of the cylinder. From the carriage Y (resting and sliding on carriage K) projects the tracer V, its point projecting over the table and up on the design carried thereby. When the trace is moved transversely, the carriage K will be put in motion, and, by means of band L, will communicate motion to wheel M, so as to rotate shaft *o* and cylinder S. When the tracer is moved longitudinally it will move carriage Y, and with it the grooved wheel X and carriage C^1, so as to move the several gravers *t* in a longitudinal direction on the surface of the cylinder.

In arranging the machine for operation, the two index arms Q and R are disposed at an angle to each other equal to that measured by the arc through which the surface of the cylinder is moved while a section of the pattern is being engraved. Having effected the engraving of such section, it becomes necessary to draw forward the pattern-sheet P a distance equal to another such section, which distance corresponds with that between either two marking points *i i* of each set thereof. The pattern-cloth is then moved forward so as to bring those points which were previously under the rear-markers directly underneath the front markers. Next, with a piece of chalk, marks are made on the side of the rim of M, where the index points Q R cross it; next, the set-screw of wheel M is loosened, so that it can revolve freely upon shaft

N, and the tracer is drawn forward to that part of the design upon which it rested previously to the pattern being moved. While doing this, although M will be rotated upon its shaft, it will not rotate the shaft *o;* next, taking the foot off the treadle which pressed the connecting-rod P^1 upwards, the gravers are thrown off the cylinder. The shaft *o* is then turned by means of arm R until the arm comes up to the chalk-mark, which was made as above mentioned. This movement of the shaft rotates the cylinder the distance necessary for the engraving corresponding to the section of the pattern over which the tracer is next to be carried. After clamping M to shaft N, and letting the gravers down upon the cylinder, the machine is ready for the tracer to be moved over a fresh section of the pattern. While the markers serve to determine the distance to which the pattern is to be moved, the rods E F operate as hold-backs to keep the pattern-cloth properly strained upon the top surface of the table B. By means of this machine a number of similar figures (this number corresponding to the number of gravers employed) can be engraved on a cylinder by the use of a single pattern.

Claim.—The combination and arrangement of the two sets of measuring-markers *i i i i*, the hold-back rods F F, and roller with plane surface table, the same being not only to enable the design to be transferred, it being brought forward in regular sections, but to be maintained flatly upon the table; also, the two measuring indices, in combination with the large pulley and the shaft of the driving-roller of the cylinder to be engraved; also, the means of holding and moving the cylinder, so that it shall not only be rotated by pressure against its external surface, but may be readily either removed from or applied to its supports, the same consisting in employing a driving-roller and a bearing-roller at one end of the cylinder, in combination with two sets of bearing-rollers, made to extend into a groove around the cylinder, and to support such cylinder, both laterally and longitudinally; also, the arrangement of the pattern-table, the tracer and its carriage, the several other carriages, the mechanism for operating each, the wheel, the shafts, and the supports of the roller to be engraved; the whole constituting an improvement in engraving machinery, and securing to it important advantages in operation as well as in construction, as set forth.

No. 13,576.—Daniel K. Winder.—*Improved Card-Printing Press.*—Patented September 18, 1855. (Plates, p. 313.)

The nature of this improvement consists in connecting the two chambers D C at the ends of the platen B (in which chambers the cards *c* are deposited) by a groove in the under side of the platen, so that a card may pass from one chamber to the other by the action of a spring-driver E secured to the bed of the press, which, as the platen is drawn back for the inking of the form, catches the lower card in the blank card-chamber C, forces it into the groove beneath the platen, and causes the last-printed card to be delivered at the bottom of the

pack in the other chamber, while a card *p* is left in position to receive the impression when the platen shall return.

I *claim* the combination of the connected chambers C and D of the platen with the spring-driver E of the bed, constructed, arranged, and operating substantially as specified, for the automatic feed and delivery of cards.

No. 13,579.—EDMUND MORRIS.—*Improved Seal and Stamping Press.*—Patented September 18, 1855. (Plates, p. 313.)

When the die is to be inked, the frame A is to be thrown over by means of hinge F.

I *claim* the causing of the frame which contains the die or plate to work to and fro on a joint or hinge, so that the latter may be turned over, with its face upward as described, in a convenient position to receive a supply of ink.

No. 13,587.—SAMUEL W. LOWE, assignor to HIMSELF and JACOB M. BECK.—*Preparation of Metallic Plates for Printers.*—Patented September 18, 1855.

The copper plate (or steel plate coated with copper by the galvanic process) has its surface amalgamated with mercury, by rubbing the latter on the said surface; after that the plate is ready for engraving or etching. In a plate already engraved, the engraved lines are first to be filled up with resinous matter, and then the surface to be covered with the amalgam, as above described. The resinous matter is then removed, and the plate is ready for the press.

The inventor says: I do not claim engraving or etching designs, or figures of any kind, upon metallic plates, or surfaces of any material, for the purpose of printing therefrom, as these processes have been known and practised for a long time.

I *claim* coating the plane or engraved face or surface of the plate (which is intended for leaving the white or unprinted surface of the paper) with a mercurial amalgam, that will have the effect of preventing the ink used in printing therefrom from adhering to or soiling the same, whilst the figures engraved or etched thereon readily receive the ink, and thus admit of printing from the plate, by a letter or any other press, either from the plate alone, or from the plate in the same "form" with the type, without the "wiping" heretofore required in printing from steel or copper plates, substantially as described.

I also *claim* the coating the plane surfaces of etched or engraved steel plates with an alloy of tin and mercury, substantially and for the purposes as described; and also the coating of etched or engraved copper plates, in the same manner and for the same purposes, and the coating of the plane surface of metallic embossing plates, in the same manner, and for the more special purpose of using the sunken parts, when filled up with a resinous substance, as a plate to print from, thus saving an extra color-plate, when it is desired to have the parts to be embossed first printed in any color.

No. 13,671.—DANIEL K. WINDER.—*Improved Card Printing Press.*—Patented October 9, 1855. (Plates, p. 313.)

The press being in position figure 1, the card *x* is inserted under the holders *i i*. Lever L, then being moved in the direction of the arrow, draws form F from under roller R, and to the top of face *a* of the bed, and gradually produces the descent of platen P. The pressure still continuing, the card under the platen is drawn with sufficient force against the form to effect an impression. During which operation the lever L, pressing on short arm of lever C, raises its long arm, and causes roller R to revolve in contact with surface *g*, the several parts being now in position figure 2. On removal of pressure from lever L, the reverse operation will obtain. The springs D, keeping roller R in contact with supply surface *g*, cause the roller to rotate over it in passing off, and insure a full supply of ink.

Claim.—The double inclined bed B, traversing form F, and inking surface *g*, in combination with the lever C, spring roller supports *t*, and operating lever L, constructed, arranged, and operating substantially as and for the purpose specified.

No. 13,689.—DANIEL K. WINDER.—*Inking Apparatus for Card-Printing Presses.*—Patented October 16, 1855. (Plates, p. 313.)

The backward movement of platen P throws roller R between the platen and bed, and the outward motion of arm *m*, which takes place as the platen moves forward, withdraws said roller, the springs *p* keeping the roller upon the form F during this movement, and causing it to impart ink to the type. On the withdrawal of roller R from between the platen and bed, which is accomplished before the platen has half completed its forward course, it immediately comes in contact with the supply-roller E, then revolving by the action of spring T; this contact produces a rotation of roller R, and enables supply-roller E to impart to it a sufficient quantity of ink before the platen reaches the termination of its course, when inking-roller R again passes over the form as the platen is withdrawn, and the operation proceeds as before. L is the handle to operate the platen with.

Claim.—1st. The double-armed rock-shaft S, and outward-pressing roller-frame G, or their equivalents, in combination with the platen and the springs actuating the arm *m* of said rock-shaft, constructed, arranged, and operating substantially as and for the purposes specified.

2d. The above mechanism for operating the inking-roller, combined with the supply-roller E, actuated by the movement of the platen, substantially as specified.

No. 13,703.—THOMAS HARSHA.—*Card-Printing Press.*—Patented October 23, 1855. (Plates, p. 314.)

The strip of paper *x x* having been inserted between rollers M *l*, and ink having been placed in box I, the lever C is brought directly over the ink-bed J; by which movement the rack *o* is moved by means of

levers E G, and frame H is moved by levers E and F. The rack in moving turns rollers M *l*, and feeds the ends of the paper over bed Q; and as frame H is moved the roller *d* passes over ink-bed J, distributes the ink thereon, and passes into recess *f* to receive an additional supply of ink. The form being now over ink-bed J, lever C is depressed so as to depress and ink the form. Lever C is then relieved, and rises by the action of spring W. The lever is then moved back and box S brought over bed Q; by this movement frame H is moved back again over ink-bed J, which is thereby charged with ink, and rack O is moved back without turning rollers M *l* as the pawls slip over the ratchets. The form is then pressed down upon the card-paper on bed Q, and a projection a^1 at the side of box S depresses knife U and cuts off the card printed at the previous movement of lever C.

Claim.—Attaching the box S, which contains the form, to the lever C, and connecting said lever with the ink-rollers *c d* and feed-rollers M *l*, as shown, so that when the lever C is moved and the form brought over the ink-bed J, the paper will be fed over the bed Q on which the paper is printed; and when the lever is moved over the bed Q, in order to print the paper or cards, the charged ink-rollers will pass over the ink-bed J, whereby the ink-bed is kept properly charged with ink, and the paper fed over the bed on which the paper is printed, and the paper or cards printed by simply moving or operating the lever C, as described.

Also, passing the paper between two knives T U, arranged substantially as shown, in relation with the lever C, so that the printed paper or cards will be cut off in proper lengths as the form is pressed upon the paper, the knives cutting off a previous impression at each depression of the lever.

No. 13,737.—Henry W. Dickinson, assignor to Lansing B. Swan.—*Machine for Feeding Paper for Printing-Presses.*—Patented October 30, 1855. (Plates, p. 314.)

The frame-work, consisting of air-pumps B, air-chambers A, valve cylinders J, and system of horizontal tubes I, and short vertical tubes 1, 2, 3, 4, 5, 6, (the latter open at bottom,) slides on ways N, and receives a reciprocating motion by crank or other mechanism. The piston-rod P being firmly attached to the main framing of the machine at *o*, a vacuum will be maintained within cylinder B and chamber A as the frame-work above described travels back and forth. As the frame arrives over the paper on table W, the bars K (to which are attached the valve-rods *a* of the valve-cylinders J) strike the projections M and open the valves, when the suction from the exhausted chambers A causes the uppermost sheet of paper to adhere to the orifices of the vertical tubes 1, 2, 3, &c. As soon as the frame arrives at the other end of its way, the bars K strike the projections L, and the valves in the cylinders J are again closed. The suction ceasing, the sheet of paper is ready to be caught by the nippers, and to be delivered to the frisket-frame of the press.

Claim.—The general arrangement of the devices described, and for the purposes set forth.

No. 13,818.—Thomas Henderson.—*Machine for Printing Yarns and Cloths.*—Patented November 20, 1855. (Plates, p. 314.)

The printing-types B are moved up and down by a crank and pitman motion. G are the lower set of color-distributors, revolving in boxes H. The upper color-distributors revolve in boxes J. The boxes H are fixed to the bottom of frame A; the upper ones J are fixed to the movable frame I. The journals of the color-distributors turn in the ends of their boxes. As they are turned one-quarter way around at each advance of the yarn or cloth being printed, a fresh supply of color is imparted to the cloth on its under side, and a fresh supply of color is imparted to the lower ends of the types B by the angular upward movement of the frame I, carrying the boxes and distributors J and K, so as to impart the color first to the types B, then by them to the cloth on its upper side, exactly over the color-distributor G, by the types descending perpendicularly after the frame I and color-boxes K are moved angularly down so as to let the types B pass by them.

The cords F are attached to the tops of the types B and to the top-piece E, they passing up through slots in plate *e*, and through the eyes of the needles *f;* these needles are pressed back against and into the surface of the jacquard cylinder X by the spiral springs *g*. The knots *h* in the type-cords F are for the purpose of keeping up the type which print the desired figure; the knots are drawn up through the large part of the slot *d*, and are carried longitudinally over the narrow parts of these slots by means of the eyes in the needles *f*, these needles being driven longitudinally forward by the jacquard cylinder. Thus it will be seen the types will not descend until the next revolution of the crank, while the other needles enter the holes in the surface of the jacquard cylinder, and leave the types which they govern free to descend.

I *claim*, 1st. The printing or coloring types B, arranged and operated essentially and for the purposes set forth.

2d. I claim the coloring-distributors, and boxes in which they revolve, when they are constructed and operated substantially as described, for the purposes set forth.

3d. I claim the types B, in combination with the jacquard operation for printing and coloring figured goods, when they are arranged and operated substantially and essentially as set forth.

4th. I claim the types B in combination with the color-distributors and boxes, arranged and operated essentially as set forth.

No. 13,857.—Cyrus A. Swett.—*Improved Printing-Press.*—Patented November 27, 1855. (Plates, p. 314.)

The rollers *k* each receive its proper colored ink from a fountain; and as the cylinder C rotates, the rollers *k* will distribute upon the periphery of the cylinder belts of different colored inks, the width of the belts being equal to the width of the blocks X. The shaft of the rollers *k* has a longitudinal vibrating movement given it as it rotates, by the screw S and fork T, so that the rollers *k* will distribute evenly the ink

upon the cylinder. The different colored belts of ink will be taken from the cylinder C by the rollers V, which ink the plates X as they pass underneath them, each plate receiving its appropriate color. The sheet of paper to be printed is placed upon the plate J, and as the cylinder C rotates, the cam F will operate the lever G and arm H, and the bed J will be drawn underneath the cylinder C and plates X, which will leave their impressions upon the sheet of paper. At the first impression, there will be as many colored impressions as there are blocks and belts of color (three being represented in the engraving). After the first impression, the operator moves the belt L, (by means of handle N,) and consequently the sheet of paper on bed J, the distance of the width of one block to the left, and at the next impression two of the previous impressions will receive a different color; for instance, the previous impression from block 3 will now receive an impression from block 2, and so forth.

Claim.—Inking the blocks X with their appropriate colored inks by means of the rollers & V, arranged as described; further, the cylinder C, vibrating bed or plate J, with endless apron L attached, when the above parts are constructed, arranged, and operated as shown for the purpose specified.

No. 13,915.—Robert Prince and Ambrose Lovis.—*Improvement in Processes for Calico-Printing.*—Patented December 11, 1855.

An even mixture of 220 pounds of carbonate of soda, 40 pounds of common salt, 41 pounds of sulphate of soda, and 280 pounds of white sand, is to be introduced into a reverberatory furnace previously heated to a white heat. The materials are quickly fluxed to a stiff transparent glass, and rapidly withdrawn and cooled, and subsequently ground. For the purpose of dunging, a standard solution is made, containing one pound of the silicate in one gallon of the solution, by boiling the powdered salt in clean water. To the hot solution is to be added one pound to each gallon of a mixture of carbonate of soda, containing about twenty-five per cent. of common salt and sulphate of soda. Twelve gallons of this standard solution may be added to a fly-dung cistern, containing from 600 to 700 gallons of water, already heated to about 190 Fahr.; and when 20 pieces of ordinary calico have been run, an addition of one gallon to each twenty pieces succeeding must be made, until 300 or 400 pieces have passed, when the cistern ought to be emptied and refilled as above.

The inventors say: We are aware that pure silicate of soda alone, or with pure carbonate of soda, has been used heretofore in dunging; and we are also aware that silicate of lime has been used for the same purpose.

We disclaim the use of these substances, confining ourselves to the use of the silicate in mixture with neutral and alkaline salts. We *claim* the manufacture of silicate of soda, or potash, containing foreign neutral salts, and the use of this compound with carbonate of soda and neutral salts in dunging operations, substantially as set forth.

No. 12,468.—Daniel W. Messer, assignor to Daniel W. Messer, R. B. Fitts, and Albert James.—*Improved Hand-Stamp.*—Patented February 27, 1855. (Plates, p. 314.)

To produce a hand-stamp where the type-plate *a* accommodates itself to the surface of the paper, the inventor secures the type-plate to the handle B by means of an India-rubber connexion A.

The inventor says: I do not claim uniting the type-plate to the handle by means of a ball and socket-joint, as that has been done before; but I *claim* the India-rubber connexion between the plate and the handle, operating in the manner and for the purpose set forth.

No. 13,308.—Jos. Harris and Elbridge Harris.—*Improved Hand-Stamp.*—Patented July 24, 1855. (Plates, p. 315.)

The cylinder B, through which the die-piston A C works, swings on pivots D D. When swung back, the die C will come into contact with, and be inked by, roller G. When brought back to the vertical position and depressed, the impression will be made. J J are adjusters, being attached to the pivots D D, and are operated by the same motion with the die, and come in contact with the ink-roll boxes H, for the purpose of adjusting the roll to meet the die to be inked.

Claim.—The peculiar oscillating motion of the stamp; also the same in combination with the inking-roll and its adjusters, for the purpose described.

No. 13,495.—Horace Holt.—*Improved Hand-Stamp.*—Patented August 28, 1855. (Plates, p. 315.)

The cover or platen *l* having been turned out of the way, the stamp *c* is brought down upon the surface of the ink *h*; the stamp thus inked is allowed to rise back; the platen is turned inward so as to cover the ink-pan; the article to be stamped is laid on the platen, and the stamp brought down upon it.

Claim.—A hand-stamp in which the stamp is inked and the impression effected by the movement of the stamp in one vertical plane; the ink being arranged directly under the stamp, and provided with a cover which can be moved away from or upon the said pan or fountain; thereby serving both as a cover to the ink-receptacle and as a platen to the article to be printed.

No. 13,470.—Stephen P. Ruggles.—*Hand-Stamp.*—Patented August 21, 1855. (Plates, p. 315.)

The nature of this invention will be understood from the claims and engravings.

Claim.—In a hand-stamp the connecting of an electrotype plate to the handle of the stamp by means of a screw-cap, as described, for the purpose of facilitating the removing and replacing of the electrotype, or portions thereof, as set forth.

Also, the combination of devices for holding the bed-plate E to the shank B, so as to preserve the ball and socket or yielding joint, prevent them from being separated, and to keep the coiled spring in place; the same consisting of the flanges *a f* on the bed-plate with the holes therein, the large opening *c* in the shank-piece and the pin *e* passing respectively through them, as set forth and described.

No. 12,157.—Willard Cowles.—*Improvement in Apparatus for Stereotyping.*—Patented January 2, 1855. (Plates, p. 315.)

The material for the moulds is composed of treacle and plaster of Paris.

The frame *a* (with its upper and lower surface perfectly parallel) surrounds the types to be moulded, for the purpose of forming a bed *b* around the mould. Upon this bed is placed a metallic casting-frame (fig. 2) with its aperture exactly corresponding to the sides and bevel edges of the required stereotype-plate, and its thickness such as, together with the difference between the height of the moulding furniture *a* and that of the type, shall be equal to the required thickness of the stereotype-plate. Or bars (fig. 3) may be used of a length to suit the page, which laid, previous to the last impression, upon furniture, as the type, less the required thickness of the stereotype-plate, become imbedded in and adhere to the moulds, and in place of the frame determine the size for and bevel of the stereotype-plates.

The material is placed upon the mould and within the frame or bars—all parts being in position shown in fig. 6; a metallic plate is placed upon it, and the whole submitted to pressure until the plate comes into contact with the upper side of the frame or bars.

When a page is to be cast in several pieces, leads *d* as high as the type, less the required thickness of the plate, are placed between the lines of type (wherever the plate has to be divided), thus forming narrow grooves. Slips *e* are prepared of equal thickness with these leads, and of a breadth which, together with that of the leads, shall correspond to the height of the type. Before making the last of the successive impressions (of the material upon the type), these lips are inserted in said grooves, and after the impression they remain imbedded in the mould. Upon making the cast, these lips remain in it, dividing it to a sufficient depth to render it easily separable.

Claim.—The inventor says: I do not claim the use of plaster of Paris or clay for the making of moulds for stereotyping, nor do I claim the making of moulds by successive impressions; nor do I claim simply the use of furniture, nor the determination of thickness of the stereotype-plate by means of bars or a frame placed upon the mould-plate.

But what I do claim, is the use of furniture of an exact and proper height, for the purpose of forming a bed in and around the mould on which to place the metallic casting-frame, which gauges the size, form, and bevel of the stereotype-plate, or which shall itself form a support, on which bars are placed for the purpose of being pressed into the mould and imbedded therein, thus taking the place of the frame.

I also claim the use of a frame placed upon a bed in and around the mould, or in its place the use of bars pressed upon and into the mould, substantially for the purpose and in the manner described.

I also claim the use of slips of metal or other substance for the purpose of dividing the plate into two or more pieces, used substantially in the manner described or any similar manner of accomplishing the same object, whether these be used in combination or separately, or whether the material used in making the stereotype-plates be common type-metal or a compound, in which a principal ingredient is gutta percha, India-rubber, shellac, or any other substance or composition of which stereotype-plates are now or may hereafter be made.

No. 12,257.—Jno. F. Mascher.—*Stereoscopic Medallion.*—Patented January 16, 1855. (Plates, p. 316.)

No description required.

The inventor says: I am aware that a daguerreotype-case has been converted into a stereoscope, by constructing it with a supplementary flap or lid containing two lenses, a patent having been granted to me for such an arrangement in 1853; therefore I do not claim the use of a supplementary lid, as used in a daguerreotype-case for such a purpose. But I *claim* constructing a medallion or locket A B B, with two supplementary lids C C, containing each a lens D, and arranged so as to fold within the picture-lids B B, and in such relation to the same that, upon being opened and properly adjusted, they shall cause the lenses to stand opposite said lids, and thereby convert the medallion into a stereoscope; said arrangement also rendering the medallion useful as a microscope and sun-glass, substantially as described. (See engraving.)

No. 12,451.—John Stull.—*Improved Stereoscope-Case.*—Patented February 27, 1855. (Plates, p. 316.)

The inventor says: I do not claim constructing a stereoscope-case with a single adjustable flap or supplementary lid within the case, as such invention has been made and used before in daguerreotype-cases; but I *claim* constructing a stereoscope-case, with the three jointed pieces E E E, or their equivalents, so applied as to preserve at all times a perfect parallelism between that part of the case containing the lenses and the part which contains the figures, so that a perfect stereoscope is formed of the whole as described, and the two figures B B, by binocular vision, are apparently formed into a solid figure, the whole being at the same time adapted to fold or close into a small flat case, (resembling the common daguerreotype-case,) that may be conveniently carried about the person, if so required, substantially as described. (See engravings.)

No. 13,093.—Jos. H. Marston.—*Apparatus for taking Stereoscopic Photographs.*—Patented June 19, 1855. (Plates, p. 316.)

The nature of this invention will be understood from the claim and engravings. C is the camera-box.

The inventor says: I do not claim the using of guides or frames or angles on a camera-board, as such have been used before; but I *claim* the particular arrangement of two frames or guides or boards, that shall work on and be fastened or pivoted on the camera-board A at a a^1, the frames or guides to be at right-angles, so that when closed together they form the raised ledge b b parallel with each other, by which to adjust and centre the angle-board A previous to setting the angles for stereoscoping; also, the application of the spring c to hold the frames together, the right and left screws e e^1, and nuts d d^1, and eye-plates f f^1, to force apart and hold the frames B B^1 in any desired angle. I claim the described apparatus for moving the camera-box and giving the true stereoscopic angle at one and the same time.

No. 13,106.—Abel S. Southworth and Josiah J. Hawes.—*Apparatus for Moving Stereoscopic Pictures.*—Patented June 19, 1855. (Plates, p. 316.)

In figure 1 the plates 10 10^1 are in the fields of vision; as the crank revolves, the toes g having passed the arms h upon the vertical rod, the latter are left free to revolve when necessary; the cogged segments now engage with the racks upon the bottom of the plates 4 9^1 4 9^1, and drive them in the direction of the arrows, moving forward (as they advance) the plates 5 10 5^1 10^1 into spaces S, the plates depressing the fingers k as they advance into recesses in the sides of the box revolving the rods i into position figure 8; the teeth of segment P having now become disengaged from the rack on the bottom of plates 9 9^1, the said plates are allowed to remain stationary in the fields of vision during a semi-revolution of shaft o. While this is taking place the toes g come again in contact with the arms h, and the fingers k are again thrown into position figure 1; by which means the plates are moved forward in the direction of arrows f, thereby again vacating the spaces S, &c.

The inventors say: We *claim* giving to the pictures of a stereoscope, or other analogous instrument, a panoramic motion into and out of the fields of vision by means of mechanism substantially as described, or by any other equivalent means.

No. 13,609.—Samuel S. Weed.—*Machine for Making Printers' Types.*—Patented September 25, 1855. (Plates, p. 316.)

This machine separates copper or other metal wires R into short pieces, and forges each with a body and a letter of right shape. The die L is for forming the letter on one end of the type, the die K forms the body, and the die M shapes the opposite end of the type. The receiving orifice N has the rod extended through it from the feeding mechanism; and during its movement it carries the rod against the edge of the body-die I, by which a blank will be severed from the rod, and crowded into the body-die. The lever R is connected to the arms pivoted to the dies K L, so that during the time that the dies K L are moved towards each other, the lever R will be moved so as to force the

type-rod inward between the dies, it being held to the lever by the nipper, which previously has been forced against it by the action of the outer shoulder U of the rod T, during the previous return movement of the lever R. During the forward movement of the lever R, the feeding nipper is carried against shoulder V, and moved out of contact with the type-rod, and so as to enable the lever to be moved backward without carrying the type-rod with it.

Claim.—For making type, the described combination and arrangement of the stationary body, or bed-die I, and bottoming-die M, and receiving orifice N.

Also, the combination of the feeding-lever R, the nipper S, and the rod T, provided with shoulders U V, as set forth, the whole being for the purpose of feeding the type-rod into the mechanism or its dies, as specified.

No. 13,710.—Wm. S. Loughborough.—*Machine for Composing and Setting Types.*—Patented October 23, 1855. (Plates, p. 317.)

Figure 1 represents a plan of the machine; figure 2, a transverse section; and figure 3, a perspective view. W is the composing-wheel on shaft A, inclining towards its centre, as seen at a^2 a^2; B, base-plate of the type-cells U. The column Z supports drum V, to which the base-plate is attached. A segment of B and V is removed from the front side, so as to bring the galley N up to wheel W. The bands F and E pass round the type-cells, which are constructed of thin sheet-metal, with an edge open as seen at U. Directly under each cell is a slide R, operating in a groove formed in the plate B; and each slide should be so fitted to its respective cell as to deliver but one type at once, which is done by making the blank elevation r of the slide to correspond to the thickness of the types in its cell, and the lower edge of the front-band F must also agree with the thickness of the types contained in the cell opposite each. A spring S extends from the ring A^1 to each slide, and these springs are distended when the slides are in their proper position, where they are retained by the detents w, until said detents are drawn out by touching the keys.

There are cam-grooves in the lower face of the composing-wheel W, seen in dotted lines at L and K, which open from and into its periphery, and receive the tooth o of the slide R.

The type-bearers, or transits, are constructed with two jaws I and H, the jaw H being constantly pressed out by spring b^1; but the stop J permits a change, as at the instant of delivering a type. There is a recess across the under side of H, through which I passes, and one shoulder of this recess limits the opening of I. The spring e^1 is constructed for the purpose of securing the opening or closing of the jaw I at either extreme. n is a tappet fixed to the jaw I, and hangs in the angle of the groove, which brings it in a line with the jaws of the transit and the slides R, and is drawn out by the tooth o bringing the jaw with it and closing it upon the type. The tappet m is fixed to the upper side of the same jaw, which opens it for the delivery of a type, by striking the adjuster k, which also changes the pressure of the spring e^1 to the

opposite bevel, and holds it open until the tooth of a slide shall close it again. The other jaw H is opened at the same instant by the adjuster *j* striking the tappet *v*. The cam *n* is turned upon its axis by the pressure from the tooth *o* as it passes out, and when thus turned it forces the slide back to its place. The bridge D is bolted to the base-plate B, and supports the vibrating lever G, which has a uniform vertical motion, received from the tappets T, the spring Y giving the counter motion, and as often as a transit passes the point of delivery, said point being at the guard-plate P. The spring s^1 keeps the lower face of the head *i* parallel with the types, as it presses them down into the line by forcing the point at the bottom against the plate Q, as seen in figure 2.

The bed-plate Q extends across the machine in front, and directly over the key-board C; it hangs on the pivots P^1, and is kept in its upright position by catches, which are withdrawn when the galley N is to be removed, when the bed-plate may be swung down to its horizontal position. The arm C^1 is connected with this plate, and supports the lining register *a*. The rod E^1 carries the index N^1 over the index-plate K^1. The spring B^1 is attached to cross-head *f* of register *a*. The camratch *b* is constructed, as seen in figure 2, so as to allow the register *a* to move down or recede, according to the thickness of each type deposited by the transits, but to prevent it from returning until the line shall be filled, when the point *c* strikes the ratch *b*, thus throwing spring *y* into the notch g^2, which holds it there until the bar *a* is thrown up by the spring B^1, which is done as soon as the galley N is moved forward, so as to clear the end of the bar *a* and the set-screw *e*, when the bar rises, strikes the ratch *b* and throws it back again, when the spring f^1, through the detent *g*, presses it down on to the bar. The lever O has a vertical and horizontal motion, and receives the strokes from the tappet *t* at H^1, and through said lever the change of the justifier M is gauged. The depressing-face of the tappets *t* throws the opposite end of lever O up immediately after making the horizontal change, when the tooth of the detent *g* catches under the projection J^1, thereby preventing another vibration until the next line shall be filled, when the arm *d* throws the detent *g* back, thus relieving the lever O, and the spring e^1 brings it up horizontally, and the tappet strikes the screw H^1, forcing it out from the shaft, and the opposite end of the lever carries the justifier M forward, and the depressing face of the tappet forces the lever back to its present position, where it is caught and held by the detent *g* as before shown.

The summary of the operation is as follows: When a key is touched, the detent *w* (by means of lever h^1 and spring g^1) is drawn out, and the tooth of the slide enters the groove K, and the type is delivered to the jaws of transit, when the discharge groove L and the cam *u* throw the slide R back to its place, and the type is conveyed to the point of delivery, where it is deposited in the angle of the line-register *a* and guard-plate P. The head *i* presses it down into the line, the bar *a* recedes according to its thickness, and so on, until the line is filled, when the galley is thrown forward by the justifier M, the depth of the line relieving the bar *a*, and it flies back to its place N^1 carrying the index up to the top of the plate K^1, ready to commence the next line. When the galley is filled it may be transferred, and when the cell is emptied it may be filled.

Claim.—1st. The presentation of the type-cells in the machine, those of each case in the front forming the arc or segment of a circle in the manner specified.

2d. The means above described, or their equivalents, which shall deliver the types from the various cells into the jaws of the transits, fixed to a wheel, or other rotary motion.

3d. The construction and application of the transits as described, or their equivalents, attached to a wheel or other rotary motion, for conveying the types from the slides, or their equivalents, to the galley or composing chamber.

4th. The combination of the lever G, head *i*, tappets T, and springs *y* and s^1, with the line-register *a* and its appurtenances. The lever O, rule or justifier M, detent *g*, and the index N^1, and index-plate K^1, whereby the operator is enabled, simply by touching the keys, to do the entire business of composing types, and without a transfer of each line separately.

No. 13,935.—DANIEL MOORE, assignor to GEORGE S. CAMERON, JAMES H. MCWILLIAMS, and HIMSELF.—*Improved Machine for Rubbing Types.*—Patented December 11, 1855. (Plates, p. 318.)

The nature of my invention consists in so constructing the parts that the types are taken one by one into a suitably constructed slice *i*, and carried with the letter-end first through between cutters *o* o^1, which remove the projection on the base of the letter and the burrs on the type, by cutting from the face of the letter down towards the base of the type; thereby the hair-lines cannot be broken, there being no cross-ways cut on the same. And the parts that act on the base are such as not to damage the type. The main vertical shaft *f* receives motion by means of horizontal shaft 1 and the cog-wheels *e* e^1. The slices *i i* are attached between the plate *g*, permanently secured to the shaft *f* and the movable cap *h*. The metallic box *k* is attached to the bed *c*, and the cutters *o* o^1 are adjusted by means of a set-screw *m* passing through the bridge *l* on said box.

The types are fed into the machine in the following manner: *p p* are slides receiving the ends of the follower-block *q*, that is drawn towards the centre of the machine by an India-rubber spring 7. 8 8 are slide-ways for the types, passing beneath the plate 9, which is adjustable by means of set-screw 10. To carry the types on the race-way *u*, the lifting-block 12 is fitted so as to slide up and down on screwed guide-rods 13, and is actuated by means of a cam *r* on the shaft 1, which causes the spring S to lift and momentarily retain the block 12 in its elevated position, after which the spring S draws said block 12 down again. *t* is a gauge-block, having fingers extending out on the level of the race-way *u* in slots therein, and said gauge *t* is attached by a set-screw 14, and the lifting-block 12 is formed with grooves receiving said gauge-fingers. These gauge-fingers *t* are to be so adjusted that the space between their ends and the end of the plate 9 shall be slightly

more than the width of the type to be rubbed, so that when the lifter 12 is depressed, the end type in the line will, by the follower *q*, be pressed up to these gauge-fingers *t*; and therefore when the lifter 12 is elevated, this one type only is raised to the surface of the race-way *u*, and the motions are so timed, that the lifter holds the type in that position until carried off by one of the slices *i*. The corners of the bottom of the slice are taken away, (as seen in fig. 2,) so that the power to force the type through the cutters is applied near the centre of the lower end of the type, at the point where the sprue is broken off, or at each side of said point, and where the groove is cut in the usual manner after the types are set up in a line; thus the corners on which the type stand remain untouched.

I *claim*, 1st. Constructing the slice *i* with openings to receive the type at such an angle, relatively with the direction which said slices move, that the cutters shall commence to act at the latter end of the type carried by said slices, and that the cutting operation shall tend to force the type into the bottom of said angle, and thereby retain the type in place in said slice, in the manner and for the purposes specified.

2d. I claim constructing the slice *i* in such a manner as at *v*, that the power to force the type in an end-ways direction, or nearly so, through the cutters, shall be applied to or near the middle of the bottom end of the type, in the manner as specified.

3d. I claim the follower *q*, slides 8, and holding-plate 9, to supply the machine with a line of type, in the manner as specified.

4th. I claim the lifter 12 combined with the gauge-fingers *t* and end of the plate 9, or other stop, for the purpose of elevating one type at a time, to be taken by the slices, as specified.

No. 13,878.—Matthias Keller.—*Improvement in Cutting the Fronts and Backs of Violins.*—Patented December 4, 1855. (Plates, p. 318.)

The nature of this improvement will be understood from the claims and engravings.

Claim.—1st. The slides B and C, with the pattern M and lever K in combination with the connexions I and J, lever G, and spindle F, with its cutter *i*, the whole being arranged and constructed substantially in the manner set forth, for the purpose of forming any number of exactly similar backs and fronts of violins from one pattern.

2d. The supplementary lever Q, with its connexions R, S, and J, in combination with the levers K and G and slot *k*, for the purpose of forming the concave sides of backs and fronts of violins without changing the pattern used for forming the convex sides, and for the purpose of giving the said backs and fronts a gradual and correct tapering thickness.

No. 12,502.—James M. Bottum.—*Polishing Apparatus for Watch-Makers' Lathes.*—Patented March 13, 1855. (Plates, p. 318.)

The polishing-wheel J is adjusted by unscrewing the screws F and F[1]; then, while it moves freely in any direction, bringing it up to the work, and tightening the two screws

Claim.—The application of the polishing spindle to the lathe, in such a manner that it has a universal movement, substantially as described, for the purpose of adjusting the polishing-wheel to surfaces of various forms.

No. 12,538.—Elihu Bliss.—*Improved Swivel for Watch-Chains.*—Patented March 20, 1855. (Plates, p. 318.)

The ends of the two pieces of the loop are matched exactly together, (as seen at *h*,) so that they set together the same as if the loop had been made whole in one piece, and had been cut in two at the joint; they are fastened together by pivot *f*. When the loop is opened, the loose side turns over sideways into position represented in the engraving in full lines.

Claim.—The specific arrangement of the joint of the swivel, in the manner and for the purpose substantially as set forth.

XIX.—FIRE-ARMS.

No. 12,411.—John S. Keith and John Brooks.—*Improved Bullet-Mould.*—Patented February 20, 1855. (Plates, p. 319.)

The object of chamber C and tube F is to allow the molten metal to pass down into chamber C, and from thence to flow up through the several matrices, (which communicate with each other by means of their holes *c*,) and drive the air that is in them before it and into the chamber H, from whence it will escape through *f*. The space H receives the metal from the several holes *c* of the upper set of matrices, and holds a surplus of it sufficient to supply what metal may be needed in the several matrices during the time of its passing from a molten to a solid state therein, it being subject to contraction at such time. By making the thickness of the mould-plate equal to the radius of the matrix, the outer surface of each of the mould-plates becomes tangential to the matrices thereof, and so that when the lead or molten metal in contact with it is removed, the balls are left in the matrices, and without any sprues or projections. By passing a knife between the outer surface of a mould-plate and the lead adhering thereto, such lead may readily be separated from the balls so as to leave them in a fit state for use.

Claim.—Combining with the mould-plates A and B the air and lead chambers C and H, the passages *c c*, and a tube F leading out of the chamber C and terminating above the level of the receiving space above the upper mould-plate; the object of the said chambers G and H connected with the several matrices, as described, being as herein before specified.

Also, the arrangement of the outer surface of either of the mould-plates tangentially to the spherical or adjacent surfaces of its several matrices, or so that after the mould has been filled with metal, and the sheet of metal against the tangential surface removed therefrom, the balls shall be left for all practical purposes without sprues, or in a state fit for use, as specified.

Also, arranging two or more sets of mould-plates and their matrices together, so that the matrices of each set shall be made to respectively communicate with those of another set placed either above or below it, as specified.

No. 12,774.—William Ashton.—*Improved Bullet-Mould.*—Patented May 1, 1855. (Plates, p. 319.)

The nature of this improvement consists in forming the mould with a movable core, whereby hollow or Minie bullets are to be cast with facility and perfection.

Claim.—Constructing the mould as herein shown and described, viz: Having a conical aperture *a* made in a piece of metal, and having a projection or core E and flanch *d* attached to a metal strip D, which is secured to the shank or handle C of the mould by a pivot *c*, so that said projection or core may be inserted in and withdrawn from the aperture *a*, as herein shown and described.

No. 12,295.—Samuel Huffman, assignor to Himself and Dennis O. Hare.—*Improvement in Repeating-Cannon.*—Patented January 23, 1855. (Plates, p. 319.)

The circular flange *n* surrounding the ring *m*, is intended to relieve the pin *e* from any undue strain from the recoil of the gun when discharged. The revolving table *d* is kept in proper positions by a spring-pawl *v*, which catches into notches in the table exactly under the centre lines of the sections *f*. Rack and pinion *l g* serve to move the forward section *c* back, and its flange *h* over the bevelled front end of section *f*, until the flange *h* abuts against the flange *g* on section *f*. The water-jacket a^2 serves to keep the gun cool in rapid firing. The vent-closer, figures 3 and 4, is secured upon the gun in any manner, and consists of a cylinder a^1 fitting truly in a lower bearing b^1, and pressed down thereon by caps c^1. A vertical projection d^1 from the cylinder forms the nipple; and a hole bored down through it, the cylinder, and the bearing b^1 to the chamber of the gun, forms the vent. A lateral projection e^1 is a stop to prevent the tube from going beyond the perpendicular in one direction, while it is free to move about one-fourth of a circle in the other, when the crank-handle g^1 is elevated. In this position the upper portion of the bore is placed at right-angles with the lower portion, thus cutting off the communication effectually without the use of the thumb, which usual mode of stopping the vent would be impracticable with the revolving sections.

Claim.—1st. The movable forward section *c*, with its flange *g*, in combination with the revolving rear sections *f*, secured to the plate *d*, constructed and arranged substantially as described, and for the purposes specified.

2d. The flange *n*, in combination with the projection *m* on the plate substantially as described, and for the purpose specified.

3d. The jacket or cold-water tank a^2, substantially as described, and for the purpose specified.

4th. The vent-closer, constructed and arranged substantially as described, and for the purpose specified.

No. 12,629.—Luther Houghton.—*Improved Mode of Loading Rifled Cannon.*—Patented April 3, 1855. (Plates, p. 319.)

At the moment of explosion the force of the expansive gases will, by acting on the base of the sabot S, drive it forward on the butt of the ball A, and into the grooves of the gun.

Figure 1 represents the ball and sabot before the explosion takes place, and figure 2 represents them at the moment of the explosion.

The inventor says: Disclaiming the sabot as now used, I *claim*, for loading rifled or grooved cannon, the employment of a deep sabot at the base of the projectile, so as to be driven thereon and into the grooves of the gun at the moment of discharge, for rendering said grooves effective in producing the rotation of the projectile, as specified.

No. 13,851.—Alfred Krupp.—*Improvement in Cannon.*—Patented November 27, 1855. (Plates, p. 319.)

These cannon are made of solid pieces of cast-steel shaped on the outside under the hammer, and finished by being turned in a lathe. The cannon is bored by placing it in a lathe in the usual manner.

The gun A, of cast-steel, may be surrounded by a casing B of cast-steel or gun-metal, to give the necessary weight. When either the gun or the casing has become injured or unfit for further use, the gun can be taken out by removing screw D, pin F, and vent C, and the defective piece replaced by a fresh one.

Claim.—1st. The manufacture of cannon from solid pieces of cast-steel, as described.

2d. The surrounding of cannon and other parts of artillery, when made of cast-steel, with an outer casing of cast-iron, steel, or wrought-iron, or gun-metal, in the manner and for the purposes described and represented.

No. 13,927.—Daniel Treadwell.—*Improved Manufacture of Cannon.*—Patented December 11, 1855. (Plates, p. 319.)

The inventor says: I do not claim using hoops generally in making cannon, as the earliest cannon known were formed in part by hoops brazed upon them; but my invention consists in constructing cannon with hoops around, and shrunk upon, a body in which the calibre is formed in the manner described. (See engraving.)

No. 13,984.—John Griffen.—*Improved Manufacture of Wrought-Iron Cannon.*—Patented December 25, 1855. (Plates, p. 319.)

Figure 1, mandrel on which the pile is to be formed; figure 2, mandrel with the two end rings fitted to it; figure 3 shows a series of longitudinal bars arranged around the mandrel to form the bore of the cannon; figure 4 shows the pile, consisting of a series of iron bands wrapped spirally around the central bars; figure 5 shows the pile turned off at its end, and having a plug M inserted to form the breech; figure 6, section of it.

The inventor says: Having discovered that the mode of preparing the pile or faggot, described in my specification, is specially adapted to being welded under the rollers, and that welding such a prepared mass by means of rolling is entirely practicable, and will secure a more homogeneous and perfect union of the parts without weakening or rupturing the fibre, I do not desire to claim the described mode of preparing the pile or faggot, when the faggot so prepared is welded by blows or under the hammer.

But I *claim* the manufacture of wrought-iron cannon, by forming the faggot or pile of longitudinal bars surrounded by a series of bands of iron, and then welding together the whole mass by passing it between rollers.

No. 12,545.—Abbot R. Davis.—*Improved Shot-Cartridge.*—Patented March 20, 1855. (Plates, p. 319.)

The shot is mixed with wet clay or other plastic material, that when dry will readily crumble apart, using no more of such than will be sufficient to fill the cavities between the shot when in close contact. The mixture is rolled into balls or cylinders, and these are then rolled in contact with fibrous material, so as to form a coating which will serve as wadding.

The inventor says: I am aware that a shot-cartridge has been, with a woven wire frame, filled with shot and loose sand, and covered by paper pasted around it; I therefore do not claim such a mode of making a cartridge. But I *claim* an improved shot-cartridge, made by mixing the shot in a plastic material or compound, of the character described, subsequently reducing the mass to the shape required for the cartridge, and covering its external surface with fibres of wool, or other material, belted or applied thereto substantially as specified.

No. 12,556.—Abner N. Newton.—*Improvement in Cartridges.*—Patented March 20, 1855. (Plates, p. 319.)

The percussion powder is arranged on the end of a metallic rod *a* the other end of the rod being attached centrally to the base or rear end of the ball or cartridge; the percussion being thus arranged, secures certainty in the explosion when struck by the hammer, or its equivalent.

Claim.—The arrangement of the percussion priming with a metallic rod, in the manner specified, whereby said priming is ignited within the chamber of the gun between the ends of two metallic rods, as set forth.

No. 12,942.—Chas. F. Brown.—*Improvement in Cartridges.*—Patented May 29, 1855. (Plates, p. 319.)

By giving the ends of the case a hemispherical or similar form when the explosion takes place, they will be caused to expand in such form (see fig. 2) as to fill the bore of the piece tightly.

The water-chamber in rear of the case will be burst by the explosion of the charge, and the water will serve to cool the breech and prevent the escape of fire at the breech and the consequent loss of force.

Claim—1st. Making the ends of the metal cartridge-case of hemispherical or other convex form, substantially as and for the purpose herein set forth.

2d. Providing a water-chamber S in the rear end of the cartridge-case, to be filled with water previously to the insertion of the cartridge in the gun, substantially as and for the purpose set forth.

No. 12,189.—Joshua Stevens, assignor to the Massachusetts Arms Company.—*Improvement in Repeating Fire-Arms.*—Patented January 2, 1855. (Plates, p. 320.)

The hammer B is provided with a small notch *a* for the catch part *b* of the trigger to take into, in order to set said hammer to a full cock. By the side of the hammer is a tumbler O, which rotates freely on the same axle N as the hammer, and is moved thereon by means of an arm *d* projecting from trigger C, and made to work into notch *e* of the tumbler. To this tumbler the turning-lever L is jointed, fitting into a recess *f* which is formed in the tumbler, and is provided with a bearer *x* against which lever L rests, so that it may be elevated by the tumbler. The spring *g* presses down the front end of said lever. The tumbler has also a notch *h* and a cam-surface *i* for the purpose of operating upon and withdrawing the bolt M, which for this purpose is provided with a tail-hook *r*; the said bolt being moved forward by spring P. During the rotation of the tumbler by the trigger, the bolt will be withdrawn until the cam *i* shall force the hook *r* above the notch *h*, when the spring P will move the bolt forward. The rear end of the cylinder is formed with locking recesses and a ratchet or turning-cams such as usually employed. During the reciprocating rotary movement of the tumbler (caused by the action of trigger C and spring H) the turning-lever L will be moved forward and upward against the bearing face of a tooth of the ratchet, and be subsequently drawn backward away from the ratchet, while the spring *g* will force it downward so as to cause it to pass over the next succeeding tooth of the ratchet. While being moved by the tumbler, the bearer *x* comes in contact with the turning-lever, and forces it upward. From the rear side of the hammer there projects a cam-pin *w*, which, while the hammer is descending, elevates the tail-hook *r* above the notch *h*, so that the notch

may pass by and not act on the hook, in case the movement of the trigger should be too rapid to give the proper time for the rotation of the cylinder. During the next backward pull, then, of the trigger, the hammer being down upon the nipple, the notch *h* will again act on the hook and withdraw the bolt, so as to allow the cylinder to be revolved.

The advantage of the above-described arrangement of the turning-level L is that there is no tendency to press the cylinder longitudinally against the barrel or its front support, which often attends the application of the usual springs or pawls, and produces considerable friction.

The inventor says: I *claim* so combining the trigger, the hammer, and the mechanism for rotating the cylinder, that, by a single pull on and during the back movement of the trigger, the hammer shall be discharged or set free from the trigger, (so as to fall on the nipple when the touch-hole of one charge-chamber of the cylinder is in connexion with it,) and the cylinder subsequently rotated, so as to bring up to the percussion-nipple, or its equivalent, the touch-hole of the next chamber of the series thereof. And in combination with the mechanism for turning the cylinder, and that for locking and unlocking it, I claim a cam-pin, (projecting from the hammer,) or its equivalent, for preventing the cylinder from being unlocked, or for locking it in case the movement of the trigger is so rapid as to render the cylinder liable to be rotated before the charge fired by the action of the hammer has left its chamber.

I do not claim jointing an impelling pawl directly to the lower part of a percussion-hammer, so that, by the reciprocating rotary movement of the hammer, the said pawl may be moved against and drawn away from the ratchet of the revolving cylinder; nor do I claim jointing a lever directly to the trigger, so that, by the movement of the trigger, such lever may be moved against one tooth of the ratchet or drawn back over the next succeeding tooth and against a spring acting upon the rear end of the lever.

But I do *claim* the hereinbefore described and represented arrangement and combination of the trigger and its spring, a rotary tumbler separate from the trigger and moving on a separate pin or fulcrum, a turning mechanism of the cylinder, and the locking and unlocking mechanism thereof; by which arrangement and combination, during and by a back and forward movement of the trigger, the cylinder will be locked or unlocked, and have an intermittent rotary motion imparted to it, and the cock or percussion-hammer be actuated essentially as specified.

Also, the bearer *x*, or its equivalent, in combination with the turning-lever L, and the part or tumbler to which it is connected or jointed, and by which motion is imparted to the said turning-lever, as specified; this combination attaining an important advantage, as hereinbefore explained.

No. 12,230.—Thos. H. Barlow.—*Improvement in Fire-Arms.*—Patented January 16, 1855. (Plates, p. 320.)

The engravings, in combination with the claim, fully explain the nature of this invention.

Claim.—1st. Constructing the chamber of the cannon nearly square and winding, so as to give the projectile the motion and accuracy of the rifle-ball.

No. 12,235.—Edmund H. Graham.—*Improvement in Fire-Arms.*—Patented January 16, 1855. (Plates, p. 320.)

The short barrels *e* which receive the charge are hinged by pivots to a horizontal and cylindrical revolving plate *g*. The barrels hang all in a vertical position; the one opposite to the gun-barrel *d* is raised by bringing the lever *m n* from position figure 4 into position figure 1. This motion at the same time cocks the gun, by means of the arm *n* pressing against the cam projection *p* of the sliding-bar *q q*, to which the hammer *l* is attached. The projection *r* of this bar abuts against a notched pawl *s*, upon which a spring *t* presses. The bar is forced back until a notch in the same passes beyond the pawl *u* of trigger *v*, when pawl *u* is forced into the notch of the bar by a spring *w*, and thereby holds it and the hammer ready for action. The plate *g* is revolved by means of the knob and pin *x*, which catches into notches on the upper surface of the plate. The plate, together with the barrels, can be removed (by unscrewing cover *h*) for the purpose of charging the barrels. By this arrangement each of the barrels *e* is, at the moment of firing, removed a long distance from the remaining tubes, being in a horizontal position, while the others hang down; and hence the fire cannot be communicated from the tube discharged to the others.

Claim.—So attaching the tubes or short barrels, in which the charges are placed to a revolving plate, as to admit of their being separately and successively elevated into a horizontal position, in a line with and so as to form a continuation of the gun-barrel, while the others retain a vertical position as set forth, and for the purposes specified; also, the lever *m n*, arranged and operating as described, for elevating and lowering the tubes which hold the charges, and for cocking the gun, as set forth.

No. 12,244.—Alonzo D. Perry.—*Improvement in Fire-Arms.*—Patented January 16, 1855. (Plates, p. 320.)

To insure the forcing of the cap down on the nipple, the rear part of the chamber, along the path of the nipple, is made in the form of an eccentric plane *w*, against which the top of the cap rubs, and by which it is forced down on the nipple.

Claim.—The arrangement of the tube in the stock for containing the caps, and a spring to force them forward in a line radiating from the axis of motion of the turning-breech, and placing the nipple also in a line radiating from the axis of motion of the breech, so that, when the breech is opened to receive a charge, the nipple will be brought into the same radial line with the cap-tube, so that the same spring which forces the caps forward in the tube may also force one of them upon the nipple, thus simplifying the mechanism for automatic capping; also, the use of an eccentric or its equivalent, as specified, in combination

with the capping-tube and nipple on the movable breech, as specified, for the purpose of forcing the caps to their proper place on the nipple as the breech is brought in line for the discharge, as specified; also, pivoting the trigger *k* to the lever *h* for operating the breech, as described, so that the trigger shall be carried in and out by said lever, and shall not be brought into a position to act upon the lock until the breech is in a line with the barrel, as set forth.

No. 12,328.—ALEXANDER O. H. P. SEHORN.—*Improvement in Portable Fire-Arms.*—Patented January 30, 1855. (Plates, p. 321.)

When the box B is within the cylinder *p*, the stud *t* of the hammer *m* enters the opening *r* in spring s^1, so that, as the box B is drawn from the receptacle, the cheeks *e* and *f* move forward and leave the hammer held by said spring s^1, the stud t^1 entering the opening r^1 in spring *s*, when the box moves sufficiently far forward, and resisting the spring *l*. A pressure on lever *q* depresses the spring s^1, releasing the hammer *m*, which flies forward and discharges the load. By lifting spring *s* from stud t^1 the box B is moved back; the stud *t* engages spring s^1, and, if the load be ready, the arm is prepared for a new discharge. C H is the handle of a cane enclosing the whole apparatus.

Claim.—The combination of the box, springs *s* and s^1, coiled spring *l*, hammer *m*, and casing *p*, constructed, arranged, and operating as set forth, when used in connexion with an external case C H, for the purposes specified.

No. 12,440.—DANL. B. NEAL.—*Improvement in Repeating Single-Barrelled Fire-Arms.*—Patented February 27, 1855. (Plates, p. 321.)

The rod F is fitted into the stock close to the under side of the barrel, and has a mortise in each end: one at *o* receives the tenon of lever E; the other at *s* receives the tenon of the trigger G, which trigger G is used only for throwing the false hammer D forward. Two charges being inserted, both cones capped, and the false hammer placed on the front cone, the front charge is fired in the usual manner; after this the finger remains in the guard, and the hammer C is again cocked with the thumb of the hand used on the trigger, at the same time the finger presses forward against the front trigger G, which will throw the false hammer forward, so that the back charge may be instantly fired.

The inventor says: I *claim*, 1st. The combination of the elongated hammer with the false hammer, arranged as described.

2d. The arrangement of the lever E and rod F for throwing the false hammer forward, substantially as set forth.

And I hereby disclaim the original invention of the double-shooting one-barrel fire-arms, and of all and singular the parts and the combination and arrangement of the parts thereof, except the arrangement and the combination of the parts merely which I before claim.

No. 12,470.—JEHU HOLLINGSWORTH and RALPH S. MERSHON.—*Improvement in Fire-Arms.*—Patented February 27, 1855; patented in England August 1, 1854. (Plates, p. 321.)

In loading this arm, after the catch G is raised up, the chamber C and scape-wheel E are slipped forward on the spindle just far enough to release said scape-wheel from the anchor, and then the two (for they are connected together) are free to be turned round so as to meet the ramrod J and be charged; whilst the chambers and scape-wheel are thus run forward, the nipples can be capped; and when returned, the catch put down, and the handle turned to coil the spring, the fire-arm is ready for its series of discharges. On the rear of the scape-wheel E is a series of cam-planes *m* corresponding to the number of chambers in the revolving breech. Against these planes the end of bolt *n* works as follows: When the breech-piece or chamber is released, by means of the anchor and trigger, in turning, one of the planes *m* pushes back the bolt *n*, and brings a shoulder *o* on said bolt against the hammer D, pushing back or cocking said hammer, and in the act of cocking it compresses a spring *s*, the point of which presses against the arm *p* of said hammer, and in this position the arm stands after each discharge, it being caught by the anchor and escapement. Now, by pressing the trigger the anchor is released, the scape-wheel makes another partial rotation, bringing the nipple to the exact spot for receiving the blow of the hammer, and simultaneously letting off the hammer, which carries forward with it the bolt *n* for the next repeated discharge. It is, therefore, (after the arm is loaded and the reservoir of power filled,) but the simple act of pressing the trigger that cocks, rotates, and discharges the fire-arm, so that the whole series of discharges may be let off without taking down the arm. A more detailed description would take up too much room.

Fig. 2 is a section through 2 2; fig. 3, through 3 3; fig. 4, through 4 4; fig. 5, rear view of stock and spring box.

The inventors say: We do not claim a reservoir of power, simply for rotating the breach, as that has heretofore been done; but we *claim*, 1st. The application of a reservoir A of power to the rotating of the cylinder or breech C, in combination with the cocking and releasing of the hammer D in concert, so as to produce two or more discharges from a repeating fire-arm without replenishing said reservoir of power, substantially as described.

We also claim combining a reservoir of power with a rotating toothed scape-wheel E, anchor K, and trigger F, in such a manner that at each periodical releasement of said scape-wheel, by the operation of the trigger and anchor, or anchor escapement, the reservoir of power will rotate the chambered breech to the required distance, and simultaneously trip an independent hammer, substantially as described.

We also claim so combining a rotating chambered breech with a reservoir of power and cock or hammer, as that by the periodical releasement of said reservoir, by means of the scape-wheel, trigger, and anchor escapement, said chambers shall be caused to rotate to their required distance, and meet the blow of the hammer at the exact

instant that each chamber in succession comes opposite the barrel, substantially as described.

We also claim combining a reservoir of power with an independent cock or hammer, so that, by the periodical releasement of said reservoir of power, said hammer shall be tripped at the exact moment that each chamber of the series comes opposite the barrel, substantially as described.

We also claim so combining the stock with the frame, as that by turning said stock a spring or springs shall be wound up, which shall be capable of actuating the fire-arm for a series of discharges, substantially as described.

We also claim the peculiar form of guard M, or protection to the hand on which the fire-arm may be supported, so as to guard the hand from any accidental discharge of the chambers when not opposite the barrel, while said accidental discharge may escape from the fire-arm without detriment to the user, substantially as set forth.

We also claim the conical plate *j* and ring *i*' as a means by which the stock and spring box are united to the frame so as to make a firm connexion, and at the same time allow the one to be turned upon the other for the purpose of coiling up or compressing the spring, substantially as described.

No. 12,471.—Ralph S. Mershon and Jehu Hollingsworth.—*Improvement in Repeating Fire-Arms.*—Patented February 27, 1855; patented in England August 1, 1854. (Plates, p. 321.)

When the barrel C is swung back around its fulcrum *a*, the cam projection *b* will strike the screw nut H, and (the nut being prevented from turning round by moving between guides) move the nut along on screw-shaft I, thereby compressing spring J, the compressed spring then forming the reservoir of power for discharging successively all the chambers. One end of I turns on a journal in frame F; to its other end is attached the toothed wheel *c*. Shaft I projects forward of wheel *c*, and forms the spindle upon which the revolving chambers B turn. Its front end is embraced by the latch E. A pin *e* on the toothed wheel projects into a hole in the rear of the breech-piece B, thereby securing its revolution together with the said wheel. By pulling trigger D, arm *i* of lever L recedes from between the teeth of wheel *c*, thereby allowing the rod I to be revolved by the action of spring J and nut H. At the time *i* recedes, the arm *f* of lever L enters between the nipples *s*, the uppermost nipple (the breech-piece revolving together with the screw-rod and wheel) strikes against the arm *f*, thereby exploding the cap and discharging the chamber. The screw-rod is of sufficient length and the spring of sufficient power to revolve and discharge all the chambers without recocking the arm.

Claim.—1st. A reservoir of power capable of discharging two or more barrels or chambers of a repeating fire-arm, substantially as described.

Also, exploding the cap, or similar percussion priming for discharging the chambers, by means of the blow caused by the rotation of the chambers or barrels, bringing each nipple or cap in succession against a vibrating arm, or its equivalent, thus causing said rotation to perform the ordinary function of a cock or hammer, substantially as described.

Also, so hinging the barrel or frame which supports it to the stock, as that when said barrel is swung back or forward, either for removing or recharging the chambers, it will contract the spring to supply a reservoir of power capable of discharging two or more chambers or barrels successively without recocking or recharging at each discharge, substantially as described.

No. 12,528.—Rollin White.—*Improvement in Breech-Loading Fire-Arms.*—Patented March 13, 1855. (Plates, p. 321.)

The engravings fully explain the nature of this improvement.

Claim.—The connection of the breech with the hammer in such a manner that it may be withdrawn to open the chamber to receive the charge by the act of cocking the hammer, and replaced to close the chamber by the falling of the hammer, when the latter is set free to explode the charge, substantially as set forth.

No. 12,529.—Rollin White.—*Improvement in Breech-Loading Fire-Arms.*—Patented March 13, 1855. (Plates, p. 322.)

When the piece has just received its charge, the hammer being down and the breech withdrawn, (see fig. 2,) the raising of the trigger-guard to close the chamber will cause the tooth D to throw back the tumbler and hammer; and when these are thrown back, (see fig. 1,) their return is prevented by reason of the tooth D standing nearly at right-angles to the line of movement of the breech, and thus locking them. The drawing of the trigger moves the sliding-piece *d* upwards, and lifts the tooth D from the sere, thus setting free the hammer to cause the explosion. Near the termination of the descent of the hammer, the sliding-piece *d* comes in contact with pin *e*, and is thereby thrown back to be operative for the next discharge. Pin *e* also serves the purpose of preventing the hammer descending further than is desirable after the withdrawal of the breech for the next charge, by catching sere *b*. When the discharge is not to be immediately repeated, the cocking of the hammer (by the replacement of the breech to close the chamber) is prevented by throwing back eccentric *f* to keep tooth D disengaged from the sere. The hammer may be then cocked by hand. The eccentric *f* is controlled by a small crank outside the stock not shown in the engravings).

Claim.—1st. The connection of the breech or breech-piece with the hammer in such manner that the latter may be cocked by the act of moving the former into its place to close the chamber, substantially as set forth.

2d. The peculiar manner of effecting the cocking and setting force of the hammer by means of the spring-tooth D attached to the breech or breech-piece, and the sliding-piece *d*, working in the tumbler to be acted upon by the trigger for the purpose of disengaging the said tooth, substantially as set forth.

3d. The employment of a crank or eccentric *f*, arranged and operating substantially as described, for the purpose of disengaging the tooth D from the tumbler, and thereby disconnecting the hammer from the breech or breech-piece, when the immediate repetition of the discharge is not desired.

No. 12,555.—Frederick Newbury.—*Improvement in Fire-Arms.*—Patented March 20, 1855. (Plates, p. 322.)

On the front face of ratchet-plate R P (but not shown in the figures) is a slot part of an arc to receive pin 5 which projects from the rear of cylinder C, the slot being just long enough to permit the cylinder to revolve so far as to bring two chambers in succession in line with the barrel. When the trigger T is operated, its upper cam end will elevate lever R L, (pivoted in *l*,) and thereby raise pawl R K and operate the ratchet-plate (the upper end of the pawl projecting and working through a slot in face-plate F P). One of the stop-levers is shown behind the other in the figure, with a small part S K projecting downward, and has just above this projection, on its upper edge, a stop-catch, which, when the loaded cylinder is first put on, is pressed up into a cavity cut for the purpose in the cylinder, the proper position for the cylinder being indicated by a stop-pin marked S P, which pin must rest against the right-hand side of the stock. When in this position the pin 5 will be on the left-hand corner of its slot. On drawing the trigger for the first fire, the lever R L causes the ratchet-plate to revolve (the cylinder being six-chambered) one-sixth of a revolution; but as the pin 5 is acting in a slot for that distance, the movement of the plate R P does not carry with it the cylinder, whose first chamber remains in line with the barrel as placed. At the moment of discharge the end of lever R L touches the stop-lever S K and throws the catch out of its notch, leaving the cylinder free to turn till every chamber has been fired and the stop-pin strikes the left-hand side of the stock. The second stop-lever C L has a similar projecting catch, which enters into cavities on the surface of the cylinder, (it being held up by a spring,) so that at the moment of firing the pawl holds it firmly in one direction and the lever C L in the other. The lever is discharged from its hold by the pressure of the front end of the lever R L just as the pawl begins to act upon the ratchet-plate. A notch on the rear of the hammer and of the tumbler M L lies against the spring M S, which operates the hammer so that the drawing of the trigger pressing the tumbler down relieves the hammer from the pressure of the spring which holds it down against the cylinder. The spring presses against the hammer as well as against the tumbler, and the hammer moves round independently of the tumbler, on a common axis. The cocking-spring C S has just sufficient power to keep the hammer pressed against spring M S. The hammer lies flush with the outer surface of the stock, so that the pistol cannot be discharged by reason of an accidental catching of the projecting hammer, as heretofore in use. The hammer, when down, being near to a horizontal line, has forced the cylinder slightly forward, and presses it against the barrel.

Claim.—The ratchet-plate, with its ratchet indentations and its slot, in combination with the pin by which it connects with the cylinder.

Also, the two stop-levers below the cylinder to regulate and secure the connection between the chambers of the cylinder and the barrel, substantially as set forth.

Also, the arrangement and combination of the tumbler with the hammer and cocking-spring, to enable the hammer to act independently of the tumbler in the act of firing.

Also, the arrangement of the hammer to lie within the stock and to act in such line of direction upon the nippers as to press and hold the cylinder firmly against the barrel in the act of firing; the whole substantially as set forth.

Also, the arrangement of the apparatus for disengaging and attaching the barrel with the cylinder to the stock, viz: the thumb connecting plate T P or detent with the spring S to hold it in place, and the notch *n* in the mandrel to receive the detent, substantially as set forth. (See engraving.)

No. 12,567.—Alexander T. Watson.—*Improvement in Breech-Loading Fire-Arms.*—Patented March 20, 1855. (Plates, p. 322.)

The magazine being filled with cartridges, (see figure,) and the breech-piece L being raised by means of handle M, the first cartridge is drawn forward through cylinder G into its place in the chamber of the barrel, by means of a string, which, however, is only necessary on the first charging of the gun. Any further supply of cartridges can be hooked to the loop *y* on the last cartridge of this series. The first cartridge 1 thus drawn into its place, the breech-piece L (the hand being removed) is pressed upon the end of the cartridge by means of spring *q*. Cylinder G, with its attachment below, is drawn back by the finger in the ring *k*, which also forces down the long end of lever H, taking off the pressure of plate *l*, and leaving cylinder G to pass freely backwards and on to the next cartridge 3 (the rear end of the cylinder being bell-mouthed for the purpose). Ring *k* is then released and plate *l* is pressed (by spring *i*) on the cartridge to hold it firmly, while the cylinder and cartridge within it is pressed forward by the action of spring K. The breech-piece is then forcibly shut down, cutting off the end of cartridge 1 and the connecting-string of cartridge 2. These pieces are pushed out through the opening below by the action of the part *m* of the breech-piece.

The touch-hole *r* passes through the breech-piece, ending in the centre of cavity *o*, directly at the bottom of the chamber. By the circular shape given to the breech-piece and its slot, it can be made so as always to press forward against the base of the barrel, thereby constituting a firm and tight breech-piece.

Claim.—The mechanical combination and arrangement of the cylinder G, the bent lever H, and the forked standard j^1 j^1, acted upon by the rod J and spiral spring K; also the spring *i i*, by which J being drawn back, the cartridge, constructed and arranged as described, is released from the pressure of *l*, and the cylinder is made to pass over

the next succeeding cartridge, and the pressure of the finger being removed from J, the cartridge is firmly griped by *l*, and carried forward towards the chamber by the action of K and J, pushing before it also the next preceding cartridge ready to be deposited in the chamber upon the raising of the breech-piece; which operation being repeated after each discharge, in connexion with raising the breech-piece, secures a measured supply of charges from the magazine in the stock to the chamber, to an extent and with a facility not heretofore attained in breech-loading fire-arms.

Also, the breech-piece of a segment of a circle, having the concave space *o* for the bottom of the chamber, with its central point of depression in the line of the axis of the barrel.

Also, the forming the lower end of the breech-piece into two cutters—one front, the other back—with the rounded swell *m* between, operating as well to hold the cartridge in its place, as to cut off the end and remove the parts thus cut off, as described.

No. 12,638.—Rollin White.—*Improvement in Breech-Loading Fire-Arms.*—Patented April 3, 1855. (Plates, p. 322.)

A is the sliding-breech, with the tumbler *a* and sere *e*. The breech carries a nipple at *i*, which, by striking against the projection *j*, explodes the cap. The cartridge is placed upon a hinged plate B, forming a seat for it; and when the breech is raised, the plate (being sufficiently elastic) is pressed down by the cartridge with the fingers, in loading, far enough into the breech-space to enable the cartridge to be pushed from it by the fingers into the chamber. When the cartridge is in the chamber, and the fingers are removed, the plate, by its elasticity, stands across the rear of the chamber, (see full lines in figure 3,) and thus prevents the cartridge from falling out at the rear of the chamber. The breech is chamfered out on one side, so as to push the plate aside when it (the breech) is falling (see dotted lines, figure 3).

Claim.—1st. The application of the sliding-breech to operate in connexion with the trigger, through a tumbler, as described, in substantially the same manner as the hammer in ordinary fire-arms; thereby making the breech serve not only its proper purpose of closing the rear of the chamber, but as the hammer for effecting the explosion of the charge, as set forth.

2d. The spring-plate B, applied substantially as described, to serve as a guide to conduct the cartridge into the open chamber, and as a guard to prevent the cartridge from falling out at the rear of the chamber before the breech is liberated, as set forth.

No. 12,648.—Rollin White.—*Improvement in Repeating Fire-Arms.*—Patented April 3, 1855. (Plates, p. 323.)

The nature of this invention will be fully understood from the claims and accompanying engravings.

I *claim*, 1st. Extending the chambers *a a* of the rotating cylinder A right through the rear of the said cylinder, for the purpose of enabling

the said chambers to be charged at the rear, either by hand or by a self-acting charger, substantially as described.

2d. The application of a guard to cover the front of all the chambers of the cylinder which are not in line with the barrel, or any number thereof which may have been loaded, combined with the provision of a proper space for the lateral escape of the exploded powder, substantially as described, whether the said space be between the cylinder and guard, or in rear of the cylinder, and whether the said guard be constructed with a recess to receive the balls, or be of such form as merely to stop the balls.

3d. Combining a charging piston G with the hammer, by means of gearing substantially as described, or by the equivalent thereof, in such a manner that, by raising the hammer to cock the lock, the piston is moved towards the chambered cylinder to force a cartridge from the magazine into one of the chambers thereof, and by the falling of the hammer the piston is withdrawn to allow a new cartridge to be supplied ready to be driven into the next chamber of the cylinder, as the hammer is again raised to cock the piece, as fully set forth.

4th. Furnishing the hammer with an attachment *m*, by which, in the act of falling, it may close the mouth of the magazine, substantially as described, before exploding the priming, and thus protect the charges within the magazine from ignition.

No. 12,649.—Rollin White.—*Improved Repeating Fire-Arm.*—Patented April 3, 1855. (Plates, p. 323.)

The cartridges are placed in magazine D, parallel with the barrel, and one upon another. The magazine opens at the bottom into charging-tube C, which stands parallel to the barrel, in such a position that one chamber of the cylinder is opposite to it when another is opposite the barrel. The charging-piston E is attached by a link *b* to lever F. When this lever is thrown forward, (by means of gearing G *g*,) a cartridge drops into the tube; and when the lever is pulled down, it drives the piston forward and the cartridge into the chamber. When F is thrown up to draw back the piston, the tooth *d* engages with a tooth *f*, and rotates the cylinder so as to bring opposite the barrel a chamber previously charged. As rack-rod *g* is moved back, tooth *k* engages with a tooth *l*, and raises the hammer till trigger *m* falls into sere *n*. M is a light steel springing plate secured to the recoil plate J; it covers nearly the whole of the exposed part of the rear of the cylinder, and one end *t* of it fits into one of notches *u*.

The inventor says: 1st. I do not claim the employment of a magazine to supply cartridges to the chambers, or caps to the nipples, when the cartridges are arranged therein end to end, to be fed into the chamber or chambers, or on to the nipple of the piece.

But I *claim* the method, substantially as described, of combining and applying the magazine and charging-tube, either for cartridges or priming, to wit: the charging-tube being arranged in line with the chamber or one of the chambers, or the nipple or one of the nipples, of the

piece, and the magazine being arranged in such a manner, relatively thereto, that the cartridges or caps lie side by side, to be fed sideways one by one, as required, into the charging-tube, by gravitation, a spring, or other means, on the retraction of the said piston from opposite the magazine, and to be fed into the chamber or on to the nipple by the movement of the piston towards it.

2d. I claim combining the rotating chambered cylinder with the charging-piston, or its equivalent, in the manner substantially as set forth, so that by the operation of retracting the charger, after charging a chamber of the cylinder, the cylinder shall be rotated to the extent required to bring a new chamber in line with the barrel.

3d. I claim combining the hammer with the charging-piston, in the manner substantially as described, so that during the operation of moving the charging-piston, to drive a cartridge from the magazine into the chamber, the hammer shall be raised to cock the lock.

4th. I claim the spring protecting-plate M, applied substantially as described, to fall into notches *u u* in the rear of the rotating cylinder, to protect the other charged chambers from the effects of lateral fire from the discharge of the chamber which is in line with the barrel.

No. 12,655.—GEORGE H. SOULE.—*Improved Breech-Loading Fire-Arm.*—Patented April 3, 1855. (Plates, p. 323.)

The nature of this invention will be fully understood from the engravings.

Claim.—The use of the double-acting cam, in combination with the charging-chamber and breech-piece, having an opening P in it, for cutting off the end of the cartridge and discharging the fragments thereof from the charging-chamber, the said parts made and operating in combination with the barrel and magazine of a gun, substantially as set forth.

No. 12,681.—FERDINAND KLEIN.—*Improvement in Fire-Arms.*—Patented April 10, 1855. (Plates, p. 323.)

A flexible spring *d* is attached to the lever *e* (that turns the faucet or cylinder) at one end, and to the valve *c* of the chamber that receives the charge at the other end; this spring is intended to open and close the valve as the lever is moved up or down by the force or action of the spring *a*, whereby the faucet is also turned. Spring *d* also assists in preventing the faucet from moving endwise, in case the screw *f*, which holds the faucet in place, should become loosened. This screw also holds cap *b*, which covers the spring *a*. The cap is intended to protect the spring, and to prevent it from loosening the screw, which would be the case if it were in immediate contact with the screw-head.

Claim.—The improvement in the manner of opening and closing the valve, or cover of the chamber which receives the charge, in the manner and for the purpose above set forth. Also, the use of a cap for the purpose of protecting the chamber, and the spring that moves it, as set forth in the foregoing specification.

No. 12,836.—JOHN STOWELL.—*Improvement in Fire-Arms.*—Patented May 8, 1855. (Plates, p. 324.)

By pulling down the lever D, the long arm of the lever *d* is depressed, and the short arm thereof thrown forward, throwing forward the bottom of the tumbler and raising the hammer to cock it. When the lever D is raised to drive up the sliding-crotch to wedge the rotating-breech up to the barrel, the pin *h* moves back in the slot *i* of the stirrup *f*, that being the purpose for which the slot is provided.

The inventor says: I hereby disclaim the invention of the combination of the hammer with the sliding-crotch, for the purpose of effecting the cocking of the lock simultaneously with and by the same movement as the rotation of the breech, in any other way than substantially described in the specification.

But I do *claim* the method herein described of effecting the connexion between the hammer and the lever D, by which the sliding-crotch is operated by means of a lever *d* and two stirrups *e* and *f*, applied and operating substantially as herein described.

No. 12,906.—HENRY GROSS.—*Improvement in Fire-Arms.*—Patented May 22, 1855. (Plates, p. 324.)

The nipples *p* are placed in the periphery of the cap-cylinder, with vents extending through to *f f*. This cap fits on the cylindrical roller *e* and on each change of lever *a*; in order to load the gun the cap-cylinder is turned forward, presenting one of the vents *f* opposite and over the vent *g* in the roller, which communicates with the charge in the gun.

Claim.—The combination and arrangement of the cap-cylinder with the cylindrical roller, as described and shown in figures 2 and 3. All else and all other parts of said gun are disclaimed.

No. 13,039.—FREDERICK NEWBURY.—*Improvements in Revolving Fire-Arms.*—Patented June 12, 1855. (Plates, p. 324.)

The nature of this improvement will be understood from the claim and engravings.

A is the cylinder; P the guard-ring.

Claim.—In fire arms having revolving cylinders to carry their load and priming, the construction and use of a guard to prevent the fragments of exploded priming-caps from impeding the rotation of the cylinder by covering up the cones with a movable metallic ring, containing for each cone a chamber as large as can be conveniently made within the ring to enclose each cone; each chamber having an aperture to permit the priming-cap to pass through, and also having lateral openings to pass off the gas produced by the detonation of the cap; the whole substantially as set forth.

No. 13,154.—Ethan Allen.—*Improvement in Fire-Arms.*—Patented July 3, 1855. (Plates, p. 324.)

The nature of this improvement will be easily understood from the claims and engravings.

The inventor says: I do not claim a rotary charge-receiver placed within or applied to a gun-barrel, nor do I claim a sliding or movable breech so applied to the barrel as to constitute not only a breech thereto, and a means of uncovering the rear end of the bore of the barrel, and enabling a cartridge to be introduced into the same, but a contrivance for shearing or cutting off the rear part or end of the cartridge after the introduction of such cartridge into the barrel.

Nor do I claim a perforated rotary breech-cylinder so combined with or applied to a gun-barrel, and entirely in rear of its charge-chamber, that it (or its cylinder) may be capable of being rotated or turned in one direction so as not only to uncover the rear end of such charge-chamber, and present a passage or opening through which a charge may be introduced into it, but rotated back so as to cover the rear end of the charge-chamber, and constitute a breech thereto.

Nor do I claim a turning-lever and breech so applied to the rear end or part of a gun-barrel as to be capable of being turned up so as to uncover such end sufficiently to permit a charge or cartridge to be introduced into the barrel.

But I *claim* so combining a rotary or movable breech and a charge-chamber together, and with the barrel of a fire-arm, that not only when they (the said breech and chamber) are moved or rotated in one direction, shall the breech uncover the passage into the barrel, and such charge-chamber be brought into a position to permit a cartridge to be passed into it and the barrel; but when they (the said breech and chamber) are rotated in the opposite direction, such a breech shall be made to cover the passage into the barrel, and such charge-chamber, in conjunction with the barrel, be caused to bend, break, and hold such cartridge, as specified.

I also claim the charge-chamber and breech-block D, provided with journals and bearings as specified, extending the movable breech F beyond the block in manner as described, in order that not only may said breech serve as a scraper to the inside surface of the case C, but that the block may be protected from the injury and friction of the carbonaceous matter resulting from the explosion of a charge, as specified.

No. 13,292.—John A. Reynolds.—*Improvement in Fire-Arms.*—Patented July 17, 1855. (Plates, p. 324.)

The chambers *a*, with the nipples *b*, are arranged upon a hollow cylinder A, supported at its periphery by suitable rings and ribs (to receive the recoil), so that while they are radial therewith, the butt of the chamber shall permit the touch-hole to be reached from within the cylinder, while the discharge ends shall be in contact with the rear ends of the barrels B. Cylinder A is turned by means of hand-lever operating a pawl which takes into notches on the circumference of

the cylinder. These same notches match with rack-teeth on the under-side of a perforated block F, and cause the latter to move successively along as the cylinder is turned. The cartridges having been placed in the perforation of block F, (which correspond with the chambers in the cylinder,) the cross-head L is depressed by means of pedal G and connexion H H K K, when the ram-rods M, attached to the under side of the cross-head, will drive a row of cartridges from F into the chambers *a* underneath. At the same time the levers K act upon stirrups 5 and levers N and rods 6, thereby elevating a cross-bar *o* which carries a row of vertical plungers, which force the caps from the perforated hollow cylinder P, and on to the nipples above said row of plungers, the nipples belonging to those chambers which have been simultaneously loaded by the ram-rods from above. The cap cylinder moves together with cylinder A by means of cogs around their ends. Springs 3 throw the levers K and appurtenances up as soon as the foot is withdrawn from the pedal. The handle and levers R S serve to move the hammer T, and also the swabbers *n*, the end of the swabber-bar being guided in slots 10 in the frame of the machine. U is a back set, which, being connected with the bar S at its end by the projecting end of the swabbing-bar, is made to retreat from hammer T, when S is drawn by R, the movement of U being allowed by a slot 11; W is a shaft-spring, playing through a slot in S, and has two angular projections upon its inner face, the office of the one of which is to catch on ear 14 on the hammer-stock and draw it back, while the other projection, in passing post 15, throws the spring into the slot of S, and releases the front catch from ear 14, and permits the hammer to be driven by spring V against the capped nipples. The swabs in their withdrawal pass through sheets of sponge retaining water, by which the filth drawn with the swab may be removed therefrom. In figure 2 the swabbing-box is shown, with the lid (mounted with sponge) thrown open.

Claim.—Constructing fire-arms with a hollow cylinder A, containing chambers *a a*, as described, in connexion with barrels B B, substantially in the manner and for the purposes set forth; also, loading the chambers *a a*, by foot pedal G, straps H H, levers K K, operating the plungers M, in combination with the simultaneous capping of the nipples by lever N, straps 5 and 6, cross-bar O, and plungers thereon, for removing caps from cylinder P and placing them on the nipples, as set forth; also, drawing the hammer T by lever R and bar S, furnished with spring W and catch thereon, or its equivalent, in connexion with the annular liberating projection on spring W, and the liberating post 15, for the purposes set forth; also, drawing the hammer back, in the manner set forth, in combination with the simultaneous swabbing of the discharged chambers, in the manner substantially as described: also, likewise, the swabbing-box for containing the swabs *n n*, as described, furnished with sponge or its equivalent; the whole operating substantially in the manner and for the purposes set forth.

No. 13,293.—John A. Reynolds.—*Improvement in Fire-Arms.*—Patented July 17, 1855. (Plates, p. 324.)

Spokes I^1 serve to turn the chain-wheel H^1, and by means of chain K^1 the chain-wheel E with its screw-shaft F, thereby elevating or depressing the frame Y of the machine, and thus adjusting the range. (The engravings belonging to this patent will be better understood by reference to engravings No. 13,292.) The shield L^1, in front of the machine, with the side wings M^1 and a roof, (not shown in the engravings,) serve to protect the machine and operator. (See engravings No. 13,292.)

Claim.—The elevating of the manifold fire-arm by the screw F^1, nut G^1, on swivelled arms a^1 a^1, as described, in connexion with pulleys H^1 and E^1, chain K^1, or their equivalents, substantially as set forth; also, the adaptation of the shield to the manifold fire-arm, or similar machine, substantially in the manner and for the purpose set forth.

No. 13,294.—John A. Reynolds.—*Improved Apparatus for Cocking Repeating Fire-Arms.*—Patented July 17, 1855. (Plates, p. 324.)

Sheet-iron metal tubes F^2, closely surrounding the barrels B, are soldered into the box A^2, which is filled with water.

(This engraving will be better understood by reference to the engravings No. 13,292.)

Claim.—The application of a refrigerator, constructed as described, to the barrel or tubes of fire-arms, for the purpose of keeping said tubes from undue heating, substantially in the manner set forth.

No. 13,474.—Jno. Swyney, assignor to Himself and James Dandridge.—*Improvement in Breech-Loading Magazine Fire-Arms.*—Patented August 21, 1855. (Plates, p. 325.)

To the cartridge-rammer P is attached a rod *y*, the rear end of which rod has a long slot a^1, in which one end of lever b^1 is placed, which lever works on a fulcrum pin, as shown in figure 3, the lower end of said lever entering a slot in the cap-rammer *t*; the length of slot a^1 is such that, as the rod *y* is moved backward with rammer P in loading, it will not move lever b^1 until the cartridge is almost driven home in chamber C; then striking lever b^1, it will force rammer *t* forward through the hole in the carrier R, and thereby force a cap on the percussion-nipple G, by the time the cartridge is driven fully home; then, by withdrawing the hand from the handle *j* of rammer P, said rammer will be drawn back to its original position by spiral spring *i*, and with it the rod *y* will be also drawn back, when the rear end of slot a^1 will hit lever b^1, and thereby move rammer *t* back from the nipple and into the position it previously occupied. A piece of rubber in the front end of *t* will prevent exploding a cap in the act of forcing it on the nipple. The rest of the features of this invention will be understood from the engravings.

Claim.—The carrier R, its spring S, in combination with the magazine or tube F, for the purpose of bringing a cap from the magazine F downwards, or into line with the rammer *t*.

Also, the rammer *t*, in combination with the rammer P, and the mechanism by which they are connected, so as to operate together, as described, such mechanism consisting, in part, of the rod *y* and the lever b^1.

Also, combining with the charge-chamber C and the magazine E, the intermediate chamber or carrier M, said charge-chamber C and carrier being connected with, and operated simultaneously by, the guard K.

No. 13,507.—Benjamin F. Joslyn.—*Improvement in Breech-Loading Fire-Arms.*—Patented August 28, 1855. (Plates, p. 325.)

A represents the barrel, and B the shaft of the fire-arm. The inventor says: The powder being ignited, the first instantaneous act of the expanded air and gas will be to drive the pin E towards the interior of the projection D on breech C; and, as the rings are prevented from moving backwards by the end of the said projection, it necessarily follows that the coned head of the pin must cause the rings to expand, and consequently to fit tight to both the inside of the barrel and outside of the cone-head of the pin, effectually preventing all escape of air or gas towards the breech.

I *claim* the combining of the cone-headed pin E, and two or more expanding rings G and H, with the radial breech C, of breech-loading fire-arms.

No. 13,547.—Josee Johnson.—*Charge for Fire-Arms, &c.*—Patented September 11, 1855. (Plates, p. 325.)

The charger A is filled by opening valve E (see figure 3); the patch is placed over the hole in cylinder A, and pressed down even with the end of the cylinder; the patch is then cut off smoothly. Then a short ramrod is applied to it, by which the ball is pressed through the cylinder into the projecting position represented in the figures. The powder is then put in, and the valve E is closed. The cap *c* is then inserted in the clamp B. To transfer the charge to the gun, the valve E is opened, the powder poured into the calibre of the gun, the charger inverted, and the projecting-ball applied to the muzzle of the gun. Then the ramrod is slipped through the cylinder, forcing the ball out of the same, and down to the powder at the breech of the gun. The charger is then slipped off over the end of the ramrod, the latter withdrawn, the cap (in clamp B) applied to the nipple of the gun, and the charger withdrawn. The chargers are designed to be loaded at home or in camp; and the inventor states, a rifle can be loaded with this charger in less time than with the rifle cartridge now in use.

I *claim*, 1st. The combination of the projecting-ball C, cylinder A, and cut-off valve E, arranged and combined in the manner and for the purposes described, as set forth.

2d. I claim using clamp B in combination with the charger, for the purpose of facilitating the rapid completion of the process of loading fire-arms, as described.

No. 13,581.—Wm. W. Marston.—*Improvement in Fire-Arms.*—Patented September 18, 1855. (Plates, p. 325.)

When the trigger *h* is pulled on, the sere K is thrown up, the end whereof takes the notch behind the projection 17, rotating the barrels until the stop 13 on the trigger comes against the stop 20 on the edge of the face-plate *e*, the act of doing which elevates the hammer, the tumbler 9 of which takes the half-cock notch 15. The trigger is then released to be thrown forward by spring 12, which causes the sere *k* to take the second projection 18, and on pulling again on the trigger, the barrels are moved nearly to the point to bring the succeeding barrel into the same place as that occupied at the previous discharge of the piece; the stop 13 now takes against the lowest notch of the double stops 21, and the hammer is raised to the full-cock notch 16. If now the trigger be released, the sere *k* cannot descend far enough to take the next projection 17; so that on pulling the said trigger, the sere slides over the back of said projection until it comes against the notch 19, thereby turning the barrels just enough to allow the tumbler 9 to slip off the end of the cam at 16, and strike the cap on the cone 4 and discharge the piece. In this case, the stop 13 comes in contact with the stop 21 on the edge of the face-wheel, stopping the farther rotation of the barrels, and the parts are again ready to be operated on, as before described, to discharge the next barrel.

I do not limit myself to the size or character of arm fitted with my improvements; neither do I make any claim for rotating and c ecking a fire-arm simultaneously; neither do I claim the sere K to act upwards and rotate the barrels, as this is also well known.

But I *claim*, 1st. Elevating the hammer to cock and discharge the piece, by means of a cam *d* revolving with the barrels or chambers, and formed with as many points as there are barrels or chambers, so that the hammer shall be raised and discharged by simply rotating said barrels or chambers, as specified.

2d. I claim the revolving face-plate *e*, formed with projections on its face to take the sere K, and with notches on its edge taking the stop 13 on the trigger, the two acting to rotate and stop the barrels at the precise point required, and prevent the strain on the trigger from turning the barrels too far, as specified.

3d. I claim the mode specified of constructing and fitting the parts of the cam *d*, face-plate *e*, trigger *k*, sere K, and stop 13, so that the hammer shall be cocked by one, two, or more pulls on the trigger, in the manner as specified.

No. 13,582.—Frederick Newbury.—*Improvement in Revolving Fire-Arms.*—Patented September 18, 1855. (Plates, p. 326.)

When the trigger is drawn, the limb *d* enters into the angular recess behind one of the ratchet teeth at *a*, and as it is pressed forward compels the wheel R to turn round until it has moved round one-sixth of its circuit. The projection *f* of the trigger locks into projection *k* of the hammer H; consequently, when the trigger is drawn and the cylinder C is revolving, the hammer gradually rises until the instant that the cylinder, reaching the last point of its movement, has placed a chamber in line with the barrel, when the points *f* and K pass each other, releasing the hammer, which is then thrown forward by the spring M S upon the cap. The shoulder *e* of the trigger is so adjusted that just at the moment of the discharge it presses against the edge of the wheel R, so as to hold the barrel immovable during the discharge. As soon as the trigger is released from the pressure of the finger, the spring B throws it back, the trigger-slot allowing K and *f* to repass each other. The lever-catch F is kept against the projection S at the lower end of a piece Q extending from the barrel downwards by means of a spring V, thus attaching the barrel Y to the face of the cylinder. The finger-piece X serves to detach the barrel.

I do not claim the use of an oblique toothed ratchet-wheel, nor the revolving mandrel attached to both cylinder and ratchet-wheel; but I *claim* the method of operating an oblique toothed ratchet-wheel by the direct action of the upper limb or cam end of the trigger, which trigger, also by the same action, cocks and discharges the hammer, and holds the cylinder firmly in place during the firing of the piece, substantially as set forth.

I also claim the employment and use of a slot in the trigger directly upon the hammer, in order to enable the trigger to replace itself behind the hammer as before the discharge of the same, substantially as set forth.

I claim the apparatus for attaching and detaching the barrel to the stock, to wit: the catch-lever lying in the stock underneath the cylinder, with its hook, finger-piece, and spring, together with the recess and stop in the block.

No. 13,592.—Frederick Beerstecher.—*Improvement in Fire-Arms.*—Patented September 25, 1855. (Plates, p. 326.)

When the longer part *d* of the head of the hammer is in the position shown in the engraving in full lines, and the hammer is let go, it explodes the forward cap C, and thus the forward charge only is discharged. The hammer is then again cocked, when with his finger the operator turns down the longer part *d* of the head, into the position shown by dotted lines, when the hammer is again let go and the rear charge discharged.

I do not claim the general arrangement whereby two loads may be discharged in succession from one barrel, without reloading, as such arrangement is not new.

But I *claim* constructing the head of the hammer of fire-arms of this description, so that the part of the head which discharges the forward load can be capable of being turned down for the purpose of allowing the shorter part of the head to strike the rear tube only, and so that when turned up it shall strike the forward tube only, without the use of the intermediate covering-lever heretofore required, for the purpose of preventing the explosion of the rear cap, in fire-arms of this description, the same being constructed, arranged, and operating substantially as described and set forth.

No. 13,691.—H. B. WEAVER.—*Improvement in Breech-Loading Fire-Arms.*—Patented October 16, 1855. (Plates, p. 326.)

The chamber A is hinged at *a*, and has an arm *c* extending from said hinge, which arm works in a slot in the sliding-piece *d*. The lever D is connected with hammer F, and pivoted at *e;* when the rear end of lever D is depressed, the hammer F will be drawn back so as to clear the pin *h*, and allow it to move back out of the way of slide *d*, which latter, by the time the pin *l* has arrived at the top of slot *n*, will lift the sliding-piece *d* to receive a cap from the repository E, and the piece *d* will simultaneously actuate arm *c* and move the chamber A laterally, (see dotted lines in figure 2,) ready to receive the charge.

Claim.—1st. Combining the hammer with the laterally swinging chamber, for the purpose of effecting the simultaneous opening of the chamber and cocking of the hammer, by means of the lever D, the pin *k*, slide *d*, and lever-arm *c*, all operating substantially as described, whether the said slide *d* be a priming-slide, or simply employed to connect the chamber A with the lever D.

2d. Combining the priming-slide *d* with the lever D and the hammer F, by means of a pin *l* attached to the lever, working in a slot *n*, in the slide or a link attached thereto, so that the lever D will draw back the hammer before moving the slide far enough to allow the pin *h*, or its equivalent, through which the hammer strikes the cap, to move out of the receiving-hole in the slide before the slide is acted upon by the lever, substantially as set forth.

No. 13,941.—JOSEPH C. DAY.—*Improvement in Fire-Arms.*—Patented December 18, 1855. (Plates, p. 326.)

The barrel A can be readily removed by unscrewing screw *e*, and then turning piece B^2 on its hinge *h*.

The grooves C^1 and A^2 afford a place for the fouling to collect, and also serve to decrease the surface upon which the sliding-collar D moves, thereby lessening the friction and securing a free and easy motion of the sliding-collar. The face of this collar is made on the same sweep as the rear of the barrel A, and its outer edge sharp, so as to serve for cutting the cartridge C^1, when the barrel A is forced from position figure 4 into position figure 1.

Claim.—In addition to my former claims, granted to me in letters patent—

1st. Connecting the two side-pieces B^1 and B^2, between which the barrel is hung by a hinge B^3, and locking them by the projection B^4 and a corresponding recess, substantially as set forth.

2d. Making the face of the sliding-collar D of the shape of an arc, with a cutting edge, so as to act in combination with the rear end of the cartridge as described.

3d. The grooves C^1 and A^2 in the breech, and the rear end of the barrel, for the purpose set forth.

No. 13,999.—E. K. ROOT.—*Improvement in Revolving Fire-Arms.*—Patented December 25, 1855. (Plates, p. 326.)

b are the usual longitudinal and diagonal grooves, in which the driving-pin *c* works to rotate the breech to bring the chambers successively in line with the barrel. The pin, provided with a spring *e* as usual, is fitted to a block *d*, which slides in slot *f* in the bottom-plate *g*, below the rotating breech. After the block has been drawn back sufficiently far to pass out of one of the diagonal grooves, to turn the breech and bring the next chamber in line with the barrel, and to enter one of the longitudinal grooves to hold the chamber in line, its rear end then strikes against the end of the spring-catch *i*, which holds the tumbler *j* of the hammer, and liberates it, that the hammer may be forced on to the cap.

Claim.—Combining the driving-pin that works in the grooves to rotate and hold the breech in line with a slide below, adapted to the reception of and to be operated by the trigger finger, and acting on the lock at the end of the back motion, to liberate the cock or hammer, to discharge the load, substantially as described.

No. 14,001.—GILBERT SMITH.—*Improvement in Breech-Loading Fire-Arms.*—Patented December 25, 1855. (Plates, p. 326.)

The nature of this improvement consists in the opening cap A being eccentric to the axis of the barrel B, thereby opening in one position and closing in another, according as the aperture in the cap A is in position either to close or open the breech of the gun; said aperture being made to roll concentric with the barrel B, opening the same to receive the charge; the reverse motion combined with the traverse motion, obtained by the screw on the inside of the cap, and exterior of the eccentric portion attached to the barrel B for closing the breech. The closing of the breech is completed by the screw-pin C being turned, and forwarded into the seat, as soon as the eccentric has thrown it direct over the axis of the barrel, which position is insured by stops on the outside of the cap.

Claim.—The eccentric and traverse motions combined, for opening and closing apertures, by means of a cap perforated eccentric to itself, as described.

2d. Closing the aperture by means of an inserted screw-pin being screwed forward direct from the cap, when the eccentric throws it direct over the axis of aperture as described.

No. 12,810.—Philip Bacon.—*Improved Tape-Fuse.*—Patented May 8, 1855. (Plates, p. 327.)

A common fuse (for blasting under water,) as represented at A, is run through a melted composition of pitch and coal-tar, then the tape B in a clean state is wound round it, and afterwards the external covering C is wound around the tape, then the fuse is again run through the melted composition to give it an external water-proof covering.

Claim.—The application, substantially as described, to tape-fuse, of an external winding of thread, whereby the loosening or cracking off of the tape and water-proofing substance is effectually prevented, and the manufacture of the fuse cheapened and simplified, as herein set forth.

No. 13,138.—Abraham Powell, Jr.—*Improved Fuse-Stock for Bomb-Shells.*—Patented June 26, 1855. (Plates, p. 327.)

This improvement consists in making a stock of two cylinders C C, one within the other; the outer one being screwed fast in the shell B, the inner can be turned at pleasure to any required point of a graduated scale on the ends of both. This scale is marked with the number of seconds, 2, 5, 10, &c., to the greatest extent of time, according to the driving of the fuse, that may be required for the bursting of the shell; and when the inner cylinder is set with, say 8, opposite 2 on the outer cylinder, then the shell when fused will burst in 2 seconds. This is effected by apertures down the sides of both cylinders, so arranged that when any particular hole of the inner cylinder is opposite the corresponding hole of the outer, all the others are shut and safe from fusion; and when the fuse has burned down to that particular hole, (indicated by the scale on top,) the explosion will take place.

Claim.—A double-cylinder fuse-stock, so graduated as to burst shell-shot at any required number of seconds, as described.

No. 12,124.—J. S. Butterfield.—*Improvement in Locks for Fire-Arms.*—Patented January 2, 1855. (Plates, p. 327.)

In turning the hammer back (fig. 1) the cam *c* hooks into slot *h* of spring *d*, while connecting sear *e* (being attached to lower end of cam *c*) is drawn forward until notch e^1 fastens on catch *f*, the end of sear *e* being pressed down by spring *g*. When the hammer is cocked and it is desired to discharge, the after end of sear *e* is raised, and notch *e* cleared of catch *f*; whereupon spring *d* operates cam *c*, the hammer falls, and the sear comes back (fig. 2).

Claim.—The combination of the sear *e* with the cam *c* (the latter operating in the slot *h* of the main spring *d*); the respective parts being arranged in the manner herein set forth.

No. 13,442.—Michael Tromly.—*Improvement in Gun-Locks.*—Patented August 14, 1855. (Plates, p. 327.)

The nature of this invention will be understood from the claim and engravings.

Claim.—Constructing the lock by having the lower part of the hammer B formed of two prongs *d e*, against one of which *d* the spring C bears; and having the upper end of the tumbler *f* attached to the other prong *e*, the lower end of said tumbler being attached to the upper end of the trigger D; the front end of the spring C having a small spring *l* attached to it, which spring *l* bears against the trigger D, as shown and described.

No. 13,825.—John Phin.—*Improvement in Gun-Locks.*—Patented November 20, 1855. (Plates, p. 327.)

On the trigger being pulled, it will elevate the hammer by means of link L; and as the point *r* of the trigger recedes from the sear *s*, the pressure of spring *i* will cause said sear to press against tumbler T, and to fall into the notch *n* when said tumbler has been rotated sufficiently. The trigger may now be allowed to move forward in obedience to the spring *a*; but until it touches the tail of sear *s*, the hammer will remain cocked. Instantly on the trigger pressing on this sear, however, it will release the hammer, which will descend in obedience to the main spring.

While the sear remains in the notch *n*, no discharge can be effected by pulling the trigger.

Claim.—Securing accuracy of aim and safety in the use of trigger-cocking fire-arms by means substantially as described, which consist, first, in the sear *s* and spring *i* to hold the hammer up; and, secondly, in the spring *a* acting on the trigger to release said hammer.

No. 12,522.—Christopher Wolter.—*Improvements in Ordnance.*—Patented March 13, 1855. (Plates, pp. 327 and 328.)

The two barrels are adjustable at different angles to each other, for the purpose of firing chain or rope shot at various distances, and always extending the chain or rope between them without danger of breaking it. By moving the slider F back and forth, the angle of the two barrels can be adjusted, (see broken lines in figure 2,) and they will always bear the same relation to a central line along which the sight may be taken. Each breech has, at its rear end, a pivot *b*, which works in a slot *c* in head C of frame C C, D E. The slots *c* are arcs described from the vertical stands of the universal joints *a*. The sectors D are described from the horizontal pivots of the universal joints *a*. The cross-piece, which connects the two sectors, carries the slide E through which slider F works. The hammers (not shown in the engravings) are driven by springs, and are made to strike the cap by being drawn back against the force of the spring and then suddenly let go. The hammers are connected with links *l*, which are connected

with sliding-piece *v*. From piece *v* a cord *n* passes over pulley *o* at the end of slide E, and from thence under pulley *p*, attached to cross-piece *q*, and connects with rod *r*, to which rod is applied a spiral spring S, so as to throw it inwards, and outside the carriage it connects with lever *u*. The barrels are discharged simultaneously by pulling this lever outwards and suddenly letting it go; the lever draws the rod *r* out, and drawing-cord *n* draws forward the links *l*, thus drawing back the hammers against the springs, (above mentioned,) which apply to them the required percussive force. The effect of these springs is assisted by spring S, which quickly slackens the cord. To vary the length of cord *n*, as the relative positions of the barrels vary, it is passed through an eye in the end of rod *r*, and thence to a winch *w*, on which it can be wound or unwound by means of handle *x*.

The inventor says: 1st. Though I do not claim, of itself, the mounting of a gun-barrel, or piece of ordnance, upon a universal joint or pivot, I *claim* the connexion of two barrels or pieces thus mounted, in such a manner that they may be adjusted and held at any desirable angle relatively to each other, substantially as and for the purposes described.

2d. I claim the connexion of the barrels by means of the toggle-joints *j j* and the central slider F, working in a suitable slide supported by the carriage, substantially as described, for the purpose of adjusting the barrels at the desired angle.

3d. Supporting the breeches for the purpose of varying the elevation of the barrels, by means of a frame composed of sectors D D D D, and slotted heads C C attached thereto, as described, whereby the necessary changes of elevation, and of the angle of the two barrels, are provided for independently of each other; this I claim, irrespective of any mechanical devices that may be employed to raise and lower the frame.

4th. The connexion of the two hammers, or the triggers, or their equivalents, by means of two links, with a sliding-piece *v* operated upon by a cord or chain connected with a rod *r*, which passes through the side of the carriage, and has a spring S applied, substantially as and for the purpose set forth.

5th. Connecting the cord or chain with the rod *r*, or its equivalent, by merely passing it through an eye at the end thereof, and attaching it to a winch *w*, conveniently situated to keep it always wound up to the proper degree to give it the required length, as fully set forth.

No. 13,249.—Charles F. Brown.—*Improved Mode of Mounting Ordnance.*—Patented July 17, 1855. (Plates, p. 328.)

The nature of this improvement will be understood from the claim and engraving.

Claim.—Mounting a cannon or any other piece of ordnance, substantially as described, in a carriage A, of spherical, spheroidal, or other circular form externally, which carriage is arranged to close the port or embrazure through which the piece works, but to turn freely therein

in a horizontal, or nearly horizontal, direction, and which has an opening *c* within it, of suitable size and form to receive the gun, and to allow it the necessary upward and downward swinging movement on its trunnions, whereby an efficient protection is afforded against the entrance of the enemy's shot or projectiles, and the smoke of the discharge is excluded, and at the same time a desirable range in a lateral and vertical direction is maintained.

No. 13,679.—Andrew Hotchkiss.—*Improved Projectile for Ordnance.*—Patented October 16, 1855. (Plates, p. 328.)

By placing the cap E over the tail-piece B, so that the corners *c* of the tail-piece will pass through and beyond the notches s^1 in the annular projection *s*, and then, turning the cap a little, the cap and tail become locked, and the parts A and E are held together.

In the act of firing, the ring C (made of lead or other soft material) is expanded so as to take a full impression of the grooves, in consequence of the force with which the cap E is driven towards the body of the shot, before momentum is communicated to the latter, and thus windage is prevented and a rotary motion communicated to the projectile.

Claim.—1st. Constructing a shot or projectile capable of being fired from a cannon having rifle grooves, said shot consisting of three parts, two of which parts, A and E, are of hard metal, and the other, C, of some flexible expansive material, in the form of a band or ring attached to one of the hard metal parts, and overlapping the edge of the other in such a manner that, either by the act of loading or of firing, or of both, the said ring shall be so expanded, or distended, that it shall take the impression of the grooves and be made to fit the bore, as described.

2d. The tail-piece B, for securing the cap E to the body of the shot, and as a guide to the cap in its forward motion, in the manner described.

No. 12,258.—Hezekiah Conant.—*Improvement in Moulds for Casting Projectiles.*—Patented January 16, 1855. (Plates, p. 328.)

The metal is fused in G, and then the stop-cock *k* opened and the wheel D revolved, when the metal will fill the moulds c^1 as rapidly as they are presented, the air escaping between the wheel and band. The slugs escape underneath at E.

Claim.—The arrangement of moulds c^1 in the periphery of a wheel D, combined with a stationary band B, which also forms part of each mould, the whole operating as described.

No. 12,574.—William M. B. Hartley.—*Improved Press for Making Cylindro-Conical Hollow Projectiles by Pressure.*—Patented March 21, 1855. (Plates, p. 329.)

The die A is made up of four sections, B B^1 C C^1. The solid ball, of a size to enter the die without difficulty, is inserted in the die, it

passing clear of the ridges *c c*. The carriage H is run to stop *b*, and punch P permitted to descend, forming the cavity within the ball, (see fig. 4,) and spreading the ball so as to fill the die, the straight portion exactly filling the collar R. Punch P rises instantly, and the operator, after moving carriage H up to stop b^1, places the cap *i* on the butt of the ball and depresses punch P^1, which drives the cap to its place. When the operator releases the punch P^1, it flies up by the action of a spring. Punch P is then made again to descend, and by striking the ball frees it from the collar, and causes it to drop through opening T in bed K. The die is then closed by turning rim G, and the machine is ready for the reception of another ball. The collar R, by forming the butt, prevents the change which would take place in the calibre of the balls by the wear of the machine, if the butt were formed by the sectional die, as from the pressure there would necessarily be a variable expansion of the parts from the wear of the machine, which would render the calibre of the balls unequal.

The inventor says: I do not claim the manner of operating the die sections.

But I do *claim* the collar R, in combination with the sectional parts of the die, constructed, arranged, and operating substantially as and for the purposes set forth.

I also claim the arrangement relative to the punches P P^1 of the die A, with a horizontal motion of sufficient amplitude to admit of the successive action of the punches, substantially as and for the purposes set forth.

I further claim capping the ball while in its die, and while held firmly at its base, by a punch, which on the opening of the sections will, by a subsequent or continuous motion, discharge the ball capped and ready for use.

No. 12,795.—Eben Hoyt, Jr.—*Improved Projectile for Fire-Arms.*—Patented May 1, 1855. (Plates, p. 329.)

In order to impart a rotary motion to heavy shot and shells, the inventor furnishes the rear end of the ball with inclined planes B, against which the force of the discharge reacts, thereby rotating the ball.

Claim.—The employment of inclined surfaces upon the rear end of the ball, operating in the manner and for the purpose substantially as herein set forth.

No. 12,801.—W. J. Von Kammerhueber.—*Improvement in Projectiles.*—Patented May 1, 1855. (Plates, p. 329.)

This projectile is lens-shaped, its section in one direction being represented in figure 5; the section perpendicular to the plane of the section figure 5 is exhibited in figure 1, the other figures being variations of the shape of figure 1.

The inventor throws this projectile from a cannon or gun-barrel, the cross section of which corresponds to the cross section figure 1 of the projectile. He further intends to impart to this projectile a revolving motion around its shorter axis, by means which form not a subject of these letters-patent.

This projectile, moving through the air in a plane corresponding with its circular section, will offer to the air the smallest possible resistance.

Claim.—The lens-shape of the projectile, made of any desirable material or combination of materials, solid or hollow, as above described, and which projectile is to be thrown by any exploding or expanding substance.

No. 13,469.—Augustus McBurth.—*Improvement in Percussion Projectiles.*—Patented August 21, 1855. (Plates, p. 329.)

f is the position of the discharging-rod while holding the hammer *e* previous to the point *h* striking the ship or any other substance; *g* is the percussion-cap, ready to be discharged by hammer *e* when set free by the collision of the point *h* of the discharging-rod with the surface at which the shot was directed. The spiral spring *d* prevents the hammer from striking the cap (which serves to explode the charge within the shell) previous to the point of the rod coming in contact with the said surface.

Claim.—The improvement in bomb-shells or missiles having four arms *b*, b^1, b^2, b^3, and eight flutes, with sharp edges 1, 2, 3, in the manner and for the purpose substantially as described; also, a rod to pass through the shell in a longitudinal course, for the purpose set forth; and also a hammer, with a flat spring attached, together with a spiral spring *d*, as shown and described.

No. 13,799.—Sylvanus Sawyer.—*Improved Compound Projectile.*—Patented November 13, 1855. (Plates, p. 329.)

The coating of lead C is employed as anti-friction metal, and the force of the explosion, acting in conjunction with the hard metal at the butt or rear end of the shell, is intended to expand a portion of such anti-friction metal, so as to press it firmly against the inner surface of the bore of the piece and cut off the passage of the flame; which latter would otherwise tend to rip and melt off the coating. The explosion will force the surplus anti-friction metal at *b* up the tapering edge of the shell, so as to insure the closest fitting between shell and bore.

Claim.—Combining with the butt, or flat rear end of the cylindro-conical iron shell, a layer of lead or softer metal than that of which the body of the shell is composed, and united or not to a layer of such metal, extended around the sides of the shell, as described; the same operating in manner as specified, while the shell is being projected through the bore of a gun by a discharge of the powder therein.

2d. Making the rear part of the shell tapering or conical, as seen at *a a*, combining therewith a ring *b b* of lead or its equivalent; the same being substantially in manner and for the purpose as herein before stated.

Also, confining the explosive screw-cap to the body of the shell, by means of a softer or yielding metal or casing, which, when the cap or

shell shall strike an object, shall give way under the force of the blow, and let the cap down with force so as to compress the percussion-wafer or priming in it, or on the main screw, stopper, or plug, and so as to create an explosion thereof.

No. 12,285.—E. K. Root.—*Improved Compound Rifling Machine.*—Patented January 23, 1855. (Plates, pp. 329 and 330.)

One end of the connecting-rod *v* is pivoted in *w* to an arm *x* of the frame of the machine; the other end fits over a pivot *u*, which passes up from rack *t* through a slot in the top of the carriage *l*. When the carriage is at the extreme of its range of motion in the direction of the arrow, the connecting-rod *v* is at right-angles to the line of motion of the carriage; so that, as the carriage recedes, the end of rod *v*, connected with the rack *t*, describes a circle (see dotted line, figure 2); and, as this circular line moves from the line of motion of the carriage, motion is imparted to the transverse rack *t*, and by it to the series of spindles *r*, which are thus caused to turn faster the more the carriage moves back. Each of the mandrels carries a wheel, with as many notches in its periphery and as many cogs on its face as the number of rifles to be cut in the barrel. The levers h^1 h^1 h^1 h^1 have their fulcra i^1 i^1 i^1 i^1 in the slide g^1, and are held down by springs j^1 j^1 j^1 j^1. The forward ends of these levers are wedge-formed, and pass under pins k^1 k^1 k^1 k^1 projecting from the faces of sliding-dogs e^1; so that, as the slide moves forward in the direction of the arrow, the dogs are lifted up out of the notches in the wheels d^1 of the mandrels, which liberate them so that they can be turned freely; and, as they are liberated, the heel l^1 of each lever strikes against the cog on the wheel, to turn it the required distance to determine the distance between any two of the rifles to be cut. The pins on the dogs then pass over the rear end of the inclined planes of the levers, and are forced down by the springs to re-engage the next set of notches in the wheels to hold the mandrels in place for the next cut. On the return of the slide, the levers rise and ride over the pins of the dogs. As the cutters leave the barrels, the small wedge-rods *z* in the tubular end of the cutter-rods *y* strike a series of stops x^1, by which the wedge-rods are forced in to wedge out the cutters. These stops are forced forward a little at every cutting operation, which is effected in the following manner: These stops slide in the head-block y^1, (figure 4 represents a horizontal section of the same,) and have rack-teeth on their upper surface, engaged each by a pinion z^1 on shaft a^2, provided with a spur-wheel b^2, engaged by vertical worm-arbor d^2, which carries a ratchet-wheel e^2, operated by pawl f^2 on slide g^2, which is forced back by a spring (not shown in the engraving) and moved forward to give the proper motion by bar q^1, which carries an adjusting-screw h^2, the end of which strikes the end of the slide. By means of this screw, the amount of motion can be adjusted at pleasure. The arbor d^2 is hung in bent-lever i^2, to which is jointed a hand-rod j^2, by which the worm can be disengaged from wheel b^2 to reset the stops at the end of each complete operation. The crank-pins *g* can be adjusted in radial slots in the crank-wheels *e f* so as to adjust the stroke of the connecting-rods *h*, and consequently the way of the carriage *l*, as the other ends of the rods *h* are connected to wrist-pins *i* on slides *j*, fitted to ways *k* on the opposite sides of the carriage, which in turn slides on ways *m*. The slides *j* are adjustable on the carriage by means of two screw-shafts *n n* and bevel-gearing and shaft *o p q*. Thus, by turning shaft *q*, the slides *j* can be shifted to regulate the position of the carriage with reference to the other parts of the machine, when the crank-pins *g* are shifted to adjust the range of motion of the carriage. Figure 5 is drawn on a larger scale than the rest of the figures.

Claim.—The method of giving the motion to the cutter-stocks for giving the increasing twist, by means of the connecting-rod *v*, or its equivalent, turning on a fixed centre *w*, and describing a circle at the point *u* of its connexion with the cutter-carriage *l*, which moves in a tangent line, substantially as specified; also, combining a series of cutter-spindles *r* with the said connecting-rod, or its equivalent, by means of a sliding-rack *t* connected with the said rod, and engaging pinions *s* on the said spindles, substantially as described; also, in combination with the mandrels b^1 b^1 b^1 b^1 that carry the barrels, the slide g^1 and its appendages, to act upon and turn the mandrels, in combination with the dogs for locking and holding the barrels during the rifling operation; the said dogs being operated by the said slide, substantially as specified; also, the mode of operating the series of stops to insure an accurate adjustment of the series of cutters, substantially as specified; and, finally, the adjustable crank-pins for operating the cutter-carriage, in combination with the mode of forming the connexion of the connecting-rods with the carriage, by means of slides governed by adjusting geared screws, substantially as specified, as a means of adapting the machine to the rifling of barrels of various lengths, without the necessity of changing the relations of the mandrels, and the stops for setting the cutters, as set forth.

XX.—SURGICAL INSTRUMENTS.

No. 13,467.—Louis H. Lefebvre.—*Improvement in Warm-Bath Apparatus.*—Patented August 21, 1855. (Plates, p. 331.)

The vapor generator A consists of two compartments, one of them B for generating sulphurous acid gas, and occupying about one-third of the capacity of A, and the other C for the generation of vapors of water, occupying the rest of A. H H boxes for inserting alcohol-lamps. By means of stop-cocks *e f* the vapors may be allowed to pass either mingled or separately through the pipe K and into the bag M, in which the patient receives the bath.

Claim.—The portable steam-bath apparatus, composed of a double generator, so arranged that the products generated in the two compartments may be conveyed to the bath mingled or separately, of a bag

M, and of a connecting-pipe K; each of said parts constructed and arranged as described.

No. 13,974.—Joseph Buhler.—*Improvement in the Pipes of a Vapor-Bath.*—Patented December 25, 1855. (Plates, p. 331.)

The pipe G is perforated with one or more rows of perforations *e*, extending straight down the front; the sleeve H, fitted over said pipe G so as to be capable of being turned, has one or more spiral rows of perforations *f f*. The patient sitting on C may, by pulling handle *k*, turn the sleeve until one of the holes *f* coincides with that one of the holes *e* which is at the proper height to direct the vapor (entering pipe G from a suitable retort) to any part of his back as required.

Claim.—The back distributing pipe G, with its sleeve H, operated by a cord with a handle and weight, or by any equivalent means; the said sleeve having perforations *f f* out of line with the perforations of the pipe, to allow the patient to direct the concentrated vapor to any part of his back, substantially as set forth.

No. 12,972.—Richard A. Stratton.—*Improvement in Chairs for Dentists' use.*—Patented May 29, 1855. (Plates, p. 331.)

The set-screw G, the end of which fits into a longitudinal groove in the screw-shaft D, prevents the latter from turning, and confines it to a vertical motion upwards or downwards, for the purpose of raising or lowering the seat B. N are friction rollers.

The inventor says: I do not claim screws and wheels for raising and lowering the seats of chairs, as they are old and well-known applications, nor do I claim the use of friction rollers exclusively.

But I *claim*, as a simple arrangement for raising and lowering, and steadying the seats of operating-chairs, the annular piece L, with its projecting pins and rollers, or their equivalents, in combination with the slotted screw D, its nut-wheel N, and bracket F.

No. 13,396.—D. W. Perkins.—*Improvement in Dental Chairs.*—Patented August 7, 1855. (Plates, p. 331.)

The nature of this improvement will be understood from the claims and engravings. The standard B can be raised or lowered in a socket (not shown in the engravings).

Claim.—1st. Tightening the ball and socket-joint so as to secure the body of the chair in the desired position, by means of the band F which encompasses the socket E, the band being operated upon by a clamp G, as shown, whereby the parts *e f g* of the socket may be pressed or bound snugly around the ball *d*, substantially as shown and described.

2d. Attaching the head-rest N to the inner edge of the plate O by hinges, and having the head-rest secured at the desired angle of inclination by a segment rack P, the plate O being allowed to slide laterally upon a plate Q at the upper part of the bar R, which bar works in an opening S in the back of the chair, and is secured at the desired point by the rack V and spring-catch W, for the purpose of rendering the head-rest capable of perfect adjustment, as set forth.

No. 12,951.—Edward G. Hyde.—*Improvement in the Construction of Ear-Trumpets.*—Patented May 29, 1855. (Plates, p. 331.)

This improvement consists in intersecting the tube of an ear-trumpet, near where it enters the ear, with a passage communicating with an artificial ear, which is intended to lead such vibrations as fall on it to unite with the vibration passing round through the tube, so as to enable the person to hear the utterances of others or other sounds, without the confusion of sounds that accompanies the instrument without the improvement.

Claim.—The artificial ear C applied to an acoustic auricle or ear-trumpet, substantially as and for the purpose described.

No. 13,953.—Daniel Parrish.—*Improvement in Instruments for Modifying Focal Length of the Eye.*—Patented December 18, 1855. (Plates, p. 331.)

By applying the mouth D of the tube A closely over the eye, and either drawing the piston back if the eye is too flat, or forcing it against the eye if the latter is too convex, the eye in the former case will be drawn into the mouth D by reason of the vacuum formed in the tube, so as to assume more than its ordinary convexity, and in the latter case it will be flattened by the pressure of the air in the tube. The instrument should be applied every evening for the space of about twelve minutes, and applying it to one and the same eye for one week, and then change to the other for the same period, and so on for the term of about three months.

Claim.—The improved optical instrument described, for the purpose of improving and restoring the sight by giving greater convexity to the eye when flattened, and also by depressing that organ when too convex, in the manner specified.

No. 12,636.—Henry Mellish.—*Improvement in Lancets.*—Patented April 3, 1855. (Plates, p. 331.)

A is the blade of the lancet; B, a slot along its centre, with ways D at its edges for the ways *b* of the charger G and the guide *c* of piston H to slide on; C slot, and E recess or channel in which the tubular portion G of the charger slides; F is also a channel, but in the opposite side of the blade in which the shaft *a* of the charger slides. When the instrument has been charged, (by bringing the point into contact with the matter and withdrawing the piston,) and when the puncture has been made with the point of the lancet, and while the latter is still in the puncture, the finger is pressed upon guide *c* of the piston, and it is slipped with the charger outward until one of the guides *b* of the

charger comes in contact with the end *g* of slot B, when the guide *b* at the end of the charger will have run off its ways into space *h*, where the ways are discontinued; at which instant the guide *c* of the piston will act upon the bevelled lip *d* of the charger, and throw it out of line with the piston, (see fig. 4,) and the end of the piston will present at the end of the charging-tube at *i*, and the matter will be forced from the charger into the puncture.

The inventor says: I do not claim the combination of a piston and charger, as such, for the purpose of depositing vaccine or other matter.

But I *claim* the construction of a lancet, in combination with a charger and piston inside its blade, substantially as described, for the purpose of depositing vaccine or other matter in a puncture made for that purpose, before the lancet is drawn.

No. 13,360.—Wm. H. Rhodes.—*Improvement in Artificial Legs.*—Patented July 31, 1855. (Plates, p. 332.)

The standard *f f i* is held firm by means of the hook at the end of brace *g* taking into the notch in the roller *h;* the spiral spring within roller *h* serves to crowd the hook to its notch. The standard and brace are turned back out of the way (into position fig. 2) by knocking the lower end of the brace outwardly, (with foot or cane,) which frees it from its notch and lets it slide in the roller and snugly turn back together. The leg-piece is fastened at the knee by a capsular band and buckles, thus avoiding all binding or unpleasant sensation to foot and leg.

I *claim*, 1st. The knee-joint, as described in specification and drawing, and ankle-joint as set forth.

2d. I also claim the standard *f f* and brace *g*, with their nge-joint connection to foot-plate; coiled spring, with roller to hold the same, which retains the brace and standard in position when walking, as set forth. These principles and improvements united forming the within apparatus, which is of great utility to the afflicted.

No. 13,404.—Addison Spaulding.—*Improvement in the Construction of Artificial Legs.*—Patented August 7, 1855. (Plates, p. 332.)

The nature of this invention will be understood from the claims and engravings.

The inventor says: I disclaim the knee-joints, as patented in France by Ferdinand Leopold John, November 11, 1835, wherein the central pins withstand all the wear and shock of the leg when in use. I also disclaim any part, device, or thing embraced in the patent granted to Jonathan Russell, August 17, 1852. I also disclaim the application and use of India-rubber as applied to move the leg, as in the patent granted to John L. Drake, August 31, 1852. I also and finally disclaim the surface of deer-skin stuffed with hair, and attached to the bottom of the foot, described with the invention patented by Frank Palmer, August 17, 1852, as such will not retain any elasticity when used, but will cake together as hard as the wood of which the leg is composed.

I *claim*, 1st. The knee-spring F, or its mechanical equivalent, for throwing forward the portion of the leg marked A at each step of the artificial leg, essentially in the manner and for the purposes set forth.

2d. I claim the ankle-spring K, or its mechanical equivalent, for swinging up the forward portion of the foot on the axis or pin M, or other turning-point, at each step of the operator, essentially in the manner and for the purposes set forth.

3d. I claim the chain or rod G connected and combined with the India-rubber J, or their mechanical equivalent, which is secured in the heel of the foot, to allow the leg A a slight elasticity when placed upon the ground and tipped forward by the operator, to prevent the shock upon the cords and nerves in the stump of the natural leg, essentially in the manner and for the purposes set forth.

No. 13,611.—Jno. Taggart, assignor to Himself and Theo. D Parker.—*Improvement in Artificial Legs.*—Patented September 25, 1855. (Plates, p. 332.)

By attaching the instep part of the foot firmly to the leg without any joint between them, and providing the foot with a joint at the instep, the straightening of the leg is facilitated, and the leg is caused during its further movement to turn upon the lower part of the front end of said instep part, so as to lift the heel off the ground. As soon as the weight of the body is taken from off the artificial leg, the action of the springs G and L is such as to bend the knee and throw the heel still higher above the ground, and so far clear of it as to admit of the leg being readily moved forward for taking another step.

Claim.—Making the leg and foot without any ankle-joint, as specified. Also, combining together and with the foot the part A, and the thigh-case B, the two springs G and L, so as to operate therewith, substantially and for the purpose as specified.

No. 13,318.—Jonas Moore and D. P. Adams.—*Improvement in Apparatus for Administering Pulverulent Medicines.*—Patented July 24, 1855. (Plates, p. 332.)

The nitrate of silver is ground (by means of a wheel H, which has its circumference coated with emery) to fine dust, to be inhaled by the patient.

Claim.—The combination of the machinery described for turning the emery-wheel with a discharge-pipe L, for the purpose of administering pulverulent substances, in cases of inflammation of the mouth and throat.

No. 13,453.—Almond C. Buffum.—*Improvement in Obstetrical Extractor.*—Patented August 21, 1855. (Plates, p. 332.)

To prepare the instrument for application, the cross-bands C and E are to be doubled at *h h*, and the folds drawn through the fenestræ *j j*, entering on the concave side of the fingers until the fingers are brought together, when the slide F should be placed upon the handles A of the fingers, taking care to keep the down-straps on the inner or concave side of the fingers, and the cross-bands drawn through and folded on the back or convex side of the fingers (see fig. 2).

Claim.—An obstetrical extractor which, from the peculiar form of its fingers, and by means of three cross-bands interlaced by down-straps, so clasps and supports the head of the child as that the force necessary to assist its delivery can be applied without injury to mother or child.

Also, that by means of the fenestræ, the instrument can be ready for application, so small and of such shape that it can be applied more readily and with less risk and pain to the patient than any forceps or other extractor in use.

No. 12,960.—Erasmus A. Pond.—*Improvement in Pill-Making Machine.* Patented May 29, 1855. (Plates, p. 332.)

In the faces of the cylinders *a a*, which are properly geared so as to revolve against each other, are a double row of hollow excavations equal to the size of half of one pill. The pill mass being fed in between the two cylinders, pills will be formed where the excavated faces of the two cylinders meet. The bent wires *w w* fit into holes extending from each excavation towards the centre of the cylinder. These wires resting on the stationary eccentric *b*, are thrust outwards as the cylinder revolves around the said eccentric, thereby expelling the finished pills. The ring *d* confines the bottom part of the wires to the face of the eccentric.

Claim.—The hollow working cylinder, with a stationary cylinder inside and eccentric to it, the pits on the outside cylinders being perforated, and the perforations supplied with wires bent as described, with a ring around the loops, so that the wires are thrust out and drawn in, as described, as the working cylinders revolve.

No. 13,975.—Joseph Buhler.—*Improvement in the Combination of Injecting Syringes.*—Patented December 25, 1855. (Plates, p. 333.)

To prepare this instrument for use the cock *a* is opened, and cock *g* turned to close all communication from the receiver, either to the force-pump or to the atmosphere, as shown in the drawing, and the piston *c* requires to be pushed upward as far as possible. The glass receiver A is thus inserted into the vagina, and the piston *c* of the exhausting-pump is drawn out by hand to exhaust the air from the receiver, which causes the neck of the uterus and the surrounding parts to be drawn up so far into the receiver as to be visible to the eye of the medical attendant through those parts of the sides of the receiver which are outside the body. Medical application can then be made by drawing the preparation through suction-pipe *h* into the pump, (by drawing out piston *d*). After this, cock *g* is to be turned so as to open communication from the pump to the receiver and to close passage *f*, and then the injection can be made by forcing in piston *d*.

The inventor says: I do not claim any of the parts of this apparatus.

But I *claim* the combination of the receiver A and pumps C and D, provided with cocks *a* and *g*, in the manner and for the purpose set forth.

No. 12,156.—Sharpless Clayton.—*Improvement in Teeth.*—Patented January 2, 1855. (Plates, p. 333.)

Claim.—The dovetail grooves formed in the base of the teeth and the holes through the teeth; said groove and holes to be filled with pure tin, cadmium, or any other fusible metal, so as to form a dovetail flange and pins, as described, for the purpose of securing the teeth and gums to metallic plates, as herein set forth and described. (See illustration.)

No. 13,801.—Barclay Arney Satterthwait.—*Improvement in Preparing Artificial Teeth.*—Patented November 13, 1855. (Plates, p. 333.)

The nature of this improvement will be understood from the claim.

The inventor says: I do not claim the compounding the material or enamel, or modelling around teeth, to be connected to metallic plates in the form of block-work or continuous gum; neither do I claim the carving upper or lower sets out of one piece of porcelain material.

But I *claim* the described improvement in making whole or half sets of artificial teeth, gums, and plates entirely of porcelain by modelling porcelain material around porcelain teeth, or mounting porcelain teeth on porcelain plates, substantially as set forth.

No. 12,266.—Wm. M. Bonwill.—*Improvement in Hernial Trusses.*—Patented January 23, 1855. (Plates, p. 333.)

A A is the part of the hoop which passes around the waist of the patient; it bends down at B in front to the groins opposite to the ruptured parts or internal abdominal rings at C C. The strap I, with the pad K, forms the truss for umbilical hernia. The strap L passes horizontally across the groins of the patient at the pads M M to prevent the truss from opening too much in case of a violent strain.

The inventor says: I do not claim the hinges F F, the adjustability of the pads, or the form of the hoop, separately.

But I *claim* the combination of the peculiarly-formed hoop with the umbilical pad and strap, for the purpose of preventing the movements of the body from displacing the pad in either umbilical or inguinal hernia, as set forth.

No. 12,986.—Lucien E. Hicks, assignor to Himself and Hiram L. Hall.—*Improvement in Pads for Hernial Trusses.*—Patented May 29, 1855. (Plates, p. 333.)

Claim.—1st. An India-rubber pneumatic truss-pad without opening or valve, and filled with compressed air, as set forth. (See engravings.)

2d. Making the top of the pad thicker than the bottom or cushion, whereby the former is rendered sufficiently rigid to allow of the attachment of the shank while the cushion maintains its entire elasticity, as set forth. (See engravings.)

3d. Sinking the button beneath the surface of the pad within the cavity, and securing it therein by the flange *a;* by which means the button is surrounded by the annular cushion, and is prevented from coming in contact with the person, in the manner substantially as set forth. (See engravings.)

No. 13,430.—E. B. Grayham.—*Improvement in Hernial Trusses.*—Patented August 14, 1855. (Plates, p. 333.)

The rack and catch prevent the shifting of the pad towards as well as from the body; and by means of the set-screw passing through slot *f*, an adjustment of the pad is admitted of between the adjustments allowed by the movement of the spring-catch from one tooth to the other of the ratchet.

The inventor says: I do not claim of itself the invention of a square-toothed rack and square-pointed spring-catch.

I *claim* the described means of adjusting and securing the pads in any desirable position, consisting of the square-toothed rack *c*, the adjustable square-toothed and slotted spring-catch *d*, and screw *e*, all combined and applied substantially as set forth.

No. 13,548.—Francis Grace Mitchell, M. D.—*Improvement in Hernial Trusses.*—Patented September 11, 1855. (Plates, p. 333.)

The lever *b* presses on steel spring *d* into groove *e*. An elastic strap fastens on stud *f*, then passes under the thigh, and is buttoned on the supporter on the costa of the ilium; this produces an inward action, and increases or diminishes the pressure of the pad.

I do not claim the form or application of the pad; but I *claim* the mechanical arrangement on the back of the pad, on the metal plate, which consists of a lever, which presses a steel spring into a longitudinal groove formed in the centre of the metal plate, on the back of the pad.

No. 12,965.—Henry A. Rosenthal.—*Improvement in Uterine Supporters.*—Patented May 29, 1855. (Plates, p. 333.)

The instrument, with the leaves *a a* closed, (see figure 2,) is to be inserted into the vagina. When inserted as far as the shank will allow, the leaves are to be extended (by means of drawing together the two shank-rods *c* c^1) into position figure 1, and as they are extended should be gradually pushed inward. When fully extended, (the two shank-rods being close together and confined in this position by screwing up the nut *d*,) the leaves will find a suitable resting place, and the shank will then be within the vagina, with but little more than the nut *d* protruding beyond the pubes. By this means the uterus will be efficiently supported, enabling the female to take all reasonable exercise.

Claim.—The uterine-supporter, composed of the two supporting-leaves *a a*, and the double shank *c* c^1, combined to be applied substantially as set forth.

XXI.—WEARING APPAREL.

No. 13,002.—Franklin J. French.—*Improvement in Boot-Jacks.*—Patented June 5, 1855. (Plates, p. 334.)

The nature of this improvement will be understood from the engravings.

Claim.—The spring-wedge D, in combination with the lever B and spring E, or their equivalents, and arranged substantially in the manner and for the purpose set forth.

No. 12,725.—Samuel H. Hopkins, assignor to W. C. Greene, &c.—*Improved Stud and Button Fastening.*—Patented April 17, 1855. (Plates, p. 334.)

The button A being on the outside of the garment, and the tubular shank B being passed through eyelet-hole a^1 of the garment, the shank *c* can be inserted on the inner side of the garment, as apparent from the engraving, thereby effectually securing the button to the garment.

Claim.—The construction of the fastening, as herein shown and described, viz: Having the shanks of the stud or button formed of a tube B, which contains a spiral-spring *b*, and having a bar *c* fitted in slots *d*, in the outer end of said tube, and between the outer end of the spiral-spring *b* and a pin *a* attached to the outer end of the tube, the outer side of the bar *c* being provided with a recess *e*, which, by means of the spring *b*, is kept over the pin *a*, and the bar *c* consequently secured in a transverse position with the tube B.

No. 13,926.—Amasa S. Thompson.—*Improvement in Cutting Cloaks.*—Patented December 11, 1855. (Plates, p. 334.)

The nature of this improvement will be understood from the claim and engravings.

I *claim* cutting a cloak from seamless cloth, without sleeves, but so that, by making four cuts of the proper length for the sleeves, the cloak may be worn as a sleeved sack or overcoat by merely changing the buttonings, substantially in the manner described.

No. 12,379.—John Dick.—*Improvement in Stays for Articles of Dress.*—Patented February 13, 1855. (Plates, p. 334.)

The India-rubber webbing or spring *b* is attached at one end to the upper end of the whalebone *a*, and at its other end to the lower end of the whalebone a^1, both the whalebones being placed within the part of the dress *c c* which is to be kept without wrinkles. As this stay is so placed within the garment that the India-rubber spring is a little compressed, its constant tendency to expand will keep the part of the garment stretched to which it is attached. Figure 1 represents the garment (designated by dotted lines) in a wrinkled, and figure 2 in a stretched state.

Claim.—The described improvement in stays, as applied to articles of wearing apparel, consisting of two or more supporting-pieces, with a spring or springs applied to extend them, substantially as set forth.

No. 13,011.—Daniel Minthorn.—*Improved Brace for Supporting Garments.*—Patented June 5, 1855. (Plates, p. 234.)

The straps F serve to hold up the stockings without elastics, in case of cold feet or a predisposition to varicose veins.

The inventor says: I do not claim to have invented shoulder-braces or suspenders, for they have long been known and used.

But I *claim*, substantially as described, the arrangement of straps forming a suspender for the use of ladies or gentlemen, by which the hips are relieved of the weight of the lower garments, which are sustained by the shoulder-straps, at the same time leaving the region of the lower ribs and viscera perfectly free in their action.

I claim, also, in combination with the above suspender, the short corset by which the weight of the skirts is employed to raise and adjust the breasts, and by tightening or loosening which, the said weight is more or less transferred from the shoulders to the breast.

I also claim the straps F, attached to the boot or stockings, substantially as and for the purposes set forth and described.

No. 12,173.—William F. Warburton.—*Improvement in Hats.*—Patented January 2, 1855. (Plates, p. 235.)

The inventor says: I do not mean to confine myself to the precise form of corrugations described and represented, as they may doubtless be varied in shape, and yet accomplish the end desired; but I do *claim* forming the rims of hats with corrugations, channels, or grooves, or other ridges of the form described, or other form substantially, thereto, for imparting strength, softness, and elasticity to the rim, with less weight of felt or other material, and a decreased quantity of stiffening substance of which it is composed, than is ordinarily employed in forming rims; the said rims being previously, or at the same time such corrugations, grooves, or channels are formed, slightly raised or arched at the front and back parts immediately next the body or crown of the hat, and depressed or slightly curved downward at

the sides or not, as fancy or taste may dictate, to give them the proper brace or set, as herein set forth. (See engraving.)

No. 13,361.—Wm. Sellers.—*Improvement in Ventilating Hats.*—Patented July 31, 1855. (Plates, p. 335.)

The nature of this improvement will be understood from the claims and engravings. Figure 3 represents a section of the hat when closed; figure 2, a view of it when open for ventilation; which position of the parts of the hat is also represented in figure 3 in dotted lines.

I *claim*, 1st. Making the hat or other similar head covering to open at its side or sides, by dividing the body of the hat, and connecting or arranging the separated portions or sections of the body so that the one portion of the body may be adjusted to form an open or close connexion with the other portion of the body, substantially as and in the manner specified.

2d. Providing the divided body at the junction of the two sections with a gimp guiding-strip, or reticulated telescopic lining or casing D, arranged for operation in connexion with the movable section of the body, essentially as and for the purposes set forth, and whereby an ornamental and unbroken appearance is given to the hat all round when the body of it is open for ventilation, as described.

No. 12,313.—Hezekiah Griswold.—*Improvement in the Yoke of Shirts*—Patented January 30, 1855. (Plates, p. 335.)

This yoke permits a free motion of the neck, and obviates the necessity of cutting the top of the bosom in a curved line.

The inventor says: I do not claim the insertion of gores upon the shoulders of shirts or other garments, that being old.

I *claim*, in shirts, the compound yoke, substantially as and for the purpose set forth.

No. 12,899.—Rufus K. Chandler.—*Improvement in Wristbands of Shirts.*—Patented May 22, 1855. (Plates, p. 335.)

In wearing these wristbands, both flaps should be turned forward at first (see figures 1 and 2). When the outer flaps *a* are soiled, they can be turned back (as shown in figures 3 and 4) for the purpose of exposing the clean surface of the under flap *b*.

Claim.—Making wristbands with double flaps *a b*, substantially in the manner and for the purpose herein set forth.

No. 13,212.—S. N. Campbell.—*Improved Sun-shade.*—Patented July 10, 1855. (Plates, p. 335.)

This sun-shade is attached to a head-band, or a cap, to be worn by a person.

Claim.—Attaching a frame formed by the rods *a* and *e* to a head-band *f*, or to a cap; said frame being covered with any proper material, for the purpose set forth.

No. 13,850.—Joseph Kleemann.—*Improvement in the Preparation of Umbrella-Sticks, &c., of Ratan.*—Patented November 27, 1855.

The ratan sticks are soaked in logwood extract for about four days, and then immersed in a solution of any of the iron salts, which gives the ratan a deep black dye. Afterwards the ratan is exposed, in a close vessel, to steam of three or four atmospheres pressure for about one hour, and then dried. The sticks are then soaked in linseed, and again dried at a temperature of 110 to 125° Fahr., till the oil has become hard. The sticks are then placed into an iron cylinder (capable of standing the pressure of at least ten atmospheres), connected by a pipe with an open vessel, containing a varnish made by dissolving 120 parts of shellac and 200 parts of burgundy pitch in 90 parts of absolute alcohol. The air having been exhausted from the cylinder, the cock connecting it with the vessel containing the varnish is opened, when the atmospheric pressure will force the varnish into the cylinder and into the pores of the ratan. To make the impregnation more perfect, varnish may be pumped into the cylinder by a force-pump. The ratan, when taken out, has to be dried.

The inventor says: I disclaim impregnating woods in general; but I *claim* the preparation of ratan by impregnating it with drying-oils and varnishes, substantially as described, for the purpose of giving it flexibility, elasticity, tension, and an appearance similar to whalebone; the ratan so prepared to be used as a substitute for whalebone in the manufacture of umbrella and parasol frames, and for other purposes for which whalebone can be employed.

No. 12,903.—Wright Duryea.—*Improvement in Umbrellas.*—Patented May 22, 1855. (Plates, p. 235.)

The umbrella being closed, the spring *o* can be pressed in, and the slide M be pushed up, surrounding the umbrella with the hand at the same time to prevent the stretchers L from spreading. The outer parts of the ribs H will then slide along by the sides of the parts G, thereby reducing the length of the ribs nearly one-half. The length of the staff can be reduced correspondingly by unscrewing it at C.

Claim.—The improvement in umbrellas with ribs made in two parts, so constructed that one part slides on, or traverses in or beside, the other part, in connecting the stretchers to the outer or traversing portions or parts of the ribs, so as to hold the said portions out in their proper position when the umbrella is spread, substantially as described; and also, that those portions of the ribs to which the stretchers are connected may be traversed by moving the stretchers and slide, as described, when the umbrella is closed.

XXII.—MISCELLANEOUS.

No. 12,433.—John Bale.—*Improvement in Hotel Annunciators.*—Patented February 27, 1855. (Plates, p. 336.)

When one of the wires, leading from the rooms, and connected to the lifters G, is drawn, the hook on the lifter elevates the rear end of frame L; the stop M passes between stop P and arm O, crowding the latter back so as to allow stop M to pass over stop P, when it is forced forward by arm O, far enough to disengage the bar *i* from lifter G, and at the same time carry stop M forward of stop P, and the frame L is allowed to drop back to its original position, allowing the hammer to strike the gong S.

(The weighted end of frame L is hung on straps *k*, so that the frame has a tendency to move backward, and to bring stop M against arm O.)

The raising of the lifter G draws the catch E out of the notch in bar A, which is then thrown out by the action of spring H, and exposes to view the number on C.

Claim.—1st. Arranging the number-plate C upon the sliders A, or their equivalents, in combination with the screen-plate D, so that the number-plate shall be pushed forward, lifting the screen-plate, and thus exposing the number to view.

2d. The combination of the frame L, its hangings, and the stop M, with the stop P, arm O, and lifters G, or their equivalents, by which the wires are made to act independently of each other in striking the gong, unless the hammer shall, at the instant, be in active operation.

No. 13,600.—Jacob Nelson.—*Improved Awning for Horse and Dray.*—Patented September 25, 1855. (Plates, p. 336.)

This awning is designed as a shelter from sun and rain; the awning, when not required to protect the load, can be thrown (from the position shown in the engraving) over, so that the poles *f* of the awning will be supported by the brackets *h*, when it will serve to protect the team.

Claim.—The portable and reversible dray and horse canopy, whose poles *f* are hinged at one end to posts *b*, and supported in either the forward or backward position by branches or brackets *g h* projecting from the posts.

No. 12,222.—Fred. Tesh.—*Improved Beef-Spreader.*—Patented January 9, 1855. (Plates, p. 336.)

The operation of this instrument is apparent from the engraving.

Claim.—The construction of a spreader for beef, of a stick *a* and tongue *c*, operated by a cog-wheel and ratchet-work, substantially in the manner hereinbefore described.

No. 13,089.—Geo. W. Hildreth.—*Improved Mode of Hanging Bells.*—Patented June 19, 1855. (Plates, p. 336.)

To secure the swing of the tongue always at right-angles with the yoke, the cap *d* is dowelled to the yoke so that it cannot turn with the nut *e*, and the nut *c* is prevented from turning by a projection from the sides of the bolt sliding in grooves in the cap *d*. (See fig. 3.)

Claim.—The round tapering shank *b* and corresponding hole in the yoke *a*, in combination with the bolt *c* and cap *d*, to secure the bell firm into the yoke.

2d. The dowelling of the cap *d* to the yoke *a*; also, the manner of securing the bolt *c* from turning in the cap *d*, for the purpose set forth.

No. 12,604.—George W. Palmer.—*Improved Bill-holder.*—Patented March 27, 1855. (Plates, p. 336.)

N L is the box, D is the arm hinged at E, and is constantly pressed against the back N of the box by means of a flat spring H, which is bent at nearly a right-angle.

Claim.—An oblong box, of suitable size, for holding files of bills or papers, having upon one of its sides a hinged movable arm and attached spring, by which the papers are held in place, as fully described.

No. 12,202.—James Hanley.—*Improvement in Devices for Stoppers of Bottles.*—Patented January 9, 1855. (Plates, p. 336.)

The inventor places the bridge B obliquely, as he considers this to be a more convenient arrangement than to have the cork exactly at right angles to the neck of the bottle.

Claim.—Making bottles so that the resistance of their contents shall bear laterally upon the cork or stopple; also the oblique position of the bridge B, for the purposes as above set forth, in the manner stated, or by its equivalent.

No. 12,501.—Theophilus A. Ashburner.—*Improvement in Bottle-Stopper Fastenings.*—Patented March 13, 1855. (Plates, p. 336.)

b b are the two stirrups, and *c* is a tin band, with which the cork may be permanently fixed to the bottle.

The inventor says: I am aware that many devices have been essayed for securing corks in bottles, but all of them involve expense, intricacy, or difficulties in placing or removing them from the bottle; and I do not claim any such contrivances, meaning to limit myself to what I have described and represented, relying mainly upon the hinging of the stirrups to the button, which greatly facilitates the placing or removing of the button from the cork, and securing the stirrups on one side to the neck of the bottle.

I claim the device described for securing corks in bottles, viz: a button provided with hinged stirrups for catching under the projection of the bottle, for the purpose of more readily placing it on or removing it from the cork; and this I claim, whether said device is a fixture on the bottle or separate therefrom, as described.

No. 13,266.—Jules Jeannotat.—*Improvement in Bottle-Fastenings.*—Patented July 17, 1855. (Plates, p. 336.)

The nature of this invention will be understood from the claim and engravings.

The dotted lines represent the position of parts when the cushion is removed from the mouth of the bottle.

Claim.—Forcing or pressing a cushion H of India-rubber, or other suitable material, over or upon the mouth of the bottle A, by means of a lever E inserted in a plate D, which plate D has flanches F F attached to it by rods or links C; the plate D also having attached to it a plate G to which the cushion H is secured; the above parts being arranged and applied to the bottle as shown, for the purpose set forth.

No. 13,338.—John Allender.—*Improvement in Bottle-Fastenings.*—Patented July 24, 1855. (Plates, p. 337.)

A strap of sheet-metal E is so arranged as to swing across the cork C after it is inserted into the mouth B of the bottle. E is connected to another strap F, which partially surrounds the neck A of the bottle, so as to form a pair of hinges by means of the wire G, which fastens both straps to the neck of the bottle.

Claim.—The strap E, constructed with hinge and hook for holding in and releasing the corks or stopples of bottles, jugs, &c., substantially as set forth.

No. 13,402.—Amasa Stone.—*Improvement in Forming Screw-Threads, &c., in the Necks of Glass Bottles and Similar Articles.*—Patented August 7, 1855. (Plates, p. 337.)

Figures 1 and 2 represent the tool used for forming the orifice of a bottle; fig. 3 represents a section of the orifice formed by said tool.

Claim.—In the construction of tools for forming screw-thread, angular, or other scores in the necks and orifices of glass, earthen, or other bottles, and other articles, making the plug which forms the interior of the orifice to turn with the bottle, jug, or other article, while the material of the orifice is worked around it, substantially as described.

No. 13,659.—John Smylie.—*Improvement in Register Bottle-Fastenings.*—Patented October 9, 1855. (Plates, p. 337.)

The bottle as shown in the engraving (which latter represents only the neck N of the bottle) is supposed to be standing upright, the ball E resting on the lower collar *d* at the bottom of spindle F, and inclined projection L on arm H bearing with its upper end against the projection of lever J. On the bottle being partially inverted in order to pour out

a portion of its contents, the ball E slides along the spindle, strikes the upper collar *d*, moves the spindle, and with it the arm H. The projection L on the latter moves the lever J on account of its inclination, and thereby moves spring-catch K and the dial to the extent of one tooth. The amount of contents required being now obtained from the bottle, it is restored to its upright position, and in doing this the ball slips down the spindle F, and, striking the lower collar *d*, restores the spindle and its arm H to its former position; at the same time, the inclined projection L being likewise depressed, the lever J and catch K are by means of a spring caused to move backwards the distance of a tooth. Thus, every time a portion of the contents is poured out, the dial is moved so as to register the number of times the bottle is used for pouring the contents therefrom. D is a casing which is hinged at *e*, and can be provided with lock and key.

Claim.—The spindle F, with its sliding-ball E, in combination with the arm H, projection L, lever J, spring-catch K, and dial G, or their equivalents, arranged and constructed substantially in the manner and for the purposes specified.

No. 13,782.—Jos. C. Day.—*Improvement in Ring and Gudgeons for Bottle-Fastenings.*—Patented November 13, 1855. (Plates, p. 337.)

B represents the neck of the bottle; *s*, the stopper.

Claim.—1st. The construction of the hoop *b* with two gudgeons thereon, one of which is made open or divided in halves, and which when in actual use are brought together, thereby forming one gudgeon, which, with that on the opposite side, are the recipients of the gudgeon-boxes represented by the letters c^2 c^2, fig. 4.

2d. I claim securing the two half gudgeons c^1 c^1 together, and consequently the collar to the bottle, by means of one of the gudgeon-boxes of the bail.

No. 12,335.—Elisha Waters.—*Improvement in Cylindrical Boxes.*—Patented January 30, 1855. (Plates, p. 337.)

The paper sides of a box cost less than if made of wood, because the paper can be formed into cylinders on long mandrels, and be cut into sections of the proper length by machinery.

The inventor says: I do not claim in general the combination of wood and paper in the manufacture of all descriptions of boxes; but I *claim*, in the manufacture of cylindrical boxes, making the sides of said boxes of paper tubes, and the ends of wooden discs, substantially as and for the purpose set forth and described, whereby I am enabled to produce at once a better and a cheaper box, by making each part of the most suitable material and in the cheapest manner.

No. 12,511.—Louis Koch.—*Machine for Making Paper Boxes.*—Patented March 13, 1855. (Plates, p. 387.)

The inventor says, in his specification: In the accompanying drawings the machine is represented in a position supposed that a box has just been completed. The cam 19 has already moved a little the lever P^1, and consequently the rod L^1; and as this motion has been just sufficient for the projection *x* on the latter to have acted on the catch L, so as to bring the same clear of the valve I, said valve is now only kept closed by its weight a^1, and can be pressed open by the mould *h* to allow the same, by the motion of the wheel H, to move out of the outer mould. By turning now at the handle C, setting thereby the machine in motion, the cam 19 will still act upon the lever P^1, and consequently on the rod L^1, which comes now in contact with one of the pins h^1 of the wheel H, and turns the same partly around, thereby bringing the inner mould *h* (where we suppose a finished box attached) clear of the outer mould, formed by the projections *k* k^1 and the valve I. In this operation the valve I has been pressed down to allow the mould *h* to pass, and is then closed again by its weight a^1, and the catch L, which has likewise been released from the projection *x* of the rod L^1, is pressed by its spring K so as to lock the valve I firmly to its place. The cam 19 moves the lever P^1, and consequently the rod L^1, so far, that by the action of the latter against the pin h^1 of the wheel H, this wheel H has turned so far around that its arms stand at an angle of about 45°. During this time the cam 18 has acted continually on the lever Z, keeping the same, and consequently the pincers P, steady, and the latter in the lower position.

As soon as the arms of the wheel H arrive at the above described position, namely, at an angle of about 45°, the cam 18 relieves the lever Z from its action, and the same is now acted upon by the spring *z*, thereby forcing the pincers P suddenly upwards. The pincers are at this top position pressed apart by the action of their spring K^1, as above described, so as to allow the arms or moulds *h* of the wheel H to pass within them.

At the same time the above mentioned operation has been going on, the toes 3, 4, 5, 6, and 7, have acted alternately upon the levers T and T^1 respectively, moving the same backwards and forwards, and which motion has been communicated through the rods *m* m^1 to the cranks *f* f^1 of one of the lower rollers D, producing thereby just one whole revolution of the same; and as all the lower rollers are connected together, and the circumference of each roller is just equal to the length of paper required to make one box, such a length of paper has by this operation been brought forward. As will appear by the following, there is on the table of the machine, formed by the plates H^1, and in the position the machine is now in, one required length of paper lying close to the forward end of the machine, ready cut and pasted for folding, close to and behind the same one piece of paper already cut or stamped out, only requiring to be pasted, and behind and close to this last, again, the paper drawn into the machine by the rollers D D^1 from an endless roll of paper R P, situated behind the machine.

By the operation of the rollers, the first piece of paper, ready cut and pasted, is now brought forward and pushed over the opening of the outer mould, resting upon the top slides M and M¹, ready to be folded, while the second piece of paper is brought forward and into the place which was occupied before by the first piece, to be pasted by the next operation, and a further piece from the endless roll of paper is pulled into the machine and into the place occupied before by the second piece, to be cut off by the stamp the required length and shape. The first projection of the cam 19 has brought the arms of the wheel H in the position above mentioned, and kept the same stationary in that position until the motion of the rollers, and consequently of the paper, is completed. The second projection of the cam 19 acts now upon the lever P¹, and consequently on the rod L¹, producing a further motion of the wheel H, sufficient to bring the arm or inner moulds *h* into the outer mould, thereby folding the paper which was moved over the opening of said outer mould around itself, and taken it with it into the same, leaving only those parts of the paper projecting which are to form the top and end of the box. This cam 19 keeps, then, the lever P¹, and consequently the rod L¹ and wheel H, for some little time stationary in that position, until one of the top-slides has been moved over the mould *h*, by which the same is secured, when the cam 19 leaves the lever P¹, and the spring *q*¹ at the end of the rod L¹ pulls said rod and lever back again to its original position, ready for the next action.

After the mould *h* has been moved into the outer mould forward by the projections *k k*¹ and the valve I, the toe 14 acts upon the lever X, which lever, by its connexion, through the bell-crank *y*, with the top-slide M, moves the latter over the mould *h*, folding thereby the projecting paper over the top of the same.

The toe 15 acts now upon the opposite side of the lever X, and brings, therefore, the top-slide M away again; but at the same time the toe 16 acts upon the lever X¹, which, by its connexion through the bell-crank *y*¹ with the top-slide M¹, moves the same over the mould *h*, folding, thereby, the projecting paper over the top of the same, and over that piece of paper which was folded by the slide M; and as this last folded piece of paper was pasted beforehand by this operation of folding the second over the first, the same will likewise be pasted together. The toe 12 acts now upon the lever V¹, which, by its connexion through the bell-crank W¹, with the side-slide N¹, moves the latter over the end of the mould *h*, folding thereby the projecting piece of paper over the same. The toe 13 acts then upon the opposite side of the lever V¹, and brings thereby the side-slide N¹ away again. When the side-slide N¹ is about half-way brought back again, the toes 9 act upon the lever U, which, by its connexion with the lower slide O, brings the same upward and over the end of the mould *h*, and at the same time the toe 1 acts upon the levers S and S¹, which, by their connexions through the levers R and R¹ and the rods *n* and *n*¹ respectively with the beams F and F¹, and the connexion of the latter with the upper slide O¹, move this upper slide downward and over the end of the mould *h*. By those two last operations, the top and bottom projecting pieces of paper have been folded over the end of

the mould *h*, and over the piece of paper which was folded before by the side-slide N¹. The toes 2 act then upon the opposite sides of the levers S and S¹, and the toe 8 upon the opposite side of the lever U, bringing thereby the upper and lower slides O¹ and O back again. During the return motion of those slides, the toe 10 acts upon the lever V, which, by its connexion through the bell-crank W with the side-slide N, moves said side-slide over the end of the mould *h*, thereby folding the paper projecting on that side over the end of the mould, and likewise over the three other pieces which have been folded before over the end of the mould *h*; and as this last folded piece was pasted beforehand, the same has, by the last mentioned operation of folding, been pasted to the other pieces of paper, which were folded first. The toe 11 acts then upon the opposite side of the lever V, bringing thereby the side N back again, and the toe 17 acts upon the lever X¹, whereby the lap-slide M¹ is brought back, leaving the box finished, folded, and pasted together on the mould *h*. During the time that this operation of folding the paper around the mould *h* has been going on, the cam 18 has acted on the lever Z; and through the connexion of the latter with the pincers P, the same have been pulled downward by the action of this cam on said lever Z. In this downward motion of the pincers P, the projections *p p*¹ on the pincers P have passed over the elevations on the slides Q Q¹, and have pressed thereby the pincers P together, so that the same take hold of the finished paper box, which we have supposed to be on the lower mould *h*, and pull, therefore, said box off this mould *h*. As soon as the pincers have been moved sufficiently far downward to have pulled off the paper box clear of the mould, the projections *p p*¹ leave the elevations on the slides Q Q¹, and the pincers are then forced apart by the action of their spring K¹, thereby allowing the box to fall out from between said pincers. During the downward motion, the beams F F¹, the knife or stamp-frame E, and the pasting-frame G, have been pressed down and upon the paper situated upon the table H¹, and between the rollers D and D¹, and held stationary at that moment by said rollers. By this action, the stamps or knives attached to the under side of the frame E cut off a piece of paper the required shape necessary for one box, while the boxes, with paste, situated within the pasting-frame G, have (by being pressed upon the paper) pasted that piece of paper in the required places, which lies underneath the same, and which was cut out by the former action of the stamp-frame E, and has been pushed into that place by the former action of the rollers D D¹. The cam 19 begins now again to act upon the lever P, and the above described actions will be repeated.

Claim.—1st. The application of a series of rollers connected together, and worked by an arrangement of levers and toes, or cams, for the purpose of bringing paper from an endless roll, and of a required length, into the machine and pieces of paper previously shaped and pasted by the machine, to the place required, substantially as described.

2d. The application of a stamp-frame, with suitable knives or stamps attached, situated between the rollers, for the purpose of cutting off the

paper the required size and shape, from the endless roll, necessary for one box.

3d. The application and construction of the pasting-frame, with paste-boxes situated between the rollers, and arranged in such a manner as to paste the already shaped paper in the required places, as set forth.

4th. The construction and application of a wheel with arms, having at their extremity the moulds attached, around which the boxes are to be made; said wheel, with mould, being moved by an arrangement of a rod and lever, actuated by a cam, in the manner described.

5th. The application and use of a series of slides for the purpose of folding the ends of the papers around the mould, said slides being worked by a combination of levers, &c., actuated by toes, in the manner set forth.

6th. The application and use of a pair of pincers, for the purpose of pulling the finished paper-box off the mould, constructed and worked in the manner set forth.

7th. The construction of the outer mould, formed by two projections attached to the frames, and a hinge-valve, and the operation and manner of working said valve; the various parts of the whole machine being combined and arranged for the purpose described.

No. 12,177.—DANIEL WELLS.—*Burglars' Alarm.*—Patented January 2, 1855. (Plates, p. 338.)

B is the door (end view); A the door-jamb. When the door is closed against the door-jamb, the projection *e* on arm *d* (which is pivoted to the door-plate D) will strike the upper part of latch *a*, and will be forced along the circular slot *h*, and against the spring *f*, until it has arrived opposite the recess *x* in latch *a*, when it will catch into said recess, there being a small angular groove in the top of said recess, for the reception of the corner of projection *e*. The arm *d* is then in position d^1. When, after that, it is attempted to open the door, (the arm *d* being continually pressed towards a vertical position by means of spring *f*,) the projection *e* in ascending the slot *h* will raise the latch *a* (into position figure 2), thereby pulling rod K, turning lever *n* around its fulcrum, so that the notch on its shorter arm will clear the square head of rod O, which rod (being connected with any suitable alarm apparatus) will be suddenly protruded by means of spring *p* (see dotted lines figure 1), and give the alarm. When it is desired to restore the bolt *a* to its original position, the rod *l* is pulled so that the upright arm of bell-crank *m* will press rod O back until its square head catches again into lever *n* (see dotted lines figure 2). When it is desirable to render the apparatus inoperative, the cam *c* is turned back (see dotted lines figure 1), which will depress latch *a*, so that it will be clear of projection.

The inventor says: I am well aware that the giving of alarms from the opening of doors is old and well known. I do not, therefore, wish to claim that exclusively; but I do *claim* the radial arm *d*, with its projection *e*, and the latch *a*, with its notched recess *x*, for effecting the disengagement of the spring-bolt on the movement of a door,

or its equivalent, in the manner described, and for the purpose specified.

No. 12,351.—DANIEL HALDEMAN.—*Improved Burglars' Alarm.*—Patented February 6, 1855. (Plates, p. 338.)

The alarm being charged and cocked, the lever G is turned over as seen in the engraving, and its end slipped under the door T. The opening of the door presses down the lever G, which carries down the end of lever F, releases the catch *o* from the hammer, and the hammer is thrown by the spring *c* on to the cap *a*.

The inventor says: I do not claim the letting off an alarm in the act of opening a door, nor do I claim an alarm which requires fastening of any kind, either to the door or floor, to insure its going off, as several of these are already known.

But I *claim* combining with the trigger, lever, or dog, which holds the hammer at a cock, a hinged inclined lever G, the end of which simply passes underneath the door, and requires no fastening other than it receives by being held by the door itself, as it is pushed open, as described.

No. 13,157.—EPHRAIM BROWN.—*Burglars' Alarm.*—Patented July 3, 1855. (Plates, p. 338.)

The alarm apparatus consists, as usual, of a bell F, hammer H, key *a*, coiled spring *c*, key-wheel *d*, ratchet *e*, lantern-pinion *g*, and escapement-wheel *i*, which operates the bell by means of an escapement *k*. The main-spring being set free, it will sound the bell. Pin *l* projects from the escapement-wheel, and operates in connection with stud *m*, extending from discharging-lever *n*, which plays on fulcrum-pin *o*, extending through the two arms a^1 b^1 of locking-lever *q*. When *n* is drawn forward it will cause *m* to be drawn away from *l* so as to permit wheel *i* to revolve. The return movement of the lever will carry the alarm-stud into the path of rotation with the pin *l*, and when *l* strikes against the stud its further rotation will be arrested. Springs *r* draw levers *n q* towards the alarm apparatus. Bolt-rod I is jointed to spring-bolt K, which works through the side of the drawer (to which the whole apparatus is applied) and into the rail of the drawer-case. Rod I has a projection r^1, which enters a notch in arm a^1. I is pivoted to bent lever L, which has its fulcrum *t*, its shorter arm resting against rod *u* of secondary knob M (*u* sliding freely within *v* in main knob B). *v* extends through opening W, (in lever *n*,) into which the stud *y* extends from arm a^1. Rod *v* has also a projection *z*, which (actuated by spring f^1) rests against projection c^1 on lever *n*. Thus rod *v* can be turned upon rod *u* so as to move projection *z* directly in rear of stud *y*. Then (after pulling the main knob) *q* will be moved so as to unlatch I, and to enable I to withdraw bolt K; the latter movement being effected by forcing M inwards against short arm of L. Levers *n q* are drawn by their springs against stationary block N, which is provided with two series of holes g^1 and h^1, the two external series of which are arranged against arms

a^1 b^1, while the internal rows thereof are disposed against the discharging-lever. Each hole is to receive pins d^1, resting each against one of three key-levers O P Q on a common fulcrum k^1. By these holes, pins, and key-levers, either of levers *n* or *q* may be operated, the spring-bolt being always retracted by forcing in knob M (and the motion of the key-lever forcing the pin against the lever *n* or *q*). Lever Q may be operated by a knob R and lever-fork t^1. Affixed upon shaft *h* of pinion *g* (where *h* passes through counter-plate S^1) is a tooth m^1 operating in gear *n*, that carries index-pointer o^1, and turns on arbor p^1 projecting from S^1. Thus all improper attempts to open the drawer will be registered. There are three ways of opening the drawer without sounding the alarm: 1st. Seize the main knob and rotate it until *z* is directly in rear of *y*, pull the knob from the drawer, press the knob M inward with the palm of the hand, and seize and pull forward the drawer. 2d. Pull the right-hand key-lever, press inward M, and pull the drawer outward. 3d. Pull R, the wrist of the arm being borne against M, and pull forward the drawer. The other two key-levers may be arranged as decoys, or with respect to *n*, so that when one is moved in one direction it may move the discharging lever, and also when the other is moved in the opposite direction it shall produce such a movement of the discharging-lever as to sound the alarm.

The inventor says: I *claim* arranging the locking and discharging-levers, the main and secondary knob-rods, the unbolting lever and bolt-rods, substantially as specified and represented.

Also, arranging the key-levers with respect to the locking and discharging levers, as described, and combining such key-levers with the locking and discharging levers, by one or two series of sliding-pins, or their equivalents, made to operate through holes in a block arranged with respect to the locking and discharging levers, essentially as set forth.

Also, arranging the alarm apparatus with respect to the locking and discharging levers, as specified; also arranging the counter-wheel or apparatus, and combining it with the alarm apparatus, in manner as described, not intending to claim the use of a counting apparatus or register, or connection with the alarm apparatus, such having been claimed by me in my former patent.

Also, combining with the lever Q the third knob R, by which said lever may be operated under certain circumstances, as specified.

Also, arranging the main and secondary knob-rods so that the latter may slide through the former, or the former be made to slide on the latter, under circumstances as specified.

No. 13,478.—Albert Bingham, assignor to Himself and Andrew J. Bailey.—*Burglars' Alarm.*—Patented August 21, 1855. (Plates, p. 339.)

The friction-match is inserted between the clamping-cam *d* and the projection *c* of the plate I, which is capable of sliding on plate C, and is thrown forward when the spring-pawl P is thrown out of its notch *b*. The match when thrown forward rubs against the rough face of disc R, which latter is attached to its holder S so that it can be rotated, to bring a new portion of the roughened surface into contact with the match. The face of the disc is arranged at an angle with the path of the match, which latter is indicated by the arrow in the engravings. The rod of the bell-hammer F and the arm K attached to the match-holder are so arranged, that while the match-holder is retracted, its arm bears upon the rod of the hammer and forces it down so as to prevent the play of the escapement of the alarm apparatus. When the match-holder is moved forward the hammer is relieved, so that the escapement-pallet H will play freely, or be made to operate by the escapement-wheel. The cast-off lever L (on fulcrum *a*) will be operated by projection *m* on arm K, during the forward motion of the match-holder, so as to throw the extinguisher M off the wick-tube and expose it to the flame of the match.

Figure 1 represents a plan; figure 2, a side view; and figure 3, part of an end view of the apparatus.

The inventor says: I do not claim combining with the match-holder a roughened surface for the match to rub against.

But I *claim* arranging the friction-surface when applied to a spring, bent as set forth, at an angle with the match-holder or its path of movement, as described, in order to facilitate the ignition of the match when the holder is in movement.

I also claim making the friction-surface to revolve, as described, in order that a fresh portion of the surface may be exposed to the match whenever any part of the surface becomes worn or unfit for use.

I do not claim the combination of an alarm apparatus or movable match-holder, or friction-surface, and a lamp, nor the combination therewith of a contrivance for casting the extinguisher off the wick-tube of the lamp.

But I claim the described arrangement of the match-holder, cast-off lever, and hammer-rod of the escapement, whereby, while the match holder is retracted, the escapement apparatus will be controlled, as described; but during the forward motion of the match-holder, not only will the cast-off lever be tilted so as to throw the extinguisher off the wick-tube, but the escapement set free, so as to enable the alarm mechanism to operate and strike the hammer with repeated strokes upon the bell.

No. 13,738.—Daniel E. Eaton, assignor to Himself and Perley O. Eaton.—*Improved Burglars' Alarm.*—Patented October 30, 1855. (Plates, p. 339.)

When set, one arm of the trigger should project by the door in such manner that, while the door is being opened, it may move said trigger far enough to produce a complete withdrawal of the bolt from the hammer H; in order that said hammer, when thus relieved from retention in a vertical position by the bolt, may be thrown, by the spring F, upon the top of rod I. By the pressure of spring F, the hammer H is borne down upon the top of rod I, so as to depress the said rod and the spring *g* upon which it rests. This movement of rod I will set free an alarm

apparatus of the usual construction (not shown in the engravings. The match-holder is stationary while the igniting surface, or sector G, is made to move against the match, the said sector operating to throw the extinguisher O off the wick at the same time it ignites the match.

The inventor says: I do not claim the combination of a lamp and an alarm apparatus, a match-holder and an igniting surface, nor employing therewith a contrivance for casting the extinguisher off the lamp; but I *claim* arranging both the igniting sector G and escapement hammer H on one rotary shaft, (controlled by a spring, as set forth,) in combination with so arranging the wick-tube *c*, the match-holder C, and the escapement-rod I, that immediately after the trigger-bolt N has been withdrawn from the escapement hammer, not only shall such hammer be thrown over upon the top of the escapement-rod, but the igniting sector be caused to discharge the extinguisher off the wick-tube, as described.

No. 13,874.—Samuel Hamilton, Jr.—*Improved Burglars' Alarm.*—Patented December 4, 1855. (Plates, p. 339.)

In figure 1, the drawer is pushed into its case, and is secured without the aid of a lock by the stop *t* and the stop *u* resting on or bearing against each other, and the hook part of the spring-catch *o* passing into the partition *s* of the casing *a*; and in addition thereto, the secret spring-slip *x x* presses up against the side of the drawer, and thereby keeps the two stops *t* and *u* locked against each other; and before this drawer can be opened, the pull-knob *b* must be turned to the left. This turns the block L, which actuates the links *n n*, which draws out the hook of the spring *o*; and in the act of doing this, the drawer must be also pressed to the left by the pull, and in the act of pressing to the left, hold on to the knob; and with drawing the drawer, no alarm is given, when operated by any one familiar with the devices.

The knob *b*, if pulled out directly, will, in the act of passing outward, cause the stop-pin h^* to pass from off the hammer-handle *h*; and this lets fly the alarm-spring *i*.

Again: if the knob *b* is thus pulled out, the spring-catch *c* catches on to the outside of the drawer, and the alarm cannot be stopped until the spring is again pushed into its place, and the knob pushed back also.

In order to increase the certainty of detection, the side alarm is inserted in the side of the casing instead of within the drawer; and in the act of depredation, as the drawer is being drawn out, the hook *o* carries along with it the sliding-block s^1, by the hook catching the pin t^1, and as this is done, the stop *y* is taken off the hammer axle X, when the side alarm is set going.

The inventor says: Disclaiming the clock devices and bells, I *claim* constructing an alarm with an actuating pull-knob *b*, having a catch-spring *c*, ratch-disc b^1 formed with a tube c^1, together with the rail *d d d*, the blocks K K^1 L, links *n n*, hook-springs *o*, sliding-block s^1 with catch devices t^1 t^1, the secret spring-strip *x x*, through all of which, in combination with clock-work devices, are actuated bells or alarms J, substantially in the manner described and for the purpose set forth.

No. 13,876.—Horace L. Hervey.—*Improved Burglars' Alarm.*—Patented December 4, 1855. (Plates, p. 340.)

A number of sets of levers B C D E F are arranged alongside of each other. The fulcrum levers F rest on springs *a*; the stop levers D and E are attached to levers F, and also to levers C, which are connected to key levers B; levers G G^2 are connected to the alarm L and bolt M. When it is desired to connect the bolt and alarm with levers B, the stops E are to be pressed down, which press levers C down on lever G^2 until it is firmly grasped in the slot in C; this connects it with the alarm. When it is desired that an alarm be given by any one attempting to open the drawer, the stop levers C are to be pressed down until the slots fit over G^2, which connects the alarm with the key levers B. All the stop levers, except one, having been pressed down in this way, the one is to be connected with the bolt by pressing down its stop D, so as to cause the slot in C to fit lever G. If any one then attempts to open the drawer, and touches any one of the levers C, except the one connected to the bolt, it will lift the catch J and set the alarm free, and ring the bell L.

The springs *a* are so arranged that, as the stops D and E are pressed down alternately, the point of bearing of the fulcrum lever F is changed, yet the pressure of the spring is always against the point of bearing, keeping it always at the required position, and holding the levers C in the proper place.

The inventor says: I do not claim decoys of themselves, as decoys are not new; but I *claim* the combination and arrangement of levers F, springs *a*, stop levers D and E, slotted levers C, key levers B, flat-sided levers G G^2, connecting levers H H^2, and links I, varying the alarm at pleasure, by means of the stop levers D and E, and for drawing the bolt M, as described.

No. 12,674.—Wright Duryea.—*Card Exhibitor.*—Patented April 10, 1855. (Plates, p. 340.)

A strip J, with the name, etc., printed upon it, from end to end, at suitable intervals apart, is substituted for separate cards, and is wound upon roller D, its last end being held by spring-holder G, as apparent from the illustration. If a card is to be drawn, the hinged holder G is opened, as indicated in figure 2, by broken lines, the strip drawn out to the length of a card, the holder G closed again, so that it holds the strip firmly, and the card is torn off.

Claim.—1st. The within described improvement in card exhibitors and distributors, consisting in the application of the roller D, printed strip J, guide *d*, and self-closing spring-holder G, substantially as and for the purposes herein described.

2d. I claim the use of a printed strip, for the purpose herein described.

No. 12,599.—Samuel B. Knight.—*Method of Chalking Lines.*—Patented March 27, 1855. (Plates, p. 340.)

C is the chalk, and L the leather or rubber packing, which rubs off all the superfluous portions of chalk.

The inventor says: I claim the described method of chalking a line by drawing it through the cylinder or other vessel containing the fine chalk, and also through the rubber of leather or other compressible substance, for the purpose and in the manner substantially as set forth; and this I claim when used for chalk or other coloring material.

No. 12,605.—David Sholl.—*Improvement in Coffins.*—Patented March 27, 1855. (Plates, p. 340.)

Claim.—The production of a coffin composed of *terra cotta* or pottery ware.

No. 12,497.—Virgil Woodcock.—*Improvement in the Arrangement of Desks in School-rooms.*—Patented March 6, 1855. (Plates, p. 340.)

I *claim* the diagonal arrangement of the seats B and desks A, as described. (See engravings.)

No. 13,371.—Wm. G. Wolf.—*Improvement in Writing-Desks.*—Patented July 31, 1855. (Plates, p. 340.)

The nature of this improvement will be understood from the claim and engravings.

I *claim* the horizontal inclined levers E, and inclined and declined planes J, with the upright traveller H working thereon, which causes a graduation that of a desk to be formed, or else entirely concealed, at pleasure, as described, using for that purpose the aforesaid horizontal inclined levers, inclined planes, and upright traveller.

No. 13,414.—Francis Arnold.—*Improved Egg-holder.*—Patented August 14, 1855. (Plates, p. 340.)

By means of boxes fitted with a number of egg-holders, as the one represented in the engravings, eggs can be transported safely and without requiring the usual packing.

I *claim* securing or holding eggs within boxes, or on table castors and other articles, by means of the elastic clamps *b*, constructed as shown and described, or in any equivalent manner, for the purposes specified.

No. 12,643.—Stephen R. Roscoe.—*Fire-escape Ladder.*—Patented April 3, 1855. (Plates, p. 341.)

B C D are the sections of the ladder C, being in the progress of extension beyond B, and coming up from behind it. When the ladders

are down, C lies behind B, and D behind C; the bottom of each being on the platform P, and B being hinged to the platform at H. The operation of the machine is as follows: When the sections lie in a tier, one behind the other, (the section D being in rear of the others and resting against wheel W,) and when the wheel W is turned, its teeth act on the rack-teeth with which the rear parts of the sections are provided, the section D mounts upward, hook *h* running along the groove under the iron *b*, and keeping the ladders together, so that when the bottom of D arrives at the sloping top of C, the bottom of D is guided along the top of C until the upper lines of the two sections range, and the dovetailed tenon and mortise fit each other, when the detent *k*, which has been kept down by the pressure of the ladder above it, springs out, and prevents D from sagging back along C. To lower the ladder, W is turned backwards; and when the points of junction of two sections have passed just below the wheel, a tooth of it depresses the detent, and allows the upper section to slide down under and along the lower one.

The roller R and roller G (pressed against the sections by means of springs S) serve to keep the sections in their places as they move up and down. Platform P slides a small distance back and forth to accommodate itself to the movement of the ladders as they rise and fall.

Claim.—In the described sectional ladder for fire-escapes and other purposes, the combination and arrangement of the mortise *m*, tenon *t*, spring-latch *k*, hook *h*, and the groove in which it traverses, the whole being constructed to operate as described, for the purposes set forth.

2d. In combination with the described sectional ladder, I claim the traversing platform P and traversing roller G, so constructed and arranged as to allow the sections of the ladder to be operated as set forth.

No. 13,068.—Charles De Saxe, assignor to Thomas H. Bate.—*Improved Serpentine Spinner to Catch Fish.*—Patented June 12, 1855. (Plates, p. 341.)

The object of this improvement is to give continual motion to the hook or tackle, even where there is but very little current.

Claim.—A spinner, substantially as described, constructed of a piece of metal *a* twisted or coiled upon its edge, and then attached to and winding about a hook, or other piece of tackle, for the purpose set forth.

No. 13,081.—Richard F. Cook.—*Improved Fish-Hook.*—Patented June 19, 1855. (Plates, p. 341.)

To make the hook (see figure 2) ready for fishing, the collar *e* is moved down (see figure 1) and held so by the elasticity of the strips A; this causes the lower ends of these strips to move close enough together to allow the ring *e* to be placed round them. When a fish takes the baited hook into his mouth sufficiently far to bring hooks *b* between

his jaws, and then pulls slightly upon the bait-hook D, it will be sprung, (see figure 2,) and the hooks *b* caused by the action of spiral spring C to move laterally from each other.

Claim.—The combination and arrangement of the steel-strips A A A A, having barbs *b* formed on them, collar or plate *c*, rod B, spiral spring C, ring *e*, and bait-hook D, substantially as and for the purposes set forth.

No. 13,649.—Job Johnson.—*Improved Fish-Hook.*—Patented October 9, 1855. (Plates, p. 341.)

The nature of this invention will be understood from the claim and engravings.

The inventor says: I do not claim forming a spider of hooks in themselves, as the same have been used for meat, and a variety of other purposes; but I *claim* the method described and shown of catching fish by means of a cluster or spider of hooks, beneath and around suitable bait 3, so that said hook can be suddenly raised up, and catch the fish while nibbling at the bait, in the manner and for the purposes specified; I also claim the method set forth of attaching and hanging the hooks *e* from the ends of the spider-arms *c*, by means of the spring-throat 2, whereby said hooks can be raised or replenished, in the manner and for the purposes specified.

No. 12,395.—Jefferson Parker.—*Improvement in Machine for Slaughtering Hogs.*—Patented February 13, 1855. (Plates, p. 341.)

c are longitudinal bars for the hogs to rest upon while undergoing the scalding process. The hogs are removed from the scalding-vessel A to the scraping-table B by means of fingers *d*, being brought from position figure 2 into position figure 3, when the hog, elevated by the said fingers, will glide off upon table B.

Claim.—The arrangement of the elevating fingers *d d* and the chains *e e*, with the operating levers, and with the scalding-vessel A and the scraping-bench B, substantially in the manner and for the purpose set forth.

No. 13,817.—Edward Pierre Fraissinet and Henri Emile Reboul.—*Ticket-Holders.*—Patented November 20, 1855. (Plates, p. 341.

This instrument is intended for travellers, for preserving, securing, and exhibiting their tickets. The ticket is to be secured between the spring-hooks B, and the hook E may be inserted in the button-hole of a coat.

The inventors say: We do not confine ourselves to the forms described, as they may be varied without deviating from the principle described; but we *claim* the construction of an apparatus, or instrument, for carrying, securing, and exhibiting tickets, as described and referred to.

No. 12,748.—William H. Webb.—*Improvement in Metallic Hones.*—Patented April 17, 1855. (Plates, p. 341.)

The body A of the strop is made of metal of a softer nature than one or more metal strips *a b* which are inserted within said body, so that the whole presents an even surface.

The softer metal is intended to hold and retain the sharpening material and to enable it wear down the blade, the strips of harder metal serving to smooth or polish the sharpened edge.

Claim.—A hone constructed with its sharpening surface composed of a combination of metals of different degrees of density, and arranged together substantially as specified, and intending to claim the broad ground of constructing a hone of metal.

No. 13,409.—Addison Capron and Joseph S. Dennis, assignors to Themselves and Henry M. Richards.—*Improved Machine for attaching Hooks and Eyes to Cards.*—Patented August 7, 1855. (Plates, p. 342.)

Each link of the endless chain or feeding receiver G has a recess *b*, for the reception of a hook and eye; see fig. 3, which is a top view of a couple of the links on an enlarged scale.) The grooves *c c* in the wheels E F, and rail I, supporting the chain, allow each hook and eye placed in the chain recesses to extend out of said recesses and across the line in which they are to be sewed to the card placed upon plate H. The metallic band M prevents the hooks and eyes from falling out of their recesses while passing around the wheel, and until they (the hooks and eyes) come to lie with their faces on the card on plate H; this card is moved along upon plate H with the feeding receiver G, both being moved with the same intermittent motion; for this purpose, the feeding roller N is placed underneath wheel F, and works through a slot O, formed transversely through plate H. For the purpose of sewing the hooks and eyes to the card, any suitable sewing-machine is employed, so arranged that its needle or needles may work on either or both sides of that part of the feeding receiver resting upon the card; figure 2 of the engraving represents only part of the sewing-machine, to wit, the end of needle-carrier arm X, with needle U, and other parts of a common sewing-machine.

Claim.—The described combination, or other substantially the same, of a feeding-receiver, made to receive the articles and maintain them at proper distances asunder, a card or sheet-feeding mechanism, and sewing machinery on one or both sides of said receiver.

No. 13,098.—W. D. Parkin.—*Improved Ice-Houses.*—Patented June 19, 1855. (Plates, p. 342.)

When the door O is open, the doors *g* are closed; and when flooring *f* is covered, the door O is closed, and the doors *g* opened and the articles lowered into the house. By not keeping the door O and the

doors n^1 open at the same time, the lower chamber is kept free from atmospheric influence and change of temperature.

The inventor says: I do not claim making an ice-house with double sides, and packing a non-conducting substance between the sides, for that is well known; but I *claim* the construction of the ice-house as shown and described, viz: having the ice-house formed with double sides *a a*, and double roof *c*, with a suitable non-conducting substance packed between them, the house being provided with a slotted floor g having an ice-chamber underneath it, and also provided with a double inclined floor *i i* at its upper part, underneath which a screen *j* is secured, on which charcoal and other absorbents *k* are placed; a flooring *l* being placed on the flooring *i i*, and having holes or traps *n* provided with doors n^1 made through it, and also through the flooring *i i* and screen *j*, the flooring also containing ice, substantially as described and for the purpose set forth.

No. 13,809.—CORNELIUS R. WORTENDYKE.—*Improved Machinery for Raising Ice from Rivers, &c.*—Patented November 13, 1855. (Plates, p. 342.)

e is an inclined plane, formed of main string-pieces, supported by suitable braces, and receiving an open bottom composed of bars *t*, attached to a cross-piece 2, setting in notches 3 in the string-piece *e* of the incline, so as to run the ice off into the house *d;* and as the said house becomes gradually filled with ice, the section 1 can be replaced, commencing at the bottom, so that the ice will be higher elevated before being run off by the chutes *f* to the house. The ice is drawn up the inclined plane *e* by means of hooks 4 4 attached to an endless chain *i*, that passes around pulleys *g* and *h*, and to the pulley *g* the required rotary motion is given.

By the following arrangement this apparatus is applicable, notwithstanding any change of the level of the water: *k k* are side-beams, connected by joints to the ends of the string-pieces *e* at the edge of the dock *b*, carrying at their lower end the bottom-board *l*, connecting said ends together. The outer ends of these beams *k k* rest on a cross-piece *m*, between two floats *n n;* and the joints between the beams *k k* and string-piece *e e* are such as to allow the said outer end of the incline to rise and fall the required extent. *o o* are frames on the side-beams *k k*, carrying the journal-boxes 5 5 of the wheel *h*. These journal-boxes are attached by means of screws passing through a long slot in the frame *o o*, and into a plate 6 beneath. 7 7 are screws passing through fixed nuts 8 8, and through small holes at 9 in the journal-boxes, where they are secured by a pin, so that said journal-boxes can be adjusted to tighten the chain as the water rises, or slacken the same as it falls. To prevent the slipping away of the ice from the hook when passing the angle at the joints 10, formed by the side-pieces K K and the string-pieces *e e*, a movable bottom is applied, which bottom is attached to the beams *k k* by joints 12 12, and is formed of side-pieces 11 11 and cross-bars, carrying strips *p*.

The bottom *p* nearly coincides in its inclination with the chain *i*,

whatever the height of the water may be, and consequently the hook 4 will always have a firm hold on the ice to draw it up the incline.

Claim.—The method set forth of adapting the ice-elevating chain to work under changes in the level of the water by joining the frame-work carrying the lower wheel of said elevating-chain to the lower end of the fixed incline, and sustaining the said frame-work wheel and chain on scows or floats, substantially as specified.

Also, the movable bottom *p*, fitted and arranged as specified, to pass the ice from the movable to the stationary part of the incline, in the manner specified.

Also, in combination with the frame-work, jointed to the lower end of the fixed incline, carrying the lower wheel of the elevating-chain, the adjustable slide journal-boxes and screws, for regulating the tension of said elevating-chain, as the water rises or falls, as specified.

Also, making the rear part of the shell tapering or conical, as seen at *a a*, combining therewith a ring or annulus *b b* of lead, or its equivalent, the same being substantially in the manner and for the purpose specified.

Also, confining the explosive screw-cap to the body of a shell, by means of a softer or yielding metal, or casing, which, when the cap or shell strikes an object, shall give way under the force of the blow, and let the cap down with force, so as to compress the percussion wafer or priming in it, or on the main screw, stopper, or plug, and so as to create an explosion thereof, as stated.

No. 13,824.—CHARLES A. MCEVOY.—*Improvement in Railroad-Station Indicators.*—Patented November 20, 1855. (Plates, p. 342.)

The signs *a*, with the names of stations written on both sides, are hinged to the angles *m* of a reel, which may be turned by the conductor so as to cause one of the signs to drop through the slot *s* in the roof R of the car, and exhibit the name to the passengers.

The inventor says: Disclaiming the use of an indicator pointing to fixed signs, and also movable signs where but one side is visible, I *claim* presenting a movable sign *a* or symbol to passengers of a railroad-car so that both sides of said sign shall be visible and utilized as annunciators, by hinging said signs *a* to the angles of a polygonal reel, in such manner as to make each sign in turn drop through a slot, substantially as set forth.

No. 12,759.—NORMAN C. HARRIS.—*Improvement in the Manufacture of Slate-Pencils.*—Patented April 24, 1855. (Plates, p. 342.)

When the carriage B, bearing a slab of slate, moves in the direction of the arrow, the cutter D, bearing against its carrier A, cuts a slight depth into the slate, making grooves at the proper distances apart for forming the individual pencils side by side. Then as the carriage recedes it swings the cutter away from its carrier, (the cutter swinging round pivots *b*,) and thereby frees it from the slate. In the mean time the cutter-carrier is moved down a little, and when the carriage again moves forward the cutter makes the grooves a little deeper in the slate.

This continues till the pencils are half formed in the face of the slab, which is then turned the other side up, and the same process repeated till the other halves are formed in like manner.

Claim.—Cutting the pencils, completely formed, from slabs of slate, by means of a cutter or series of cutters, grooved so as to half form the pencils on one side of each slab; and then reversing the slab and forming the other halves of the pencils, substantially as herein set forth.

No. 12,141.—SYLVANUS SAWYER.—*Machine for Splitting Ratans into Strips.*—Patented January 2, 1855. (Plates, p. 343.)

The stick of ratan, passing through a series of feed-rollers C C^1, is introduced into guide-stock Q, and by it guided to radial wing-cutter R. Guide-stock Q consists of four movable guides *e e e e* (see fig. 6), each two of which are jointed together by levers *g g*, and are forced towards one another by springs *f f*. Cutter R consists of a series of chisels *k* with their cutting-edges in radial direction. Between each two of these chisels there is a spring *l* fast to the tubular box *m*, which sustains the cutter R. Springs *l* serve to force the sectoral strips of cane close down into the angle of the cutters, and thereby insure the proper direction of the strips to the annular cutter S. Within this annular cutter S there is a series of tubular cutters *n*. (See fig. 7.)

Cutter R separates the ratan into sectoral strips *a* (represented on an enlarged scale in fig. 3); cutter S separates from each of these sections *a* what is termed the strand *b* (see fig. 4); the tubular cutters *n* round off the triangular portions *c* to the shape as represented in fig. 5.

Claim.—Combination of mechanism for splitting the ratan into sectoral strips, and a mechanism for removing annular or segmental strands therefrom, substantially as above specified.

Also, combination of mechanism for splitting a stick of ratan into sectoral or triangular parts or strips, and a mechanism for rounding and dressing or finishing either one or more such strips, substantially as specified.

Also, combination of mechanism for splitting a ratan into sectoral parts or strips, a mechanism for removing or separating from such parts annular or segmental strands, as specified, and mechanism for rounding, reducing, or finishing either one or more or all of the triangular strips or parts of the pith or inside portions of the ratan, as specified.

No. 13,627.—CHARLES C. REED, assignor to HIMSELF and WILLIAM S. REINERT.—*Machine for Preparing Ratans, &c.*—Patented October 2, 1855. (Plates, p. 343.)

The table G is provided with suitable openings to give room for the feed-rollers H, and allow them sufficient side-play; the table can be adjusted to the grooves *g* in the rollers by means of set-screws *s*, so as to suit different thicknesses of ratan. The vertical shafts E bear against the slide-rests S, which are inserted into the lower table D. The outer ends of these slide-rests bear against set-screws *k* and springs K, which

allows the feed-rollers to yield sufficiently to receive and embrace the ratan between them. The side-bar L, which can be adjusted by set-screws *l*, prevents the springs and slide-rests from moving out too far.

The engraving represents only one set of the feed-rollers, and none of the cutters, as the latter form no part of the invention.

Claim.—1st. The combination of the adjustable table or plate G with the upright feeding and guide rollers H, for enabling the upper surface of said table or plate to be graduated to the grooves in the rollers, substantially in the manner and for the purpose set forth.

2d. Arranging the adjustable side-bars L in such relation to the upper and lower parts of the flexible portions of the springs K as to enable them to be graduated so as to arrest the outward movement of the lower flexible portions of said springs, at such points as to allow the rollers to yield sufficiently to receive and embrace the ratan between them, and yet prevent one of them from moving further from the centre than the other, so as to keep the ratan at all times in the centre groove, and at the same time allow a slight and stiff elastic movement to the upper portions of the springs above the bars, to allow either of the rollers to yield to the inequalities on either side of the ratan, as fully set forth.

No. 13,823.—JOSEPH MCCORD.—*Policemen's Rattles.*—Patented November 20, 1855. (Plates, p. 343.)

The nature of this improvement will be understood from the claim and engravings.

Claim.—In policemen's rattles the securing of the handle to the edge of the ratchet-wheel, and at right-angles to the axis of the latter, for the purpose of turning down the handle out of the way, thereby rendering the instrument more convenient to carry in the pocket, and for the further purpose of combining a mace and rattle in one instrument, substantially in the manner set forth.

No. 13,913.—GILBERT D. JONES.—*Improvement in Sand-paper Making Machines.*—Patented December 11, 1855. (Plates, p. 343.)

The sand is heated by hot air entering passage *b* for the purpose of effecting the immediate setting of the glue, by driving off the moisture by contact with the hot sand. The sand is thrown up by means of the wheel *d* against the glued surface of paper *p* arranged around the drum *e*. The face of the drum has two grooves e^1 near its edges, for receiving the sides of the sand-box, and thereby making a better joint. As the gluing-roller e^2 presses the paper against the drum, the extreme edges would not receive glue properly by reason of their sinking into the said grooves; each groove is therefore filled up for a short distance by a curved stationary piece O, attached to the side-framing.

Claim.—1st. Applying the sand or grit, in a heated state, to the glued surface of the paper, for the purpose set forth.

2d. The method of depositing the sand upon the glued surface; that is to say, by projecting it forcibly against said surface while in

such reversed position, that the excess shall fall off by gravity, as described.

3d. The combination of the stationary pieces O, or their equivalent, with the moving drum, the paper, and the gluing roller, for the purpose set forth.

No. 13,449.—Edward Louis Seymour, assignor to William Oland Bourne.—*Improvement in Apparatus for Sifting.*—Patented August 14, 1855. (Plates, p. 343.)

This apparatus consists of several tubular sieves *a*, *b*, *c*, *d*, of various dimensions, placed one within the other, and so contrived as to be capable of being rotated around their common centre; and whilst thus rotating as one body, to sift out the different sizes of the material (sands, mineral earths, or the like) corresponding to sizes of sieve-cloth of which the tubes *a*, *b*, *c*, *d* are formed. The centre sieve is the coarsest.

Claim.—The described rotary sifter, in the several cylindrical sieves, one within the other, provided with conduits so arranged as to deliver the proceeds continuously, substantially as described.

No. 12,426.—N. C. Sanford.—*Improved Skates.*—Patented February 20, 1855. (Plates, p. 343.)

Claim.—Securing the runner B to the stock A by having disks *a a* on the upper ends of the knees C C, these disks being fitted within tubes or cylinders D D in the stock, the tubes or cylinders having a suitable elastic material within them, and their upper and lower ends covered by plates *b*, secured to the stock, whereby a requisite degree of elasticity is given the skate, as shown and described. (See engraving.)

No. 12,427.—N. C. Sanford.—*Improved Skates.*—Patented February 20, 1855. (Plates, p. 343.)

The back part of the skate will rise with the heel when the weight of the body is thrown upon the front part of the skate.

The inventor says: I do not claim merely forming the stock of two parts, for that has been previously done; but I *claim* having the stock A of the skate formed of two parts B C, and connected by a spring D, when said stock is combined or used in connexion with an elastic spring runner E, for the purpose set forth.

No. 12,338.—Jas. S. Ewbank, assignor to Wm. Everdell, Jr.—*Improvement in Spurs.*—Patented January 30, 1855. (Plates, p. 343.)

E is a screw-nut working on the screw *f*, its under face being concave so as to insure the outer edge coming in contact with the shoulders *e e* of the branches *a a* outside of the pivots *c c*, thus necessarily compressing the branches towards each other, and securely fastening

the spur to the heel. In the same manner the conical screw F operates, by expanding the upper ends *g g* of the arms *a a*, and effects the same result.

Claim.—The construction of a spur having a divided hinge-branch *a a* for embracing the heel of the boot or shoe. Also, I claim the mode of sustaining the divided branches *a a* by means of the shoulder screw-nut, either as constructed by having said nut E with its bearing outside of the hinge of the jaws, or as sustained by means of the cone F, substantially as described.

No. 13,312.—John Jeune.—*Improvement in Stalls for Horses, &c.*—Patented July 24, 1855. (Plates, p. 343.)

The partitions yield readily to the pressure or kick of the animal, so as to prevent him from injuring himself. The partition can be swung in line so as to leave the space open and unobstructed, to make it available for other purposes when desired. The sleeves R surrounding the lower part of the chains turn freely, so that the animal when rubbing against it cannot be injured by coming in contact with the chain. The chain *c* can be hitched across when desirable. The doors D prevent the animals from getting their heads together; but they can be swung in line, whenever it is desirable to make the stable more airy or to expose the heads of the animals.

Claim.—In stables or stalls for horses or other animals the swinging partitions S S, constructed and arranged substantially as described, for the purposes set forth.

2d. The doors D D in combination with the planks A A, so constructed and arranged as to operate substantially as described.

3d. The sleeves R R in combination with the chains C C, to prevent the animal from injuring himself by rubbing against the chains.

No. 12,926.—George Turner.—*Mandrel for Cutting Tapering Sticks.*—Patented May 22, 1855. (Plates, p. 344.)

A, face-plate; B, hole through face-plate A and mandrel K for the passage of the stick when turned; the jaws E have projecting nuts G that pass through slots F in the face-plate, with a right and left-handed screw (cut on shaft H) working through said nuts; shaft H is attached to face-plate A by means of box I and said nuts G. On the outer end of shaft H is a cog-wheel L, and as this wheel is turned the two jaws E are made to approach each other; one of the jaws carries chisel M, which, as the plate revolves, cuts the stick down to a size which will let it pass through between the jaws. The cog-wheel receives its motion from the single screw-thread P on the stationary rim R, within which the face-plate revolves.

Claim.—The construction of the face-plate with the two jaws E E, with the cutter M on one of them, and made to close together by means of the right and left screw-shaft H H, moved by means of the cogged wheel L and the screw-thread P P P P on the rim R R, as herein de-

scribed, or by any other construction substantially the same, and which will produce the intended effect.

No. 13,709.—Robert A. Smith.—*Improved Machine for Sweeping Gutters, &c.*—Patented October 23, 1855. (Plates, p. 344.)

The gutter-brush H is made adjustable, so that it can be readily removed and another put in its place. The pivot at the outer end of axle L, which the gutter-wheel I turns on, is inclined upwards, so that the wheel will also be a little inclined, for the purpose mentioned in the third part of the claim.

Claim.—1st. An adjustable gutter-brush, made to conform to or correspond with the shape of the gutter to be swept, so constructed and arranged that it may be removed from and applied to the end of the shaft which carries it, with facility, substantially as described.

2d. The guard or gauge-wheel *c*, arranged so as to prevent the gutter-brush from being carried too hard against or over the curb-stones so as to derange or injure it.

3d. So arranging the gutter-wheel by means of an angular axle, that the lowest portion of the tire, and the lower portion only, will come in contact with the curb-stones, substantially as described.

No. 13,455.—Dugald Campbell.—*Swimming-Glove.*—Patented August 21, 1855. (Plates, p. 344.)

In swimming with these gloves, the fingers and thumb are brought close together when the hands are pushed forward, and are expanded upon the backward and downward stroke.

Claim.—The use or employment of flexible webs, uniting the thumbs and fingers of gloves.

No 12,832.—M. M. and J. C. Rhodes.—*Machine for Leathering Tacks.*—Patented May 8, 1855. (Plates, p. 344.)

The links *c c* which connect the cylinder E and lever F have slotted the holes which receive the pin *f*, elongated to leave some free play for the pin, and to allow the final action of the cylinder, in driving the leather down upon the punch, to be effected by a shoulder *g* at the top of driver G, so that the leather will not be cut till the tack is driven through it. Each time the feeder H moves forward (by means of lever connection K L,) the tongue I passes behind the foremost tack, and, separating it from the rest, moves it towards the cylinder, but does not push it into the mouth *o*, as, while the divider moves forward, the cylinder and mouth have moved downwards. The tack is pushed into the mouth by the tongue I¹ as the divider moves back while the cylinder rises. When the tongue I¹ begins to act, the head of the tack is in contact with the face of the cylinder, and the tongue acting near the point throws the point inwards, and gives the tack a slanting direction. The point, being thus carried in beyond the projecting-lip *k*, is prevented from slipping down outside the cylinder.

Claim.—1st. The employment, substantially as herein described, of a hollow cylinder with an opening in the side to receive the tacks, and a driver working within it in a suitable manner to expel the tacks at the end of the cylinder, and drive them into the leather or any material serving the same purpose, which is presented in a suitable manner to receive them.

2d. Operating the cylinder and driver, substantially as described, so that the former may receive a short and the latter a long movement, and that the final operation of the former to cut the leather or other material on the punch may not take place till after the termination of the operation of the latter in driving the tack through the said leather or material as herein fully set forth, but may be produced by a continued movement of the latter after it has driven the tack through.

3d. The divider, consisting of one or more tongues, similar to I I¹, having a straight edge working nearly close to and across the entrance of the receptacle into which the tacks are fed, to be submitted to the operation of the driver, and having a bevelled end terminating in a point to separate the tacks one by one as they are brought by the feeder contiguous to the aforesaid receptacle, and to conduct and push them as required into the said receptacle, substantially as herein described.

4. Forming the mouth *o* of the barrel with a projecting lip *k*, substantially as described, for the purpose of passing outside the point of the tack as the barrel rises and the tack is entering the mouth, and thereby preventing the point from going down the outside of the barrel and letting the tack fall head-foremost into the barrel.

No. 12,417.—Jos. G. Goshon and Saml. M. Eby.—*Preparation of Maize-Leaf as a Substitute for Tobacco.*—Patented February 20, 1855.

After cutting, the blades are thrown into heaps, and, when sufficiently wilted, are hung upon frames or lines to dry; after drying, the leaf is dipped in warm water, and its middle portion or string removed. Corn-stalks, gathered at any time before frost and cut fine, are then boiled with a sufficient quantity of water to reduce the central parts of the stalk to a pulp and form a syrup, to which are added quassia and capsicum, or other bitter botanical production. The blades, after preparation as above, are then placed in this syrup and allowed to simmer and soak until well filled with the mixture; they are then taken out and submitted to the same process as tobacco for manufacture of segars, &c. Four ounces of quassia and half an ounce of capsicum to a pound of the corn-leaf.

Claim.—Preparing the leaf of Indian corn substantially as set forth, for the purposes specified.

No. 12,125.—James Caffrey.—*Improved Trap for Catching Animals.*—Patented January 2, 1855. (Plates, p. 344.)

When the animal walks on the platform D, and pushes against the grating G, the back edge of frame H raises the spring L, which lifts the lever I, which frees the pin K, and the platform D falls downward

with the weight of the animal, entrapping the latter in a box underneath. At the same time, pin K on the next platform D is caught by notch of spring I, and the trap is again set.

Claim.—The peculiar arrangement and combination of the lever L, spring L, and wire grating G, acting simultaneously with the revolving platform D, to cause the trap to act and set itself, substantially as herein described.

No. 12,892.—Lucius B. Bradley.—*Improved Rat-Trap.*—Patented May 22, 1855. (Plates, p. 345.)

The bait being placed on the tilting plate which is hinged at *d*, and a rat passing upon it, his weight depresses it. Thus the arm *e* of the tilting plate is thrown up, whereby, through the agency of the balancing spring F, the stop *c* is thrown up, and the spring D enabled to act and force the drop C down upon the rat. (Position shown in figure 3.)

Claim.—The employment of a tilting or swinging plate E, and balancing or counteracting spring F, in combination with the ordinary spring-drop or fall C, substantially as and for the purposes set forth.

No. 13,483.—Lucius B. Bradley.—*Improvement in Trap for Catching Animals.*—Patented August 28, 1855. (Plates, p. 345.)

After the animal has stepped upon the tilting bottom G, the fall D is thrown down by the action of springs E, thus catching the animal; the pawl J, bearing against one of the teeth of ratchet I, prevents the fall from being lifted by the animal.

Claim.—The application of the ratchet-bar I and pawl J to the trap, for the purpose of rendering it capable of confining the animal after being caught under the drop or fall, as set forth.

No. 13,853.—Leonard S. Maring.—*Improvement in Attaching Casters to Trunks.*—Patented November 27, 1855. (Plates, p. 345.)

The inventor attaches the casters to brackets E, secured to the edges of the trunk A, so that it may roll on said casters, even when tilted, as represented by the dotted lines in the figure.

I *claim* constructing and arranging casters on trunks, in the manner substantially as described and shown, and for the purpose set forth.

No. 12,671.—Thomas C. Connolly.—*Improvement in Machines for Recording Votes in Legislative Bodies.*—Patented April 10, 1855. (Plates, p. 345.)

The frame D has three vertical divisions, the central one containing the names of the members; over the unoccupied divisions, to the right and left, are to be inscribed "yeas" over the one, and "nays" over the other. The tablets *b*, in the central division, which exhibit the names,

are moved either to the right or left division under the yeas or nays by means of levers *i*, which levers have their fulcra in a vertical rod *g*, passing through the fulcrum holes *h* in said levers. Cords *f f* (represented in the figures by broken lines) pass from each lever *i*, as indicated in figure 1, below the floor of the apartment, to a T-shaped lever L. The end *d* of this lever can be moved to the right or left round pin *l* by means of an upright lever *d*, which is pivoted in *e*, and the upper end *c* of which, reaching above the desk of the respective member, can be moved by said member either to the right or to the left, whereby, in consequence of the just described arrangement of cords and levers, the tablet *b*, exhibiting his name, will be moved under the yeas or under the nays.

The rear end of each lever *i* is forked, so as to move the corresponding one of the plates *k* to the right or to the left, whenever the front end of lever *i* is moved to the left or to the right. These plates *k* are arranged, one above the other, in a galley E, and contain, on their front faces, the corresponding names of the members in types, stereotypes, or the like. When the names in frame D are recorded among the yeas and nays, the stereotyped names in the galley will also be accordingly arranged. The series of plates *k* in the galley are provided with three holes *l l l*, which, whether the plates be moved to the right or left, or be in the centre of the galley, will all come one immediately over the line of the other, so that a pin may be passed through the galley and the plates. The galley, so locked, can be removed to a printing-press and impressions taken from it.

The inventor says: The recording of votes by a system of knobs, bell-pulls, cranks, and wires, has been used, and is well known. These I do not claim, nor do I claim the working of slides on which the names of the members are printed or engraven; but I *claim* the moving of the slides, containing the members' names, into columns of yeas and nays; this arrangement being one that is well calculated for the convenient display of the vote to all the members of the body voting, substantially in the manner described.

I also claim the arranging of a series of types, stereotypes, or plates, in a galley, by a system of levers, cords, wires, etc., extending from each desk or seat to said galley, so that any number of impressions of the exact record of the vote taken may be instantly printed or struck off.

I also claim the so arranging, in a galley, of a series of types, stereotypes, or plates, as that they may be readily moved therein to the left or right, and instantly locked into a form, from which printed impressions may be taken by any of the well known means.

No. 12,886.—Samuel Huffman, assignor to Himself and C. D. Hay.—*Mode of Indicating the Numbers of the Yea and Nay Balls in Machines for Taking Votes in Legislative Bodies.*—Patented May 15, 1855. (Plates, p. 345.)

The slightly inclined conductor *t* or *u* (one for the negative and the other for the affirmative votes) guides the balls into inclined or vertical trans-

parent tube *x* or *w*, which have an inner diameter to fit the balls loosely, and which are provided with a scale *s* or s^1. The divisions of the scale being equal to the diameter of one ball, and being numbered from the bottom upwards, the number of votes polled on either side can be read off the scales at a glance.

Claim.—The use of transparent tubes, or their equivalents, provided with index scales, for the purpose of showing the number of votes on either side of a question by indicating the number of balls which have passed into each tube, substantially in the manner herein set forth.

AGRICULTURE.—(Omitted.)

No. 12690.—A. H. MORREL.—*Improvement in Cultivators.*—Patented April 10, 1855. (Plates, p. 346.)

This improvement is particularly designed for the thinning out of superfluous cotton plants and the cultivation of the remaining plants.

The thinning point *m*, of the shape of a common plough-point, has its shank fast to a cross-beam L, which can be slid laterally on rods *n* by turning handle e^1 on shaft *a*, a cord f^1 (both ends of which are fastened to cross-beam L) passing over guide-pulleys *q* around pulley *p* on shaft *a*. The cultivator *r* is attached to a beam K, which can be made to swing in a vertical plane round rod k^1 by depressing the handle-lever J, which latter has its fulcrum in l^1. The front end of beam K projects a little, so as to fit into a recess in the plate m^1, which plate is screwed to the cross-bar F of the main frame A C D. The handle of lever J can also be turned to the right or left, its support l^1 turning on a vertical journal *y;* thereby beam K, with shear *r*, can be slid laterally on rod k^1, after having lifted the front end of K out of the recess in plate m^1. A frame *k k* has its rear ends hinged to the axle *f* of the wheels H. Its front is supported by a plate *o* projecting from the under side of the main frame A. This frame *k k* is confined by a catch d^1 entering a recess in cross-bar E of the main frame. Frame *k k* supports a shaft *b* carrying an arm *c* and knife *d*. Gearing *h g* serves to revolve shaft *b* and knife *d*. This knife, when in position shown in figure 2, cuts the plants below the surface of the ground; if not desired to cut, it can be elevated above the top of the plants by pulling back cord *s*, as indicated in figure 3.

The stationary knife *e* serves to clean the rotating knife *d*.

Claim.—1st. The combination of the adjustable thinning point (or points) *m* at the forward end of the cultivator, with the adjustable cultivating point (or points) *r* at the rear end of the cultivator, substantially as herein set forth.

2d. The combination of the rotating cutter *d* with the laterally adjustable thinning point (or points) *m*, and the cultivating point (or points) *r*, substantially in the manner and for the purpose set forth.

LIST OF RE-ISSUES AND CLAIMS FOR 1855.

No. 286.—*Improvement in Mowing-Machines and Harvesters.*

What I claim is the combination of the bar that supports the cutter with a diagonal lever, held down at its inner end substantially as described, and resting upon the axle of the carriage as a fulcrum, or upon some other equivalent support that will perform the function of a fulcrum, whereby the outer end of the cutter-bar is held up, substantially as herein set forth.

JOHN H. MANNY.

No. 287.—*Improvement in the arrangement of Joints for attaching Trucks to Harvester-Frames.*

What I claim is the arrangement of a flexible joint in the line of the cutter, or thereabouts, in such manner that the machine will bend freely up and down along this line, to keep the cutter as nearly as may be at a uniform height from the surface of smooth or undulating ground.

JOHN H. MANNY.

No. 288.—*Improvement in Arrangements for Controlling Harvester-Cutters.*

What I claim is controlling the flexure of the machine, hinged so that it will bend in the line of the front edge of the cutting apparatus or thereabouts, by means of an adjustable stop and arm, or their equivalent, in such manner that the cutter will be kept at the proper elevation on smooth ground, will be free to rise and fall to conform to a gently undulating surface, and will be restrained from descending into furrows, and other sudden and narrow depressions, while it will be free to rise to any extent required for passing over boulders, stumps, or other like protuberances in its path, substantially as specified.

JOHN H. MANNY.

No. 289.—*Improvement in Harvesters having a Leading Truck.*

What I claim is the leading carriage to carry the driver in a position in advance of the cutter, where he can readily see obstructions, and observe the character of the surface of the ground, in time to adjust the machine properly for operating upon any given part of its path before reaching the same, in combination with a cutter-carriage joined to the leading carriage by a hinged bar or other flexible connexion, cutter-carriage the being provided with an adjusting lever or

arm, and extending forward to the leading carriage, where it can be conveniently reached by the driver, to enable him to raise or lower the cutter as required.

JOHN H. MANNY.

No. 290.—*Improvement in the Frame Construction of Triangular Harvesters.*

What I claim is constructing the frame which supports the cutting apparatus of a triangular or trapezoidal form, one of its acute angles being at the end of the finger-bar next the standing grain, so that the frame will not bear against the standing grain back of the finger-bar, and will permit the wheel which supports the outer end of the platform to be placed a considerable distance within the end of the finger-bar, yet sufficiently far from the frame, and at the same time not too far back of the centre of weight to poise or balance the machine properly.

JOHN H. MANNY.

No. 291.—*Improvement in Cutter-Fingers of Harvesters.*

What I claim is constructing the lower part of the finger or the upper, or both, with a recess on either side in front of the finger-bar, whereby the clogging of the cutting apparatus is effectually prevented, as herein described.

I also claim constructing the finger so that the sides of its upper half will overhang those of its lo er half, the cutter playing between the two, substantially as herein set forth.

I also claim bevelling the upper corners of the shank of the lower part of the finger, so as to form a cutting-edge *e* thereon, in the position and for the purpose described.

JOHN H. MANNY.

No. 292.—*Improvement in Harvesters.*

What I claim is:

1st. The arrangement of the track-scraper at the outer end of the machine, and the wheel or wheels which support the opposite end of machine, whether driving-wheels or not, in such relative position that the wheels while the machine is cutting one swath will run in the track cleared by the former while the machine was cutting a previous swath, as herein set forth; but in this patent I make no claim to the track-scraper itself.

2d. The projection 7, on the under side of the upper bars 5 of the top *m* of the finger, in combination with the chamfer or recess on the lower inside corners of said bars, to counteract the tendency of wire-grass or other fibrous obstructions to pass in between the cutter-bar *c* and the sides of the recess in the upper part of the finger in which it is guided.

3d. Forming the guard-finger *o* of two parts *m* and *n* interlocked at the point substantially as herein set forth, so that grass cannot lodge in the joint and form an impediment to its entering between the stalks of the standing grain.

4th. In combination with the raker's stand or seat, I claim the removable platform or raking bottom, constructed with a wing that extends from the outer end of the cutter over the frame, and holds up the butts of the straws above the stubble, which otherwise would obstruct the discharge of the grain from the platform, substantially as herein set forth.

JOHN H. MANNY.

No. 293.—*Improvement in Spark-Arresters.*

We claim:

1st. The arranging of a series of chambers and channels between two conically shaped plates, the channels being so formed as to cause the products of combustion to impinge against that side of each of the dirt-chambers which has the openings and caps, and thereby force the sparks, dirt, &c. into them in the manner described herein.

2d. We claim the piece *p* suspended in the central aperture at the top of the spark-arrester, arranged and operating in the manner and for the purpose substantially as herein before described.

3d. We claim the double cover or top, for the formation of a second series of dirt-passages, arranged and operating in the manner and for the purpose substantially as hereinbefore described.

JAMES RADLEY.
JOHN W. HUNTER.

No. 294.—*Improvement in Ploughs.*

What I claim is:

1st. Combining with the plough-beam between the plough and the forward end of the clevis, by means of a single shaft, two wheels, one on each side of the beam, and of different diameters—the one resting in the furrow, and the other on the land—for the purposes set forth and described.

2d. I also claim making the tread of the furrow-wheel narrow, for the purposes described.

3d. I also claim making the furrow-wheel bevelling outward on the side which presses against the land, as above described, and for the purposes hereinbefore set forth.

4th. I also claim making the small wheel adjustable with reference to the shaft or axle and the large wheel, as described.

I also claim the adjustable hangers in combination with the plough-beam and axle, for the combined purpose of bracing the axle and rendering the wheels simultaneously adjustable with reference to the beam, without disturbing their adjustment relatively to each other, as described.

CORNELIUS R. BRINCKERHOFF.

No. 295.—*Improvement in Fastening Lanterns.*

We claim attaching the lamp to the lantern by means of the combination of the catches *e* with the flanges *a* and *f*, and the ring to which the catches are hinged, or its equivalent; the purpose and object of the ring being to give the hinged ends of the catches a motion concentric or parallel, or nearly so, to the side of the lantern, or the flange through which the catches pass.

CHARLES MOUNIN.
WM. M. BOOTH.

No. 296.—*Improvement in the Mode of Constructing a combined Caldron and Furnace, for the use of Agriculturists and others.*

What I claim is, first, combining a caldron with a portable furnace having a fire-chamber of smaller size than the area of the caldron, by spreading out and extending the sides of the furnace to form an outer casing partly or wholly surrounding the caldron, and forming a flue space between the two leading to the exit pipe, substantially as and for the purpose specified.

I also claim making a casing to form a flue space around the caldron, by elevating and spreading out the plates of the furnace, and fitting to and combining therewith sectional side-pieces, substantially in the manner described and for the purpose specified.

JORDAN L. MOTT.

No. 297.—*Improvement in Candlesticks.*

What is claimed is the employment of elastic packing attached to the standard, bar, spring, or slide of a candlestick, substantially in the manner described, whereby I am enabled to support said part, prevent the leaking of the grease, and use a shorter sliding-socket than when the cork is inserted loose in the socket.

JOHN W. ROCKWELL.

No. 298.—*Improvement in Grain and Grass Harvesters.*

What I claim is making the outside or dividing-finger hollow, so that while it affords sufficient room for the play of the end of the brake,

the bearing of the latter therein will not be so long as to afford a lodgment of grain, grass, &c., in sufficient quantity to clog it.

JOHN H. MANNY.

No. 299.—*Improvement in Grain and Grass Harvesters.*

What I claim is, the combination of the reel for gathering the grain to the cutting apparatus, and depositing it on the platform, with the stand or position for the forker, arranged and located as described, or the equivalent thereof, to enable the forker to fork the grain from the platform, and deliver and lay it on the ground, at the rear of the machine, as described.

JOHN H. MANNY.

No. 300.—*Improvement in Grain and Grass Harvesters.*

What I claim is, the combination of the fence to compress the grain against, at the outer end of the machine, and guide it while sliding off the platform, and the position, stand, or seat for the forker at the inner end of the platform, with the platform, substantially as herein set forth.

JOHN H. MANNY.

No. 301.—*Design for Metallic Coffins.*

What is claimed is, the ornamental polygonal design for a metallic case or coffin, substantially as described and represented.

M. H. CRANE.
A. D. BREED.
JOHN MILLS.

No. 302.—*Improvement in Machinery for Separating Flour from Bran.*

I claim: 1st. The platform D (always at right-angles with the sides of the bolt when not made conical), or close horizontal bottom when used in connexion with upright stationary or revolving bolt for flouring purposes.

2d. The opening at D^5 for the admission of a counter current of air through the bottom and into the bolt, and the opening and bran-spout F, as described, in combination with the platform D.

3d. The upright stationary bolt, or bolt and scourer combined, with its closed-up top, except from air and material; or in combination with claims first, second, and fourth, or either of them, or their equivalents, to produce like results in the flouring process.

4th. The use of the revolving, distributing, scouring, and blowing cylinder of beaters and fans, by which the material is distributed, scoured, and the flour blown through the meshes of the bolting-cloth.

ISSACHAR FROST.

No. 303.—*Improvement in Vault Covers.*

What I claim in covers for openings to vaults in floors, decks, &c., is making them of a metallic grating or perforated metallic plate, with the apertures so small that persons or bodies passing over or falling on them may be entirely sustained by the metal, substantially as described; but this I only claim when the apertures are protected by glass, substantially as and for the purpose specified.

And I also claim, in combination with the grating or perforated cover and glass fitted thereto, the knobs or protuberances on the upper surface of the grating or perforated plate for preventing the abrasion or scratching of the glass, substantially as specified.

THADDEUS HYATT.

No. 304.—*Improvement in Grain and Grass Harvesters.*

What I claim is:

1st. The combination of the rake O, swinging or suspended from one rod of the reel, with the guides L L and ways S S, substantially as above set forth and described; for the purpose not only of delivering the grain at the rear of the platform, but also for better directing the standing crop to the cutters.

2d. I claim the guides for forcing the grain into the end of the reel as described, and for the purposes set forth.

3d. I claim the latch *f* and appendages, by which the operator is enabled to permit more or less grain to accumulate on the platform between the successive actions of the rake.

4th. I claim placing the vibrating knife-bar 3, and cutters thereon, between alternately placed fingers 4 and 5, for the purpose of dispensing with the slot-guards, and sustaining the line of cut by throwing the action of the alternate shear-edge of the blades of said cutters on the upper and lower sides of the said fingers.

5th. I claim the alternate edging of the same tooth, and so placing them together that the two adjacent edges of successive teeth which act against the same finger may be alike turned in one direction, while the next two edges acting against the next finger are alike turned in the contrary direction.

ABNER WHITELEY.

No. 305.—*Improvement in Harvesters.*

What we claim is, discharging the cut stalks and heads of grain from the main platform D, on which they first fall, by means of the combination of the rake C with the overhung lever B, moved by gearing located within the inner edge or circle of said platform, as herein set forth.

AARON PALMER.
STEPHEN G. WILLIAMS.

No. 306.—*Improved Winnowing Machine.*

What I claim is:

1st. The employment or use of a vertical blast-spout F, gradually enlarged from its lower to its upper end, so that the strength of the blast is decreased in the upper portion of the spout owing to the increased space or area of the spout, for the purpose of preventing any sound or perfect grain being carried with the light foreign matter over the upper edge of the spout; the blast being formed or generated in said spout in any proper manner.

2d. I claim the blast-spout F, either gradually enlarged from below upwards or of the same dimensions throughout, and communicating with the atmospheric current through the screen H, in combination with the hopper E' and the fan placed at the end of the opposite vertical spout D, to separate the chaff and other impurities from the grain, in the manner substantially as herein described.

3d. I claim the employment or use of a vertical blast-spout, either gradually enlarged from below upwards or of the same dimensions throughout, when said blast-spout is so arranged that the grain is cleaned or separated from impurities within said vertical spout.

B. D. SANDERS.

No. 307.—*Improvement in the Hinge of Rolling Iron Shutters.*

What I claim is, constructing shutters of slats of sheet-metal with joints formed by curving the edges of the slats as described, and securing them in place in the manner specified, viz: either by turning down projections from or attachments to the ends of the slats, and thus forming an even edge to the shutters, or by means of wires inserted in the curves and bent or headed at the ends, the shutters sliding up and down in the grooves of the window-frame in which it is placed, the whole being constructed substantially as herein specified.

A. LIVINGSTON JOHNSON.

No. 308.—*Improvement in the Construction of Moulds for Pressing Glass.*

I claim so combining with a mould-fountain or reservoir, provided with a plunger, one or more matrices or moulds, that a liquid mass of glass, when pressed in said fountain or reservoir by the plunger, may be made to flow or pass therefrom, and into such matrix or matrices.

I claim combining with a series of matrices, and a press-chamber or reservoir surrounded by them, an auxiliary annular and concentric chamber, (as seen at *h h*, in fig. 2,) formed in the two mould-plates, and made to perform the function of preventing the plunger from clogging the mouths of the matrices under circumstances as above stated, and also to prevent the chilled glass from obstructing the downward movement of the plunger.

I also claim so combining with the lower mould-plate or movable bottom-block *f*, that the same may not only serve to form a bottom to the main and auxiliary mould-chambers or to the former, but also enable a person to detach the pressed glass or metal from the lower mould-plate, under circumstances and in manner as above set forth.

HIRAM DILLAWAY.

No. 309.—*Improvements in Machinery for Reducing Metal Bars.*

What I claim is, the method of rolling bars or rods on four sides by the combination arranged with the axis of two of them parallel, and the third at right-angles thereto, substantially as specified, whereby two opposite faces of the bar or rod are drawn between the two rollers on parallel axes, and the other faces between the periphery of the third roller and the face of a cavity formed in one or both of the other rollers, as specified.

And I also claim in combination with the three rollers, combined and arranged substantially as specified, the employment of the bolster, substantially as specified, to prevent the forming of a pin on the bar at the junction of the two parallel rollers, as set forth.

DEXTER H. CHAMBERLAIN.

No. 310.—*Improvement in Endless Chain Horse-Power.*

What is claimed are, the links *c* of the parallel endless chains, which carry the travelling bed (formed with cogs on their inner edge meshing into the side pinions K) on the driving shaft, when the latter is arranged back of the forward end of the power to receive motion by the straight run of the cog-links over the said pinions, as shown and described.

ALONZO WHEELER.
ALEXANDER F. WHEELER,
Executor of this last will and testament of
WM. C. WHEELER, *deceased.*

No. 311.—*Improvement in Bleaching Apparatus.*

What I claim is, the combination of one or more air-tight vats for receiving and containing the goods, an apparatus for exhausting the air therefrom, and the necessary vessels for containing the liquids used in the process of bleaching, whereby the various steps may be performed in a much shorter space of time than has heretofore been required, as set forth.

C. T. APPLETON.

No. 312.—*Improvement in Looms.*

What I claim is, the yielding-rest or support K, for the picker, arranged substantially as described, to break the sudden blow or concussion with which the shuttle infringes upon the picker, thereby preventing the filling of the cop from being jarred off and entangled, and relieving the picker from danger of being broken.

I also claim separating or freeing the lever K and the picker from the end of the shuttle by the same movement which shifts the shuttle-boxes, operating through a combination of levers, cams, and springs, substantially as herein set forth, or through levers, cams, or treadles, worked from any part of the loom.

BARTON H. JENKS.

No. 313.—*Improved Nut and Washer Machine.*

We claim the machine, substantially as herein described, for making nuts, by cutting the blank from a heated bar of iron, punching its eyes in a closed die-box, pressing it into shape while in the die-box and on the punch, and then discharging it as specified.

HENRY CARTER.
JAMES REES.

No. 314.—*Improvement in Machinery for Felting Hat-Bodies.*

What I claim is, giving the felting action by means of the moving apron, arranged substantially as specified, to receive the article or articles to be felted within the fold thereof, and there confined and compressed by the rollers or their equivalent, acting on the apron, and resulting in a mode of operation substantially as described.

WILLIAM FUZZARD.

No. 315.—*Improvement in Corn-Planters.*

What I claim is, the peculiar construction of the horizontal slide G, made reversible from end to end, for the purpose of varying the quantity of seed planted, in the manner set forth and specified.

SAMUEL MALONE.

No. 316.—*Improved Portable Grinding-Mill.*

What I claim is, the alternate deep and shallow sections of furrows upon the main grinding surface of the burr, for the purpose of distributing the material over said surface, and preventing a surfeit or clogging upon any one point of said grinding surface, substantially as described.

I claim the method of supporting the shell and adjusting the burr therein by means of the lower bridge-tree, grooved legs, sockets, and adjusting screw-rods, when said legs serve the double purpose of supports to the shell and guides to the bridge-tree, as described

I claim the arrangement of driver G, arms I, burr B, and shell A, constructed as herein shown and described; so that the several operations of breaking the ear, cracking the cob, and grinding into meal, may be all conducted without straining the mill or power applied, substantially as described.

LYMAN SCOTT.

No. 317.—*Endless Chain Horse-Power.*

What I claim is, the construction and attachment of the gearing, substantially as herein set forth, having a hub or pinion permanently affixed on the ends of each shaft, to either of which the centre caps or hubs of either the driving or band wheels fit and are fastened.

GEORGE WESTINGHOUSE.

No. 318.—*Improvement in Cotton-Presses.*

What I claim is:

1st. The use of the slats or guide-strips E, arranged and operating in the manner substantially as set forth.

2d. I claim the tenons upon the transverse bars of the doors, which, entering mortises in the frame-work, relieve the hinges from the strain which would otherwise come upon them.

3d. I claim hinging the doors of the press in the manner herein described, to prevent them from violently bursting open when the bar which confines them is removed.

C. J. FAY.

No. 319.—*Improvement in Machinery for Dressing Treenails.*

What I claim is, the use of the cutters *a*, in combination with the enlarging and heading apparatus, or apparatus analogous thereto, when used for the purposes substantially as herein before set forth; and this I claim, whether any one or more of the parts of the enlarging or heading apparatus, or apparatus analogous thereto, are used separately or collectively in combination with the said cutters, whereby treenails are cut and shaped by the use of such mechanical devices as herein before substantially described.

DELIA A. FITZGERALD, *Assignee of* JESSE FITZGERALD.

No. 320.—*Improvement in Looms for Weaving Figured Fabrics.*

What I claim is:

1st. Operating the headle-frames by the application of a cylinder

having two or more patterns, interchangable at pleasure, in the manner and for the purpose substantially as herein before set forth.

2d. The employment of two or more distinct patterns simultaneously in the same loom, interchangeable at pleasure, operating in the manner and for the purpose herein before described.

I also claim the apparatus for turning the cylinder, substantially as herein specified, whereby it can be moved through a greater or less space, as may be required.

RICHARD GARSED.

No. 321.—*Improvement in Hot Water Apparatus.*

What I claim is, connecting the ends of the horizontal or nearly horizontal water-pipes of hot water warming apparatus, by means of return bends or elbows of less caliber, and entering within the end or ends of such pipe or pipes, substantially as and for the purpose specified.

And I also claim making each horizontal or nearly horizontal pipe, having the bend or elbow at one end of reduced caliber, with the calibers at top in the same line, substantially as and for the purpose specified, whether made in one piece or the bend or elbow separate, and then united, the said elbow being connected with the next pipe above it by entering the end thereof, substantially as and for the purposes specified.

And I claim the construction and arrangement of the apparatus for the purposes and substantially as specified.

JOHN BROWN.

No. 322.—*Improvement in Bathing-Tubs.*

What I claim is, the before described mode of combining with a bathing-tub, or other like vessel, either one or both of the channel-ways substantially as described, and making, when constructed, part of the tub or vessel, one of which channel-ways connects the overflow and waste or discharge holes with the waste-pipe, and the other channel-way is adapted to the insertion of the hot and cold water pipes, and discharging the hot and cold water together, at or near the bottom of the vessel, and in a horizontal or nearly horizontal direction, substantially in the manner and for the purpose specified.

JORDAN L. MOTT.

No. 323.—*Method of Warming and Ventilating Buildings.*

What I claim is:

1st. The mode herein described of warming and ventilating buildings, railroad cars, and apartments of every known description, the same consisting in introducing the air from without by conducting it under the floor of the building or apartment, and directly under the

air warmer or ventilator, for the purpose of being warmed for distribution; the air, after being thus warmed, rising in a central or otherwise convenient apartment or passage, and thence being admitted into the various rooms of the building, or into the apartment near the ceiling or roof, without the aid of pipes, and thence passing downwards, and through openings in the lower part of the rooms or apartment, and thence outwards through the various channels provided, connected with the foul-air shaft.

2d. I claim the arrangement of the radiating pipes or flues of the air warmer, in combination with the fire chamber situated within or between them, in the manner substantially as set forth.

3d. In combination with the elevated air chamber and flues of the air-warmer, I claim the arrangement of the openings for admitting heated air above the fire, to complete combustion, as herein set forth.

4th. I claim the construction of the fire-grate, as herein set forth, viz: with one or more grates of cylindrical or other form raised above the ordinary grate floor; said raised grates being capped or covered in such manner as to protect the vertical bars from the fuel substantially as herein set forth, and the principle of their action being substantially as herein set forth.

5th. I claim the mode of conducting the air into the pure-air shafts, whatever may be the direction of the wind or of the external currents of air, by placing a swinging valve or shutter at the mouth of said shafts, substantially in the manner herein set forth.

6th. I claim so constructing or placing the mouths of the pure-air shafts, for the ventilation of railroad cars, that by the motion of the car, the incoming pure air may be increased in quantity, as herein fully set forth.

H. RUTTAN.

No. 324.—*Method of Closing and Opening Gates.*

What I claim is, a double-span rotating gate, opening and closing by an intermittent rotating motion in one direction only; said motion being derived through lifting pieces or levers, cam planes, weights or cords, or their equivalent, substantially as herein set forth.

WM. G. PHILIPS.

No. 325.—*Improvement in Lanterns.*

We claim constructing and arranging the spring-catches I, in the manner described, or its equivalent, to cause the attachment of the lamp to the lantern by the operation of pressing the lantern down upon the spring-catches.

Also, arranging the thumb-pieces L, within the flange G, at the base of the lamp, by extending the springs I towards each other horizontally, as described, and thus forming the elbow-catch to rest against the

shoulder on the flange E of the lantern, in the manner and for the purposes specified.

HUGH SANGSTER.
JAMES SANGSTER.

No. 326.—*Improvement in Hinges.*

I claim the bridge or inclined plane at the base of the pin, and the corresponding elongation of the eye, operating and in connection with the hook and catch, attached and connected in the manner described.

I also claim the elongated or enlarged eye independently of its combination with the bridge, for giving the lateral motion to the blind, to effect the disengagement of the lower catch, as described.

I also claim so placing the catches on the two parts of the hinge as to cause the strains produced by the wind or otherwise to act directly upon the screws, whereby the pin and eye are relieved, as described.

WM. BAKER.

No. 327.—*Improvement in Air-Heating Stoves.*

What I claim is, making the bottom plates of the flue-spaces of air-heating furnaces or stoves for the passage of the products of combustion outward or inward among or around the air-passages inclining inward and downward towards the fire-chamber, substantially as described, for the purpose of facilitating the increase of the heating surface, without the inconvenience of the accumulation of ashes, soot, and other solid matter on such plates, as set forth.

And I also claim the combination of the inverted domes or frustrums F I M and plate P, with the short tubes *b b*, *f f*, *i i*, *l l*, connecting them substantially in the manner herein before described, for the purpose of effecting the connection between the lower ends of the fire or draught-flues, and carrying the air through them to the spaces between the cylinders or tubes.

J. M. THATCHER.

No. 328.—*Improvement in Grain Dryers.*

What I claim in the method of kiln-drying grain is, the employment of an endless pan or apron, made of metal and passing around drums, or the equivalents thereof, substantially as specified, in combination with and operated within a heating chamber, substantially as set forth.

JOHN MASSEY.

No. 329.—*Improvement in Pumps.*

What we claim is, the combination of the cylinder or chamber A and the piston, constructed as herein described, and its valves and

the induction and eduction passages; so that the water, all entering said cylinder under pressure alternately at its ends, is discharged under pressure through the opening at its side, producing a constant and direct stream through the piston-heads from the cylinder, substantially in the manner and for the purpose set forth, thus dispensing with chambers and partitions in the barrel and valves at the eduction port, preventing leakage and rendering the pump more simple and effective, and less liable to derangement.

LEVI P. DODGE
WM. F. DODGE.

No. 330.—*Machine for Sawing Lumber.*

What I claim is, the employment of two pairs of shifting-guides, substantially as herein described, in combination with a circular saw, alternately in opposite directions, substantially as and for the purpose specified.

I also claim setting the log or timber, by means of the two screw-shafts geared in the manner described, or the equivalent thereof, and operated by griping-pawls, which act against stops at the end of the motions of the carriage, in combination with the arms and adjusting slides, to determine the degree or extent of set intended to be given to the log, substantially as specified.

And, finally, I claim, in combination with the method of setting the log at the end of the several motions of the carriage, substantially as described, the method of throwing the setting apparatus out of gear by the bar which carries the log, substantially as described, to prevent the said bar with the holding-dogs from approaching too near to the saw, as set forth.

PINNEY YOUNGS.

No. 331.—*Improvement in Harvesting-Machines.*

What I claim is, in combination with a *frame* nearly balanced on its supporting-wheels, and a *tongue* hinged to said frame, a lever connected to one, and projecting towards the driver's stand or seat on the other; so that the driver, who is the sole conductor of the machine, may, from said stand or seat, raise or depress the cutters at pleasure, during the operation of the machine for cutting the grain or grass at any suitable height above the ground, or for passing over any intervening obstacle, substantially as described.

I also claim, in combination with the operative parts of a harvesting-machine, a conveyor, which first carries the cut grain horizontally across the machine, and then elevates it so as to discharge the grain into the bed of a wagon driven alongside of the machine, when the conveyor-frame is connected to the bed by a flexible joint, in manner and for the purpose described.

JONATHAN HAINES.

No. 332.—*Machine for Sticking Pins in Paper.*

What I claim is, separating the pins laterally, one by one, from the lower end of a pile sliding by gravity between guides; by combining with such channel-way between guides a grooved or notched instrument, substantially as described, so that when the groove or notch is brought in the line of the channel-way, the lowest pin of the pile shall enter the groove or notch, and, by the lateral motion, separate it from the pile without any conflict of the heads; the surface of the said instrument beyond the groove or notch acting as a stop to prevent the farther descent of the pile, until a groove or notch be again brought in line, substantially as set forth.

I also claim the channel-way between guides for the descent of the column of pins by gravity, substantially as described, in combination with one or more guide-grooves, and one or more followers working in the said guide-grooves, substantially as described, whereby the pins, after being separated, can be transferred, as described.

And I also claim, in combination with one or more guide-grooves and one follower, being connected therewith substantially as described, for guiding the pin or pins as pushed forward, the employment of a clamp or holder for clamping or holding the paper in the required position during the operation of inserting the pin or pins.

And, finally, I claim the combination of the channel-way for the column of pins between guides, the guide, groove or grooves, or notches, the follower or followers, and the clamp, or equivalent therefor, substantially as and for the purpose specified.

SAMUEL SLOCUM.

No. 333.—*Improvement in Mortising-Machines.*

What I claim is:

Firstly. The sliding-wrist *o*, connected with the chisel and also with the driving-power, in the manner described, in combination with the mechanism described, or its equivalent, for sliding said wrist; so that the operator can, during the motion of the machine, vary the depth of the cut of the chisel, or cause it to be suspended, without disconnecting the driving power.

Secondly. The combination in a mortising-machine, substantially as described, of treadle and opposing spring or weight, connected to a toggle, one end of which being pivoted to the frame, the other is pivoted to a sliding-wrist upon a vibrating arm, actuated by the power; the said wrist being slid out and in upon the arm with varying power and speed by the action of said toggle and its attached weight or spring and treadle as explained, or their equivalents.

JOSEPH GUILD.

No. 334.—*Improvement in Reaping and Mowing Machines.*

What I claim is, raising and depressing the finger-bar K, and consequently the cutters *e f*, by means of the vertical bars M M, having wheels *o o* at their lower ends, arm P attached to the cross-piece N of the bars M M, lever Q and shaft R with its arm S attached, the above parts being arranged substantially as herein shown and described.

I also claim supporting the ends of the stationary cutters *e* by means of the sockets, or their equivalents, in the knobs or projections *d* of the fingers *c*, substantially and for the purpose as set forth and described.

SAMUEL ROCKAFELLOW.

No. 335.—*Improvement in Spark-Arresters.*

What I claim is, the combination of the central chamber C, the series of tangential openings E E, the larger circular chamber A, furnished with a series of vertical openings J J leading into exterior chambers or channels, for separating sparks and other particles of matter from the gaseous current discharged from locomotive or other chimneys, substantially in the manner set forth.

WM. C. GRIMES.

No. 336.—*Improvement in Sofa-Bedsteads.*

What I claim is, drawing down or depressing the cushion at the joint between the back and seat by means of the cords *b*, or their equivalents, connected automatically with the seat A and back B, for the purpose herein set forth.

CHARLES F. MARTINE.

LIST OF DESIGNS AND CLAIMS FOR 1855.

No. 683.—*Design for Parlor Stoves.*

What we claim is, the ornamental design and configuration of parlor-stove plates, as herein described.

JAMES WAGER.
VOLNEY RICHMOND.
HARVEY SMITH.

No. 684.—*Design for Cooking-Stoves.*

What we claim is, the design, configuration, and arrangement of the ornaments, in bas-relief, on the plates of cook-stove "Emporium," as herein set forth.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 685.—*Design for Parlor Cook-Stoves.*

What we claim is the design, configuration, and arrangement of the ornaments in bas-relief, as herein described, forming an ornamental design for a parlor cook-stove.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 686.—*Design for Stoves.*

We claim the design, configuration, and arrangement of the ornaments in bas-relief of the stove "Fanny Fern," as set forth.

GARRETTSON SMITH.
HENRY BROWN.
JULIUS HOLZER.

No. 687.—*Design for Lanterns.*

I claim the ornamental figures c^1 c^2 on the sunken planes or faces B, the beads *a a* at the sides or edge of the planes or faces, and the ornamental figures D D on the upper parts of the sides of the lantern, when combined as herein shown, to form a new and original design for a lantern.

WM. D. TITUS.

No. 688.—*Design for Metallic Coffins.*

What I claim is, the ornamental design for a metallic burial-case, as herein described.

M. H. CRANE.

No. 689.—*Design for Parlor Open-Front Stoves.*

What I claim is, the ornamental design and configuration of parlor-stove plates, as described.

N. S. VEDDER.

No. 690.—*Design for Parlor Stoves.*

What we claim is, the ornamental design and configuration of parlor-stove plates, as described.

N. S. VEDDER.
EZRA RIPLEY.

No. 691.—*Design for Coal Stoves.*

What we claim is, the ornamental design for a coal parlor stove, as herein described, to be known and called the "Diadem."

CONRAD HARRIS.
PAUL W. ZOINER.

No. 692.—*Design for Stoves.*

What I claim is, the design and configuration of the ornaments and mouldings herein described, forming an ornamental design for stoves.

S. W. GIBBS.

No. 693.—*Design for Cooking-Stoves.*

What we claim is, the design and configuration of the ornamental flutings and mouldings herein described, forming an ornamental design for cooking-stoves.

S. W. GIBBS.

No. 694.—*Design for Daguerreotype-Cases.*

What I claim is, the construction of a case for daguerreotype or other purposes, rounded on its front and back edges, and banded as described.

HENRY A. EICKMEYER.

No. 695.—*Design for Stoves.*

What we claim is, the combination of the different ornaments as represented in the drawing.

JOHN HANFBAUER.
HENRY WAAS.

No. 696.—*Design for Table Forks.*

What I claim is, the peculiar configuration of the parts C, D, and E, substantially as described.

JOSEPH W. GARDNER.

No. 697.—*Design for Cooking-Stoves.*

What we claim is, the design for "Fanny Forester" stoves, as herein set forth.

JACOB BEESLEY.
EDWARD J. DELANY.

No. 698.—*Design for Forks' and Spoons' Handles.*

What I claim is, the use and combination of the ornamental designs herein before described, with the handles of forks, spoons, and other articles of table cutlery, for the purpose of ornamenting them, substantially as set forth.

HENRY BIGGINS.

No. 699.—*Design for Spoons.*

I claim the ornaments *a b i j*, and the beads *c f*, with their scrolls *d e g h*, when the whole are arranged to form a new and ornamental design for a spoon, as herein shown.

JOHN GORHAM.

No. 700.—*Design for Clock-Fronts.*

What I claim is, the design and configuration of the casting, as herein described, forming the front and sides of a clock-case.

WILLIAM B. LORTON.

No. 701.—*Design for Cooking-Stoves.*

What we claim is, the ornamental design and configuration of cook-stove plates, as herein described.

GEO. WARREN.
S. H. SWETLAND.
E. C. LITTLE.

No. 702.—*Design for Water-Coolers.*

What we claim is, the design, configuration, and arrangement of the herein described castings, and the ornaments in bas-relief thereon, constituting a new and original design for water-coolers.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 703.—*Design for Cooking-Stoves.*

We claim the ornamental design and configuration of the side of the stove, inclusive of its base and cornice mouldings.

And we particularly claim the ornamental design of the larger door I, and that of each of the doors K L.

We also claim the ornamental design of each door P or Q, that of the hearth-plate, and that of each of the legs, the whole being as exhibited in figure 1.

BENJAMIN WARDWELL.
EPHRAIM R. BARSTOW.
GEORGE C. HARKNESS.

No. 704.—*Design for Equestrian Statues.*

What I claim is, a design for an equestrian statue, such as represented.

CLARK MILLS.

No. 705.—*Design for Water-Coolers.*

What I claim is, the design and configuration of the parts A B C, as herein described, forming a water-cooler.

GEO. HODGETTS.

No. 706.—*Design for Cooking-Stoves.*

What I claim is, the arrangement and combination of the several figures and mouldings, the whole forming an ornamental design for a cooking-stove.

SAMUEL D. VOSE.

No. 707.—*Design for Cooking-Stoves.*

What I claim is, the arrangement and combination of the several figures and mouldings, the whole forming an ornamental design for a cooking-stove.

SAMUEL D. VOSE

No. 708.—*Design for Cooking Stoves.*

What I claim is, the arrangement and combination of the several figures and mouldings, the whole forming an ornamental design for a cooking-stove.

SAMUEL D. VOSE.

No. 709.—*Design for Parlor Stoves.*

What I claim is, the arrangement and combination of the several figures and mouldings, the whole forming an ornamental design for a parlor stove.

SAMUEL D. VOSE.

No. 710.—*Design for Sewing-Birds.*

What I claim is, the design for sewing-birds as herein set forth.

JOHN NORTH.

No. 711.—*Design for Parlor Stoves.*

I claim the composition of mouldings and the ornaments in relief on the front plate, base plate, and cornice or top plate, and considered irrespectively of those of the feet C.

And I also claim the peculiar design or configuration of the urn K, and that of each of the blowers.

ABNER J. BLANCHARD.

No. 712.—*Design for Cooking-Stoves.*

What I claim is the design of each of the doors as well as that of the side-plate, the larger hearth-plate, and the leg.

ABNER J. BLANCHARD.

No. 713.—*Design for Stove-Plates.*

What I claim is, the combination and arrangement of ornamental figures and forms represented, forming the ornamental design for the plates of a cooking-stove.

S. W. GIBBS.

No. 714.—*Design for Cooking-Stoves.*

What I claim is, the ornamental design and configuration of stove-plates, such as herein described.

RUSSELL MANN.

No. 715.—*Design for Spoons.*

What we claim is, the use and arrangement of the ornamental devices hereinbefore described for ornamenting the front of the spoon and back of the spoon, or either of them, in combination with the spoon or other similar articles of table cutlery.

H. HEBBARD.
JOHN POLHAMUS.

No. 716.—*Design for Franklin Fire-Places.*

What I claim is, the ornamental design of the stove, as represented in the drawings, and particularly I claim that of each of the members hereinbefore mentioned.

N. P. Richardson.

No. 717.—*Design for Labels on Bottles and Jars.*

What I claim is, the construction of the design and the fashioning of the letters, and the marking out of the same, so as to leave them on the glass in a permanent form.

W. A. Rogers.

No. 718.—*Design for Ornamenting Stove-Plates.*

What I claim is, the combination and arrangement of ornamental figures and forms represented in the accompanying drawings, forming together the ornamental designs for the plates of a stove.

Samuel W. Gibbs.

No. 719.—*Design for Cooking-Stoves.*

What I claim is, the new design for a cooking-stove, consisting of the ornamental, plain, and scolloped mouldings *d d* and *e e*, and figures of harps or ancient lyres, as herein described.

Apollos Richmond.

No. 720.—*Design for Iron Railings.*

We claim the ornamental design and configuration of looped bars, rosettes, balls, and pickets, substantially as herein described.

M. H. Fowler.
Enoch Jacobs.

No. 721.—*Design for Stoves and Fire-Places.*

What I claim is, the ornamental design as exhibited in the accompanying drawings; or more particularly, that of the front plate and the end plate, the hearth plate, the leg, the top plate, and the blower.

Winslow Ames.

No. 722.—*Designs for Cooking-Stoves.*

We claim the configuration of surface and combination of ornaments, constituting the exterior design of the stove, as set forth.

Russell Wheeler.
S. A. Bailey.

No. 723.—*Design for Portable Fire-Places.*

What I claim is, the design of the front of the stove; or, more particularly, that of the urn of the front plate, the upper blower, the fender, and the lower blower, as shown in the drawings.

Winslow Ames.

No. 724.—*Design for Cooking-Stoves.*

What we claim is, the design, configuration, and arrangement of the ornaments on the several parts of the cooking-stove, as herein described.

Conrad Harris.
Paul W. Zoiner.

No. 725.—*Design for Trade-Marks.*

I claim the above ornamental design or trade-mark, to be fixed on articles of manufacture, and formed without the padlock.

Thomas Lewis.

No. 726.—*Design for Cooking-Stoves.*

I claim the bas-relief upon each foot *a*, a part of the design, the whole combined with the mouldings and panels exhibited in the drawings.

Wm. T. Coggeshall.

No. 727.—*Design for Table-Casters.*

I claim the wreath on the circular projection *h*, and the embellishments on the doors B and feet C, when the whole are arranged and formed, as herein shown, to constitute an ornamental design for a table-caster.

Edward Gleason.

No. 728.—*Design for Parlor Grates.*

What I claim is, the design for parlor grates, as above set forth.

James Andrews.

No. 729.—*Design for Stoves.*

I claim the design, configuration, and arrangement of the ornaments in bas-relief on stove-plates A and F, as herein described.

JAMES H. CONKLIN.

No. 730.—*Design for Ovens of Cooking-Stoves.*

What I claim is, the ornamental design and configuration of the side and end plates of an elevated oven of a cook-stove, as described.

GEORGE W. CHAMBERS.

No. 731.—*Design for Cast-Iron Monuments.*

What I claim is, a design for a cast-iron monument for the head of graves, combining the figures of the harp and heart with a recess for the insertion of a miniature likeness and inscription, and a locket of hair.

J. H. WILSON.

No. 732.—*Design for Metallic Covers for Jugs.*

What I claim is, making metallic covers and pitchers of the shape and pattern shown in the drawings.

ORRIN NEWTON.

No. 733.—*Design for Ornamenting Daguerreotype and other Mats.*

I claim the design of the ornaments surrounding the opening in the matting, and also the design of the ornament formed on the surface of the matting.

HIRAM W. HAYDEN.

No. 734.—*Design for Burial-Cases.*

I claim the form and configuration of metallic burial-cases, substantially as described.

M. H. CRANE.

No. 735.—*Design for Cooking-Stoves.*

What I claim is, the ornamental design and configuration of the cook-stove plates, as described

JAMES WAGER.

No. 736.—*Design for Cooking-Stoves.*

What I claim is, the ornamental design and configuration of cook-stove plates, as described.

JAMES WAGER.

No. 737.—*Design for Parlor-Stove Plates.*

What I claim is, the ornamental design and configuration of parlor-stove plates, as described.

JAMES WAGER.

No. 738.—*Design for Stove-Plates.*

What I claim is, the ornamental design of a stove-plate, as described.

CALVIN FULTON.

No. 739.—*Design for Coal-Stoves.*

What I claim is, the combination of ornaments herein described, the whole forming an original design for a coal-stove.

JAMES HORTON.

No. 740.—*Design for Stoves.*

I claim the design for doors, top, and side-plates of a stove, as described.

ANDREW O'VEILL.

No. 741.—*Design for Cooking-Stoves.*

We claim the combination and arrangement of the several ornaments and mouldings as herein described, the whole forming an ornamental design for a cook-stove.

EZRA RIPLEY.
N. S. VEDDER.

No. 742.—*Design for Coal-Stoves.*

What we claim is, the combination of ornaments herein set forth, the whole forming an original design for a coal-stove.

GARRETTSON SMITH.
HENRY BROWN.

No. 743.—*Design for Stoves.*

What I claim is, the border B on the edge of the base A, the borders F and other embellishments on the doors E E, the wreath *m* on the rim or projection *l* of the cylindrical portion C of the stove, and the embellishments on the panels *i* on the cylindrical portion C, when the above parts are arranged as shown, to form an ornamental design for a stove.

BENJAMIN WARDWELL.

No. 744.—*Design for Steam-Tube and Hot-Air Covers.*

What we claim is, the scrolls *j k*, and the figured ground-work *l* on the trusses, and the circular embellishment A, and figured fret-work B on the panel C, and also the fret-work in the frame or borders D E, when the whole are arranged as herein shown, to constitute a new and ornamental design for a hot-air and steam-tube cover.

JAMES O. MORSE.
JULIN W. ADAMS.

No. 745.—*Design for Parlor Stoves to Burn Wood.*

What we claim is, the design, configuration, and arrangement of the several ornaments as set forth, forming a new and original design for a wood parlor-stove, to be known and called *Parlor Gem.*

CONRAD HARRIS.
PAUL W. ZOINER.

No. 746.—*Design for Clock-Frames.*

What I claim is, the combination of the octagon form with the oval corner, as distinguished from some other form.

J. C. BROWN.

No. 747.—*Design for Parlor Stoves to Burn Coal.*

What we claim is, the design, configuration, and arrangement of the several ornaments, as set forth, forming a new and original design for a parlor coal-stove, to be known and called the "Carbon."

CONRAD HARRIS.
PAUL W. ZOINER.

No. 748.—*Design for Six-Plate Box-Stoves.*

What we claim is, the mouldings, flutes, and scrolls, arranged as set forth, to form an ornamental design for six-plate or box-stoves.

CONRAD HARRIS.
PAUL W. ZOINER.

No. 749.—*Design for Cooking-Stoves.*

What we claim is, the configurations and arrangement of the several ornaments as set forth, forming a new and original design for premium cook-stoves, to be known and called the "Kanzas."

CONRAD HARRIS.
PAUL W. ZOINER.

No. 750.—*Design for Strap-Hinges.*

I claim the design for strap-hinges, to be made of malleable cast-iron, ornamented by the straight, curved, and annular ribs, substantially in the manner set forth.

ENOCH WOOLMAN.

No. 751.—*Design for Ships' Caboose-Stoves.*

What I claim is, the new design for a cook-stove, consisting of the bar mouldings, rivets, and bead or scolloped moulding, as described.

A. A. LINCOLN, Jr.

No. 752.—*Design for Table Knives and Forks.*

What I claim is, the part marked C, substantially as set forth.

JOSEPH W. GARDINER.

ADDITIONAL IMPROVEMENTS.

No. 118, to original Letters Patent No. 10,655.—*For Improvement in Seed-Planters.*

What I claim is, the attaching the box or hopper to the beam and handles by means of holes left in casting the box, or any equivalent device.

Also, placing the bottom of the lime-box below the slide for the purpose of preventing the lime from choking the machine and impeding its action, substantially as described.

J. GRAHAM MACFARLANE.

No. 119, to original Letters Patent No. 11,024.—*For Improved Lubricator.* (Plates, p. 347.)

I claim: 1st. The division of the plug into two longitudinal chambers C and D, and the relative positions of the feed and discharge openings in said chambers, so that while one chamber is discharging, a simultaneous feed will take place in the other.

2d. I claim the insertion of the tubes *f* and *f*[1] relative to the feed openings of cup and plug, as described, whereby they perform the double function of vent and steam passages; the feed-openings of the plug passing under the tubes, and discharging the steam contained in the plug, clear of the oil in the cup, before communicating with the feed-channel of the cup.

ROBERT M. WADE.

No. 120, to original Letters Patent No. 10,294.—*For improvement in Pen-Holders.* (Plates, p. 347.)

I claim constructing the thumb and finger rests *a b*, or either of them, so that they shall extend along the sides of the cylinder a greater or less distance, substantially as described, whether the outer corners of the same be rounded off or left full, or whether the said cylinder be adapted for fitting over the pen-barrel or tube, or for attaching to the end of the stick, so as to dispense with the barrel or tube as described, or whether the said rests be soldered to the cylinder A, or cut out with the same.

E. W. HANSON.

No. 121, to original Letters Patent No. 11,068.—*For Improvement in Saddle-Trees.* (Plates, p. 347.)

What I claim is, the combination with the hinged pommel and cantle of the self-adjusting side-pieces for the purpose of preventing an unequal pressure upon the edges of the side-pieces, however much the saddle-tree may be expanded or contracted.

WM. E. JONES.

No. 122, to original Letters Patent No. 12,039.—*For Mode of Regulating the Furnace of Hot-Water Apparatus.* (Plates, p. 247.)

What I claim is, the arrangement of the three dampers or valves P O M, and their several connecting-rods, in combination with a single float placed in the open tank above, as set forth.

THOMAS J. TASKER.

No. 123, to original Letters Patent No. 10,341.—*For Machine for Sawing and Planing Clapboards.* (Plates, p. 347.)

Lever M, to which cutter F[1] is hung, is pivoted at B, its other end N being pressed against the board to be cut by a spring D. The lever G, which guides the saw-arbor E, is pivoted at H, its other end being pivoted at I to a rod J, which bears at K against the board.

What I claim is, the peculiar mode of hanging the front cutter F[1], or plane, or its equivalent.

Also the manner of hanging the saw or its equivalent, so that they will adapt themselves to the different thicknesses of boards; I claim them in combination as above set forth, or either one when operating separately.

EPHRAIM PARKER.

No. 124, to original Letters Patent No. 10,365.—*For Improvement in Quartz-Crushing Machines.* (Plates, p. 347.)

The object of this improvement is to keep the pestle down with sufficient force to pulverize the material operated on, and still to prevent the pestle from grinding too finely, *i. e.*, simply to crack the ore instead of grinding to powder.

I claim the combination of the weighted levers 12, and adjusting screws 11, with the pestle *d*, set and moving on the shaft *c*, the whole constructed and operating in the manner described.

JAMES HAMILTON.

No. 125, to original Letters Patent No. 12,590.—*For Improvement in Screw-Wrenches.* (Plates, p. 347.)

What I claim is, adding the tube E, with the nut G, surrounding the rod *c* of the movable jaw, to the arrangement of the adjustable toothed plate with springs, the toothed shank, and the eccentric, with its strap attached to the toothed plate, as set forth.

LORENZO D. GILMAN.

No. 126, to original Letters Patent No. 12,555.—*For Improvement in Fire-Arms.*

I claim the combination of the *hammer*, *trigger*, *ratchet action*, *and cylinder spring stop-lever*, to operate jointly in the process of firing.

I also claim the apparatus for detaching and re-attaching the barrel to the stock, viz: the *bent* lever lying in a recess, within a metal projection from the barrel, with its *catch* at its back end, fitted to hold into a notch in the stock and kept in place by a spring lying within said recess, in combination with the hinge-plate, this arrangement being a substitute for the *thumb connecting-plate*.

F. NEWBURY.

No. 127, to original Letters Patent 12,752.—*For Improvement in Propellers.* (Plates, p. 348.)

What I claim is, the elongation of the paddles, or buckets, outside, to the same length that they are on the inside, or nearly so, of each wheel, or disc, and presenting a nearly equal surface on each side of the said wheels, or discs, so as to equalize the power and prevent any lateral strain or drawing of the said wheels, or discs, together, and forming perfect balance paddles, or buckets, taking almost all strain from the connecting-ring of said paddles, or buckets, as described.

WILLIAM D. JONES.

No. 128, to original Letters Patent No. 5,958.—*For Improvement in Warming and Ventilating Buildings, &c.* (Plates, p. 348.)

What I claim is, the foul-air receptacle *a*, said receptacle being connected with the vertical passages and ventilating chimneys, substantially as set forth.

R. RUTTAN.

No. 129, to original Letters Patent No. 12,124.—*For Improvement in Locks for Fire-Arms.* (Plates, p. 348.)

What I claim is, the receiver *e* and the connexion of the carrier *c* to the peculiarly arranged tumbler *b* used in my former lock, patented January 2, 1855, wherein the action is direct, and, being on the inside of the lock, is secured from any and all exposures; also the putting of the charged charger *d*, containing the primers, into the chambers *a*, by which means the primers are readily applied, and with greater precision than by any other now in use.

J. S. BUTTERFIELD.

No. 130, to original Letters Patent No. 13,270.—*For Improvement in Apparatus for Heating Feed-Water to Locomotive-Engines.* (Plates, p. 348.)

M are sectional cones deflecting the current of steam, gases, &c., in contact with the tubular feed-water heaters *c*.

What I claim is, the arrangement of the tubular water-heater sectional cones in relation to each other and to the chimney, as set forth.

DAVID MATTHEW.

DISCLAIMERS.

Improvements in Pumps.

Your petitioner, therefore, hereby enters his disclaimer to that part of the claim in the aforementioned specification which is in the following words, to wit:

"Second. I claim the particular mode above described, of constructing a pump with an air-chamber below the lower box, into the bottom of which chamber the pipe communicating with the cistern, or well, is inserted or connected in any proper manner, and through which chamber another pipe passes, the lower end of which is situated immediately over the top of the induction pipe, while the upper end is joined or connected to the top of the chamber, the said pipe communicating at top with the pump-barrel, the lower valve of the same being immediately over and upon its ends, and at bottom by any sufficient number of holes or orifices bored through the same, with the said chamber, through which it passes; the whole being arranged substantially as described, and for the purpose of permitting the water from the cistern or well to rise into the chamber during the downward stroke of the piston or upper box, and otherwise operating in the manner as herein before explained and set forth, meaning in the above not to claim the addition of an air-chamber to the lifting-pump, but my particular mode of constructing and applying the same as described."

Which disclaimer is to operate to the extent of the whole interest in said letters patent vested in your petitioner, by the grant to him, as aforesaid, who has paid ten dollars into the Treasury of the United States, agreeably to the requirements of the act of Congress in that case made and provided.

JESSEE REED.

Improvements in Marine Steam-Engines.

Your petitioner, therefore, does, by these presents, disclaim so much of the second section of the before recited specification of claim as covers broadly the lifting of the valves by means of mechanism acting directly upon the valve-stems, hereby limiting the said second section of the claim to the lifting of the said steam-valves, one at each end of the cylinder, by toes on shafts arranged outside of the steam-chest, and acting on a foot attached to and projecting from each valve-stem, substantially as described, in the before recited letters patent.

CHARLES W. COPELAND.

Improvements in the Construction and Operation of Wagon-Brakes.

Your petitioner, therefore, hereby enters his disclaimer to that part of the claim in the aforenamed specification which is in the follow-

ing words, to wit: "The application of wagon-brakes to the forward wheels of wagons, by using the bounds. sway-bar, block tongue, or other appendages, running back from and firmly attached to the front axle, as the frame for the support and steadying of such brakes."

Which disclaimer is to operate to the extent of my interest in said letters patent so granted to your petitioner, who has paid ten dollars into the Treasury of the United States, agreeably to the requirements of the act of Congress in that case made and provided.

JEHIAL E. BLODGETT.

Improvement in Wrought-iron Beams and Girders.

Your petitioner, therefore, hereby enters his disclaimer to so much of the said specification as may be construed as claiming, as the invention of the said Pollak, a combination of top and bottom T-pieces, with plates disconnected from each other, and so arranged as to leave spaces between them in a longitudinal direction; which disclaimer is to operate to the extent of the interest in said letters patent vested in your petitioner, who has paid ten dollars into the Treasury of the United States, agreeably to the requirements of the act of Congress in that case made and provided.

A. POLLAK.

EXTENSIONS.

Improvement in the Method of Working the Steam-Valves of Steam-Engines, when the Steam is cut off and allowed to act expansively.

What we claim is, the combination of an additional and separate eccentric wheel, to work a rock-shaft to raise the steam-valves, in combination with any of the several methods hitherto used for working the exhaust valves.

We also claim the manner in which the toes are applied to the rock-shaft, so that the shaft is made to vibrate during a certain interval without either toe communicating motion to either valve.

We also claim the combination of the cog-wheel and rack in the manner set forth, for the more completely effecting our object.

ROBERT L. STEVENS.
FRANCIS B. STEVENS.

Improvement in the Mode of Applying Water to Fire-Engines, so as to render their Operation more Effective.

What we claim is, the employing the pressure of a column of falling water, or the tendency of the hydraulic pressure on water at rest, to assist in the working of fire-engines, by combining a hose or pipe conducting said water with the receiving tubes of an engine or pump, operated by animal or mechanical power, the same being constructed as set forth.

FRANKLIN RANSOM.
UZZIAH WENMAN.

Improvement in Seed-Planters.

What we claim consists:

1st. In the arrangement of the spur-wheels, for the purpose of connecting the seed-roller Y and hopper P to the shaft O, as before described.

2d. The combination of the rectangular staple r^2, the beam L, the slider S^2, the compound lever L M N, and the hopper frame V W, for the purpose of throwing the hoppers in and out of operation, when sowing point and other land, without stopping the horse, as well as for planting seeds that require cultivation in rows, and also for raising the drill U above or allowing it to sink into the ground a sufficient distance, as described.

MOSES PENNOCK.
SAMUEL PENNOCK.

Machine for Cutting Square-Joint Dovetails.

What I claim is, the arrangement of the carriages, one moving at right-angles to the motion of the other, in combination with cutters arranged with their axles inclined, as described.

WILLIAM PERRIN.

Improvement in the Construction of Iron-Truss Bridges.

What I claim is, the method of sustaining the flooring of bridges by iron trusses, containing cast-iron arches, formed in sections or segments, in combination with diagonal ties or braces, to sustain the form of the arch against the effects of unequal pressure, (with or without vertical posts or rods,) and wrought-iron arch strings, or thrust-ties, to sustain the thrust, and prevent the spreading of the arch in case the abutments and pins be not relied on for that purpose. Also, the divergence or horizontal expansion of the arch from the middle portion to the ends thereof, in wooden trusses or arches as well as in those composed of iron.

SQUIRE WHIPPLE.

Improvement in the Form of the Screw Propeller for Propelling Vessels.

I claim curving the wings of the screw-paddles, or propellers, in a direction perpendicular to the shaft, or their axis of revolution, as set forth.

EBENEZER BEARD.

Improvement in Pumps.

I claim, 1st. The method of confining the lower valve to its seat, so that it may be easily removed therefrom, for repair or other purpose, by means of a spring, to which the valve is connected, and which rests on the upper surface of the bottom of the pump-barrel, its end pressing against the interior circumference of the barrel, the same being arranged and constructed as herein described.

2d. I claim the particular mode of constructing a pump with an air-chamber below the lower box, into the bottom of which chamber the pipe communicating with the cistern or well is inserted or connected in any proper manner, and through which chamber another pipe passes, the lower end of which is situated immediately over the top of the induction-pipe, while the upper end is joined or connected to the top of the chamber, the said pipe communicating at top with the pump barrel, (the lower valve of the same being immediately over and upon its ends,) and at bottom (by any sufficient number of holes or orifices bored through the same) with the said chamber through which it passes, the whole being arranged substantially as above described, and for the purpose of permitting the water from the cistern or well to rise into the chamber during the downward stroke of the piston, or upper box, and otherwise, as set forth.

3d. I claim the method of adjusting the pump-handle, or lever, which raises or depresses the upper box, by attaching said lever to the top plate or cover of the pump-barrel, and arranging said plate or cover as before described, so that it may be turned around and fixed in position by a screw, or other similar or suitable contrivance, as described.

JESSE REED.

Improvement in the Method of Constructing Screw-Wrenches.

What I claim is, moving the sliding-jaw by a screw combined with, and placed by the side of, and parallel with the bar of the permanent jaw and handle, substantially as described, when the required rotation for sliding the jaw is given by the head or rosette, or its equivalent, which retains the same position relatively to the handle during the operation, substantially as described.

And I also claim moving the sliding-jaw by a screw combined with, and placed by the side of, and parallel with the bar of the permanent jaw and handle, substantially as described, in combination with the rosette, or its equivalent, retained in its position relatively to the handle, in the manner described.

LORING COES.

Improvement in the Manner of Constructing Railroad Carriages, so as to Ease the Lateral Motion of the Bodies thereof.

What we claim is, the connecting the turning-bearing to the truck-frame of the above described kind, resting on four wheels or more, by a mechanism substantially such as described, that shall not only allow such turning-bearing (independently of the wheels and axles) a lateral play, movement, or movements, in directions transversely of the carriage, but bring or move it back to its central position, after the lateral deflective force has ceased to act.

CHARLES DAVENPORT.
ALBERT BRIDGES.

Improvements in Machinery for Removing Bars and other Obstructions from Harbors, and for Forming and Cleaning out Docks.

What I claim is, the combination of the scrapers K K with the swivel-plate M M, for the purpose and in the manner described.

Also, the arrangement of ploughs in combination with the cutters J, for the purpose and in the manner specified.

J. R. PUTNAM.

Improvements in the Machine for Riving and Dressing Shingles.

What I claim is, the manner in which I have combined and arranged the frame *b b* for holding the bolts with the vibrating frame *c c*, its panels and riving-knife, with their appendages, so as to rive shingles from the bolt, by an apparatus operating substantially as described.

I also claim the within described manner of constructing and combining the dressing and jointing apparatus, the dressing-knives being made to approach towards each other, and the jointing-frames being affixed and operating as set forth.

WM. S. GEORGE.

Improvement in the Manner of Arranging the Low-Pressure or Condensing Steam-Engine, so as to Adapt its Parts to be Used by Vessels for Ocean Service.

I do not claim the mere placing of the cylinder of a steam-engine obliquely, as this has been done for other purposes; but as I produce a new and useful effect by so placing the steam cylinder and its appendages in the combination above claimed, on board of vessels for

navigating the ocean, I limit my claim to the so placing them under the said combination as to attain the objects herein fully made known.

Secondly. I claim the manner of arranging and working the steam and exhaust valves, as set forth, the same being effected by a direct action; that is to say, without the employment of the lifting-rods and lifters usually required for that purpose.

Thirdly. I claim the manner of combining and arranging the condensing apparatus, the air-pump being placed at the same angle, or nearly so, with the cylinder, and attached by its lower end to the channel-plate, the delivery valve being also placed on the upper part of said plate, the combination intended to be claimed under this last head consisting in the arranging of the several parts enumerated; that is to say, the air-pump, the channel-plate, and the delivering-valve, substantially in the way herein described.

CHARLES W. COPELAND.

Improvement in the Endless Chain Horse-Power for Driving Machinery.

What is claimed is, the links of the parallel endless chains which carry the travelling-bed, formed with cogs on their inner edge, meshing into the side pinions K on the driving-shaft, when the latter is arranged back of the forward end of the power to be received by the straight run of the cog-links over the said pinions, as shown and described.

ALONZO WHEELER.
ALEXANDER F. WHEELER,
Executor of this last will and testament of
WM. C. WHEELER, *deceased.*

Improvement in the Portable Circular Saw-Mill.

What we claim is, the employment of a revolving fluted or channelled cylinder like that herein represented and marked G, or of any analogous apparatus which will present, in rapid succession, a number of picking or cleaning edges, to operate upon the burrs, seeds, or other foreign matter contained in wool or cotton, in combination with the fine-comb cylinder and the picker cylinder, and other apparatus analogous thereto, by which wool is carried up and presented to the action of the revolving fluted or channelled cylinder, as herein represented.

WM. W. CALVERT.
ALANSON CRANE.

Improvement in the Manner of Constructing Gins for Ginning Cotton.

I claim the forming of a speculum ani, with tapering or conical blades, united at their larger ends to forcep handles, standing at a suitable angle with the blades to admit of the ready inspection of the parts, and furnished with a set-screw to regulate the opening of the blades, by which combination and arrangement of its parts the instrument is rendered more effective, and more convenient in use, than such as have been heretofore made for the same purpose.

JOSEPH T. PITNEY.

Improvement in Machines for Removing Buildings, &c.

What I claim is, the combination of the pivot and bolster, herein referred to, with the truck employed for removing buildings and other weights, consisting of an axle and wheels, having mortises on their periphery, to which the levers are adapted for moving them. Also, in combination with said truck, the screw figure, having a movable nut, with hooks attached to it, for raising buildings, all as herein described.

LEWIS PULLMAN.

Machine for Sticking Pins into Papers.

What I claim is:

1st. The plate, with grooves for receiving the pins.

2d. The sliding-hopper, which deposites the pins in the grooves as described.

3d. The sliding-plate or follower, with the wires attached thereto, in combination with the hopper, as described.

SAMUEL SLOCUM.

Improvement in Machinery for Making Pipes or Tubes of Lead, Tin, and other Metallic Substances.

What we claim is:

1st. The long core or core-holder, formed and held stationary with relation to the dies, as described.

2d. We claim the constructing of the piston B hollow, in the manner described; and the combination of the same with the long core or core-holder, upon which the piston slides.

3d. We claim as a modification of our invention, the arrangement and combination of the several parts above mentioned, as exhibited in what has been termed "*the reverse arrangement*," shown at figure 7 in the accompanying drawings.

GEORGE N. TATHAM.
BENJ. TATHAM, JR.

Improved Manufacture of Wire-Heddles for Weavers' Harness.

What we claim is, the making of such heddles in one continuous piece from end to end without a joint; and this we claim whether said

heddles be made of one entire piece, recurved at one end to form the end-eye, or of two pieces of wire, each having the end-eyes formed by twisting the ends of the wire round in the ordinary manner.

ABRAHAM HOWE.
SIDNEY S. GRANNIS.

Improvement in the Saw-Mill for Re-sawing Boards and other Timber.

What I claim is, the method of presenting, gauging, or guiding the board by means of the rest and pressure-rollers, or their equivalents, substantially as herein described, in combination with the saw, substantially as described.

And I also claim the method of hanging and straining the saw by the combination of three stirrups at the ends of the saw, constructed and connected in manner substantially as herein described.

PEARSON CROSBY.

Improvement in Spark-Arresters.

What I claim is, the mode of separating sparks and other particles of matter from the gaseous current discharged from locomotive or other chimneys, by passing the current from a central chamber through tangential openings into a larger circular chamber around them, wherein the sparks and particles are retained by centrifugal force, and revolve till they are consumed, or are passed out through proper openings, as through J J, into exterior chambers made for that purpose.

WILLIAM C. GRIMES.

Improvement in Machines for Threshing and Winnowing Grain.

What I claim is, the combination of the stationary screen K, and spring-rakes U, their teeth projecting through the apertures in the screen with the straw-carriers arranged above said screen, as set forth.

Also, in combination with the foregoing arrangement, the inclined plane B^2 and returner R^2, the latter having cross-pieces *r*, for pushing the grain down the inclined plane B^2, to the screens Q^1, &c., all as set forth.

Also, constructing the movable shoe Q with a chaff-screen Q^1, as set forth, in combination with the screens Q^2 Q^3 and tail-screen Q^4 arranged below it, and the inclined board V, for separating the tailings from the clean grain, the whole being combined and operating as described; likewise the combination of the foregoing with the return-belt R^2 and fan E, and further combining these with the elevators X and Z, and the trunks W and Y.

ANDREW RALSTON.

Errata in Classified List of Patents issued (*Vol.* 1, *pp.* 131–208).

Page 132, Class I.—Agriculture, 12,690* (Cultivator, A. H. Morrell, Marlen, Texas, April 10, 1855) should be inserted between 12,653 and 12,744.
135, Class I. Agriculture.....instead of 13,480, read 12,480.
140, Class II.—Metallurgy.....instead of 13,052, read 13,050.
141, " " 13,295 should be inserted between 13,255 and 13,625.
141, " " instead of 13,355, read 13,255.
144, Class III.—Fibrous and Textile Manufactures, 13,698 should be inserted between 13,614 and 13,963.
145, " " " " instead of 13,740, read 13,750.
145, " " " " instead of 12,563, read 12,565.
146, " " " " instead of 13,620, read 13,629.
147, " " " " instead of 12,557, read 12,577.
147, " " " " instead of 12,734, read 12,754.
148, " " " " instead of 13,550, read 13,350.
150, Class IV.—Chemical Processes.....instead of 12,576, read 12,116.
156, Class V.—Calorifics.....instead of 13,535, read 13,525.
156, " " .....instead of 13,233, read 13,283.
158, " " .....instead of 13,686, read 13,868.
158, " " 13,728 should be inserted between 13,589 and 13,868.
161, Class VI.—Steam and Gas-Engines.....instead of 13,805, read 12,805, and insert it bet'n 12,495 and 13,238.
161, " " " .....instead of 13,622, read 13,652.
162, " " " .....instead of 13,350, read 13,359.
163, Class VII.—Navigation.....instead of 13,184, read 12,184.
164, " " .....instead of 12,940, read 13,940.
165, " " .....instead of 12,778, read 12,718.
166, Class VIII.—Mathematical Instruments.....instead of 13,062, read 13,162.
166, " " .....instead of 13,665, read 13,655.
166, " " .....instead of 12,121, read 12,129.
168, Class IX.—Engineering.....instead of 12,234, read 13,234.
169, " " .....instead of 12,126, read 12,136.
171, Class X.—Land Conveyance.....instead of 13,860, read 13,869.
173, " " .....instead of 12,252, read 12,251.
174, " " 13,297 should be inserted between 12,976 and 13,418.
174, Class XI.—Hydraulics and Pneumatics.....instead of 12,743, read 13,743.
175, " " " .....instead of 13,219, read 13,319.
175, " " " .....instead of 12,625, read 12,626.
176, " " " 13,559 should be inserted between 13,459 and 13,622.
176, " " " .....instead of 13,179, read 13,979, and insert it bet'n 13,967 and 13,590.
177, " " " .....instead of 12,246, read 12,346.
178, " " " .....instead of 13,069, read 13,067.
179, Class XII.—Lever and Screw, &c., 12,259, see Class IV.
179, " " .....instead of 13,191, read 13,199.
181, Class XIII.—Grinding Mills, &c., 13,415, see Class VI.
181, " " .....instead of 13,927, read 13,937.
184, Class XIV.—Lumber.....instead of 13,102, read 13,101.
187, " " .....instead of 13,251, read 13,351.
187, " " .....instead of 13,719, read 13,354, and insert it bet'n 13,305 and 13,357.
187, " " .....instead of 13,916, read 13,716.
188, " " .....instead of 12,606, read 12,600.
191, Class XV.—Stone and Clay.....instead of 13,860, read 13,866.
192, Class XVI.—Leather.....instead of 13,101, read 13,901, and insert it between 13,886 and 13,914.

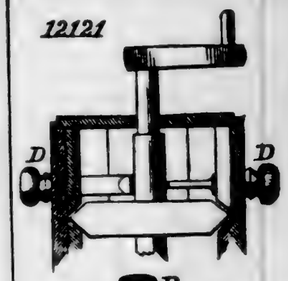
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* For Description and Claims No. 12,690, see Vol. I, p. 300.

Page 195, Class XVII.—Household Furniture, &c.....instead of 13,088, read 13,188.
196, " " " .....instead of 12,361, read 12,661.
196, " " " .....instead of 13,150, read 12,150, and insert it bet'n 12,383 and 12,271.
197, " " " .....instead of 13,272, read 13,372.
198, Class XVIII.—Arts Polite, Fine, &c.....instead of 13,199, read 13,166.
198, " " " .....instead of 13,575, read 13,515.
199, " " " .....instead of 12,836, read 12,736.
200, " " " .....instead of 13,956, read 13,580.
201, " " " .....instead of 13,691, read 13,671.
201, " " " .....instead of 13,740, read 13,470.
203, Class XIX.—Fire-Arms, 13,294 should be inserted between 13,293 and 13,474.
203, " " instead of 12,539, read 12,529.
204, " " instead of 13,706, read 12,440, and insert it bet'n 12,328 and 12,470.
204, " " .....instead of 12,592, read 12,522.
204, " " .....instead of 13,678, read 13,679.
206, Class XXI.—Wearing Apparel. .....instead of 13,213, read 13,212.

ILLUSTRATIONS.

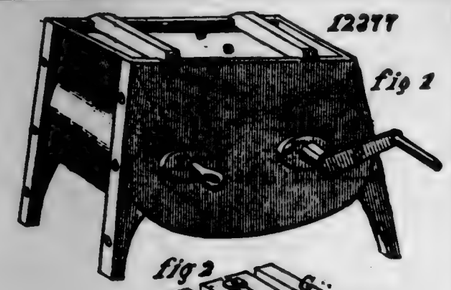
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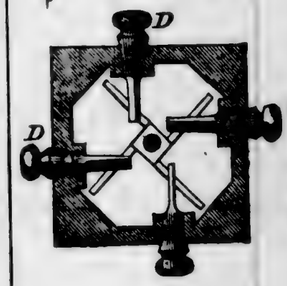


12366



12377 fig 1





13281 fig.1

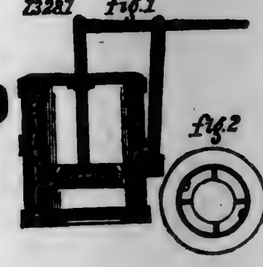
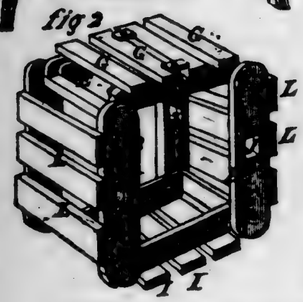


fig.2

fig 2



13421

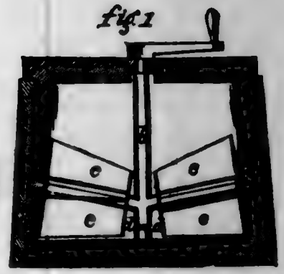


13680

fig.2



fig.1



13672 fig 1A



fig 2



13270 fig.1

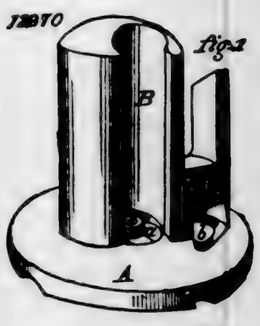
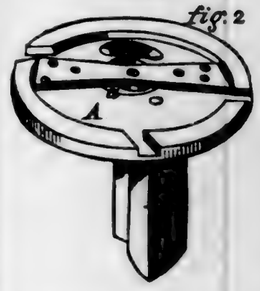
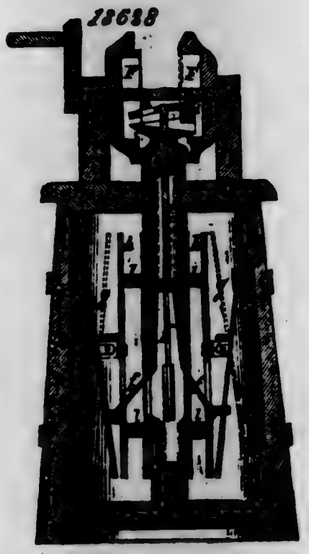


fig.2



13688



13153 fig 1

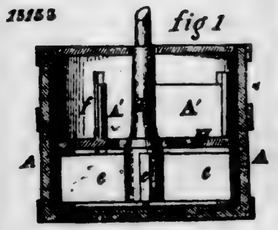
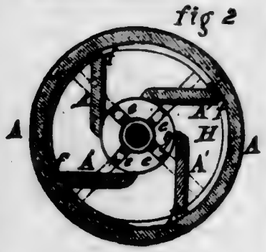


fig 2



12614 fig. 1

fig. 2

12372 fig. 1

fig. 2

12462

12454 fig. 1

fig. 2

13684

11122 fig. 1

fig. 2

fig. 3

fig. 4

18122 fig. 1

fig. 2

fig. 2

fig. 1

13997

fig. 2

fig. 1

13840

18505

fig. 1

fig. 2

12538 fig. 1

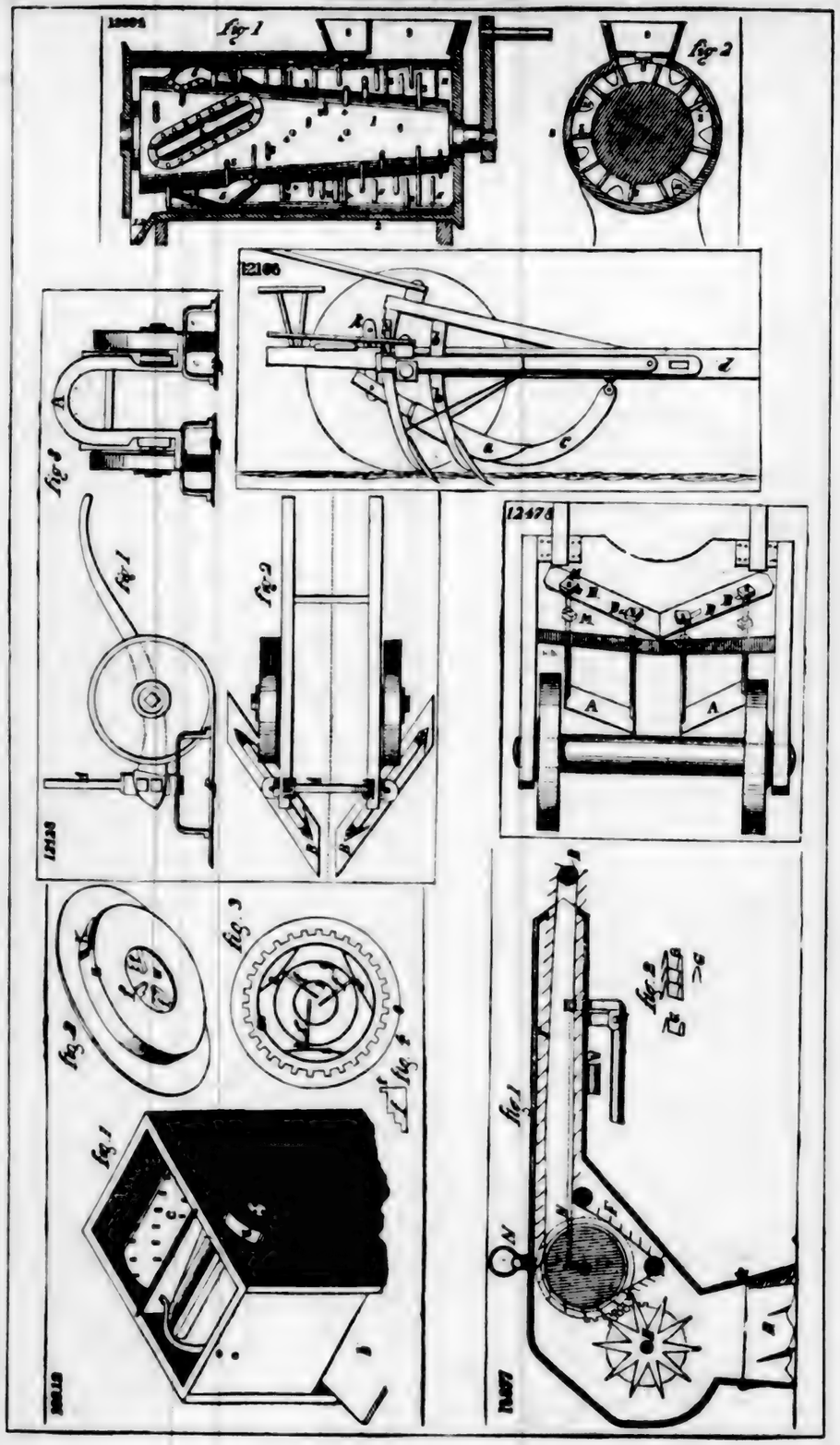
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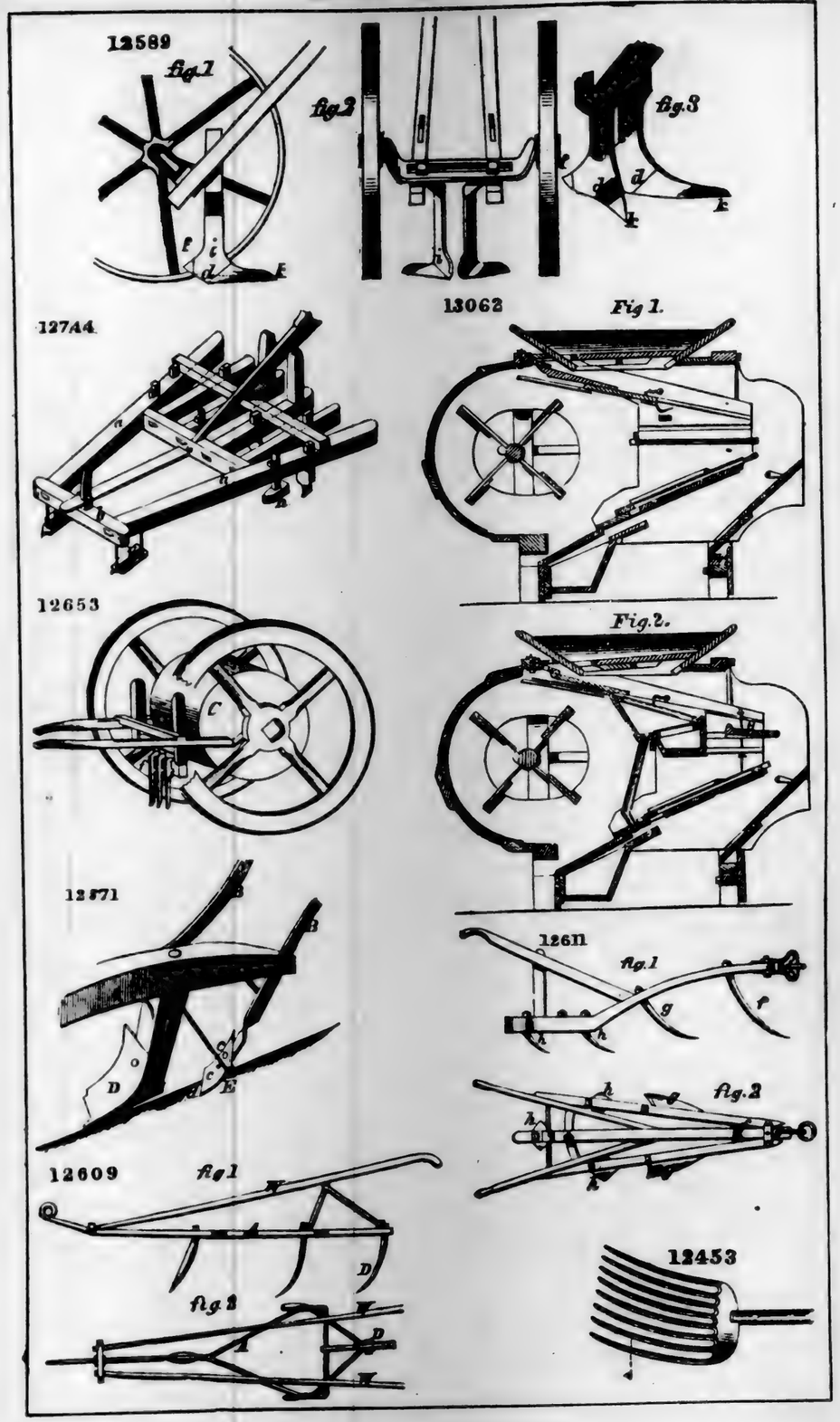
fig. 1

fig. 2

12332 fig. 1

fig. 2


12004
fig 1
fig 2
12166
fig 3
fig 1
fig 2
12478
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fig 3
fig 4
fig 1
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fig 1
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12589
fig 1
fig 2
fig 3
13062
Fig 1.
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Fig 2.
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12609
fig 1
fig 2
12453

18644

fig. 1

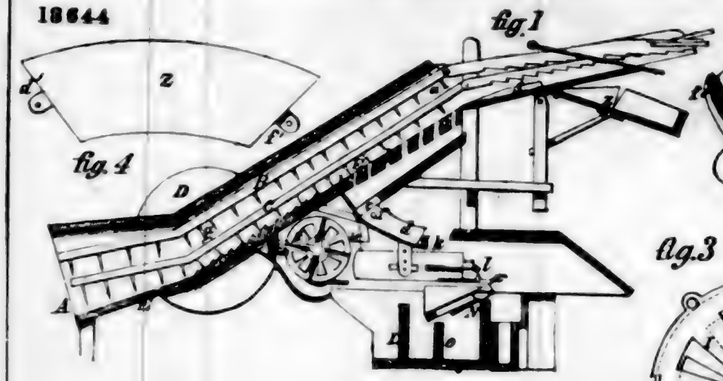


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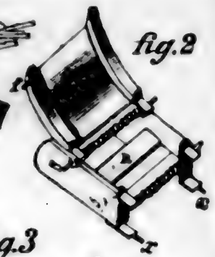
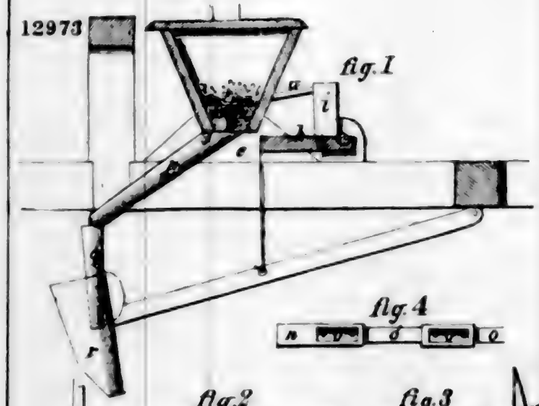


fig. 3



12973

fig. 1



13143

fig. 1

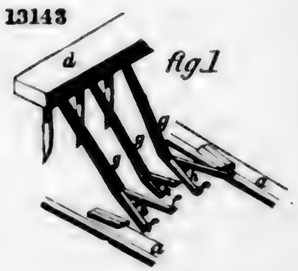


fig. 4

fig. 2

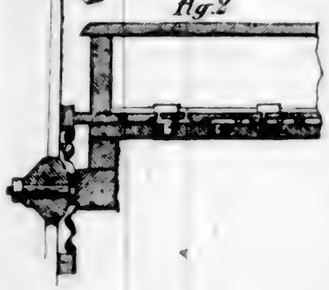


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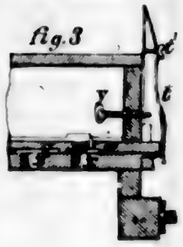
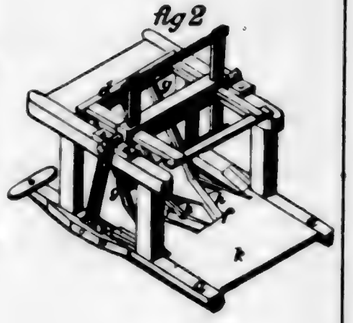


fig 2



13332

fig. 1

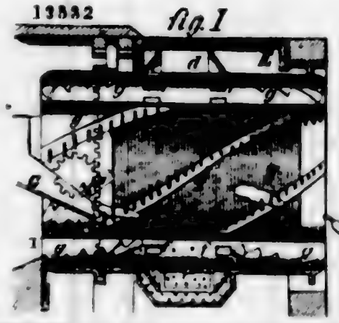
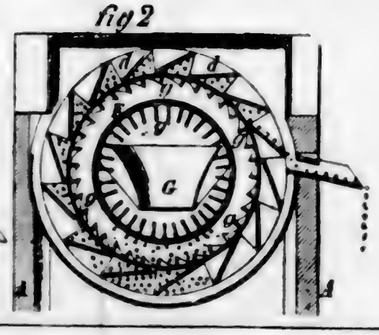


fig 2



12415

fig 1.

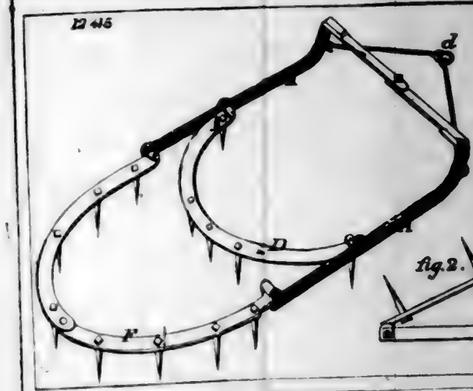
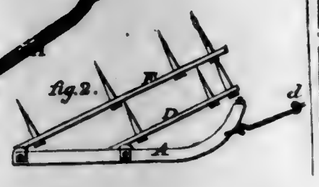


fig 2.



13257

fig 1



fig 2

12121

fig 2

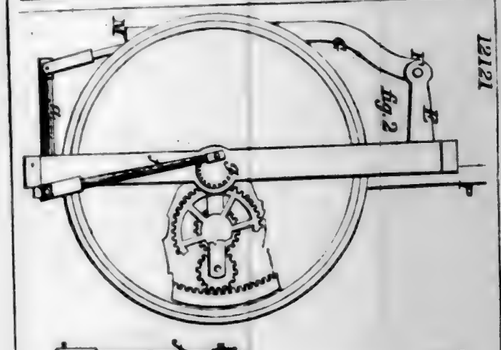


fig 1

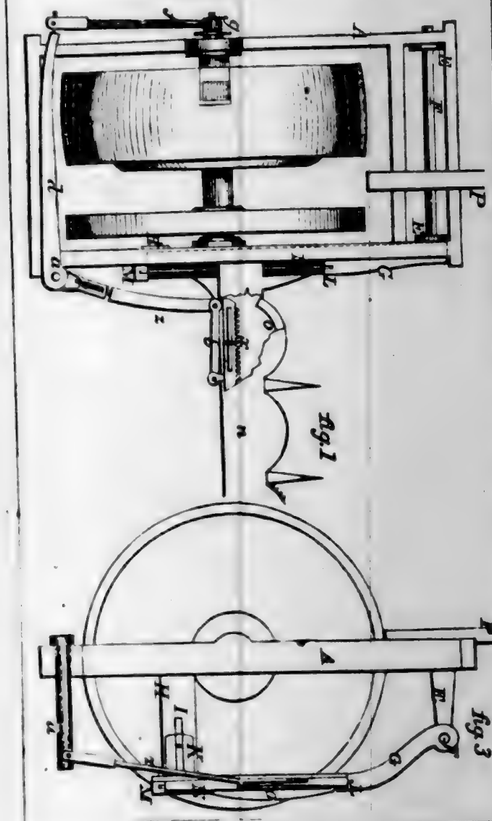


fig 3

12659

fig. 1

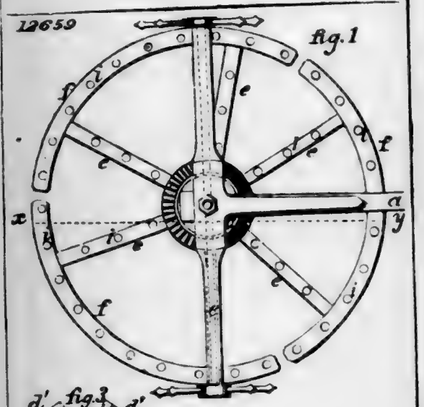
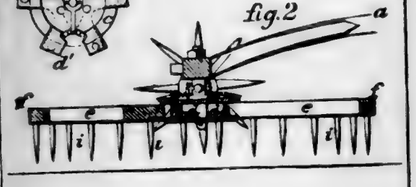


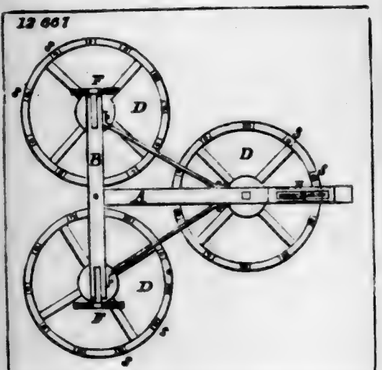
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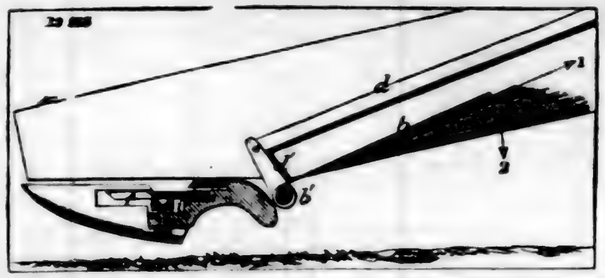


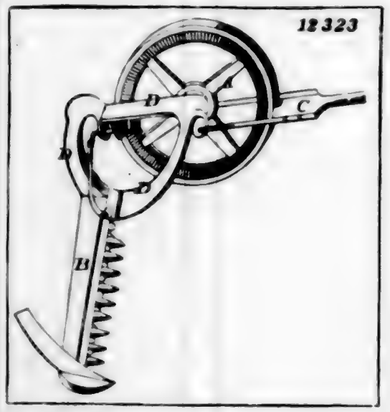
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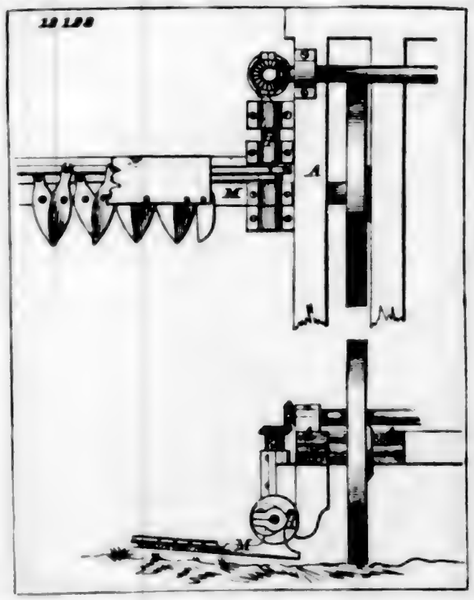


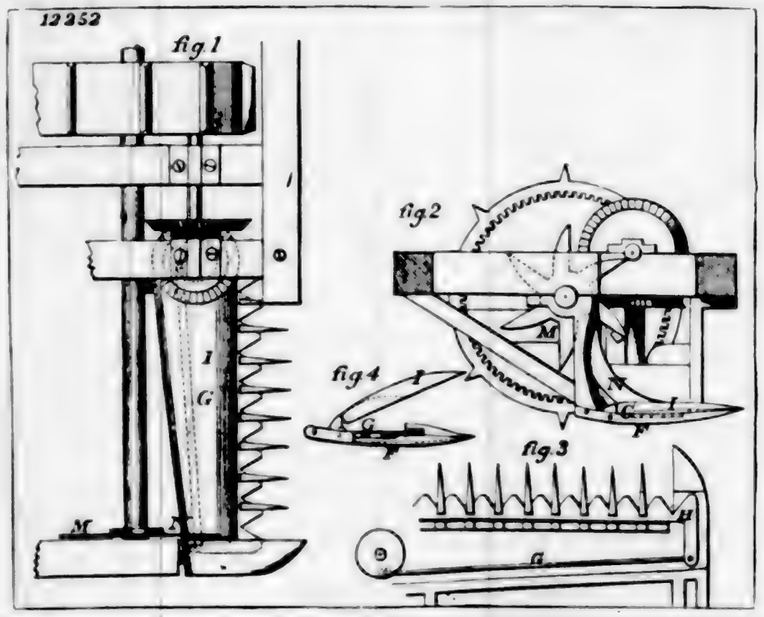
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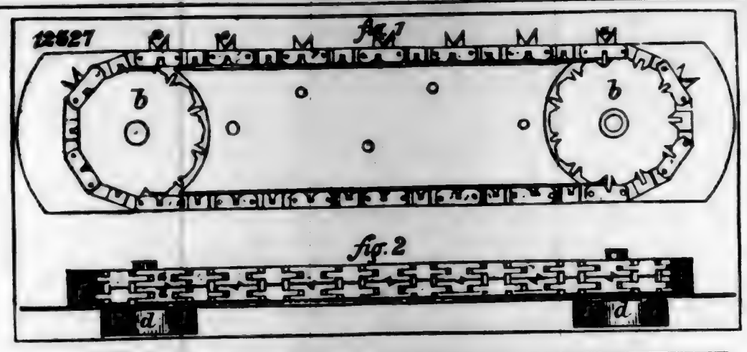


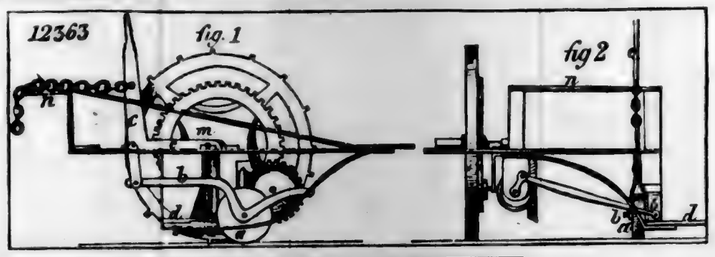


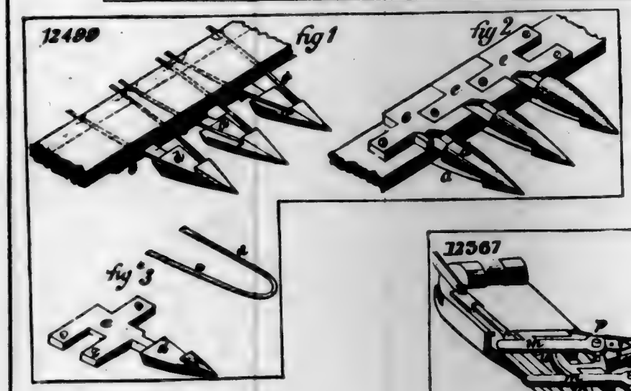

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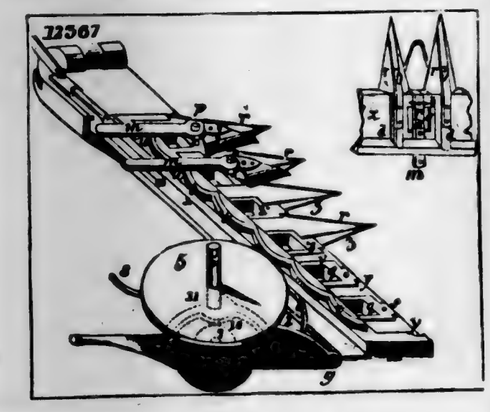


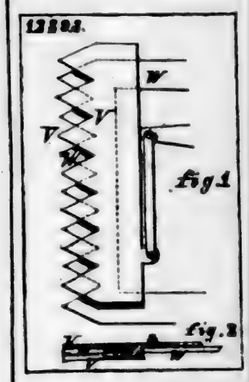

12252
fig 1
fig 2
fig 3
fig 4

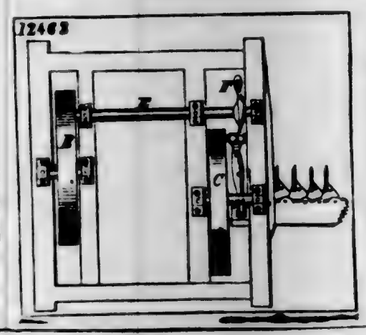

12527
fig. 1
fig. 2

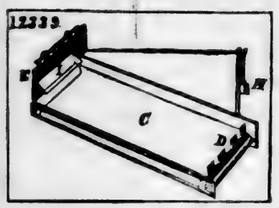

12363
fig. 1
fig 2


12499
fig 1
fig 2
fig 3


12567


12383
fig 1
fig 2


12463


12333

12252
fig 1
fig 2
fig 3
fig 4

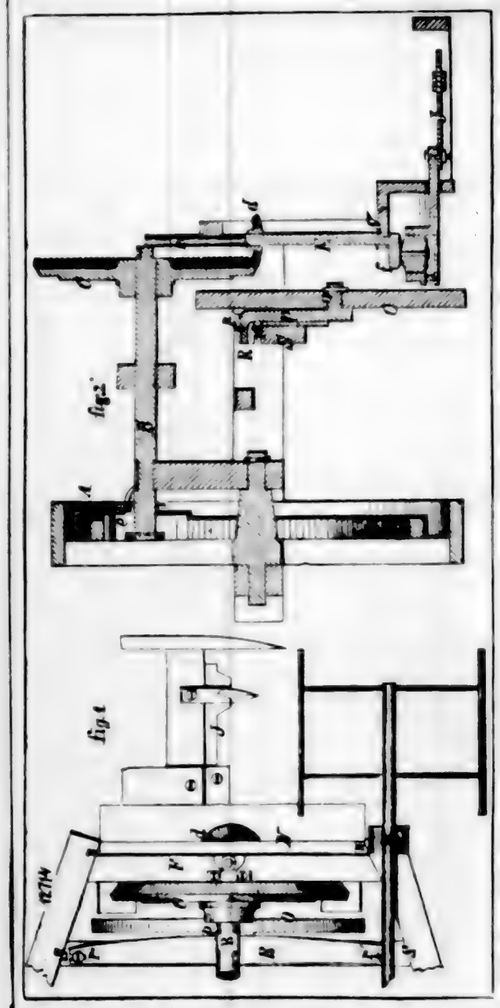
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fig 2
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fig 1
fig 2

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12333


fig 2
12714

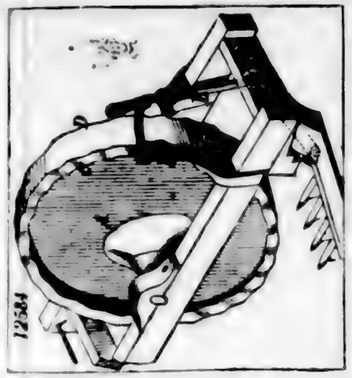

12584


fig 2
fig 1
12570

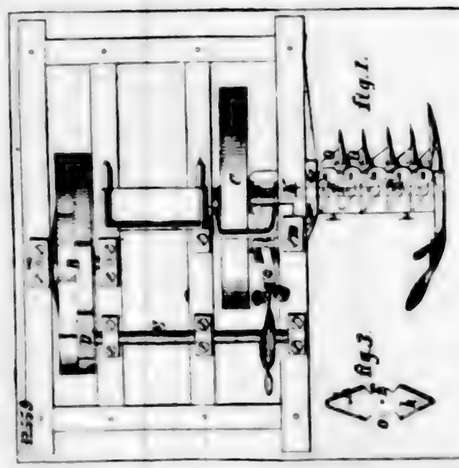
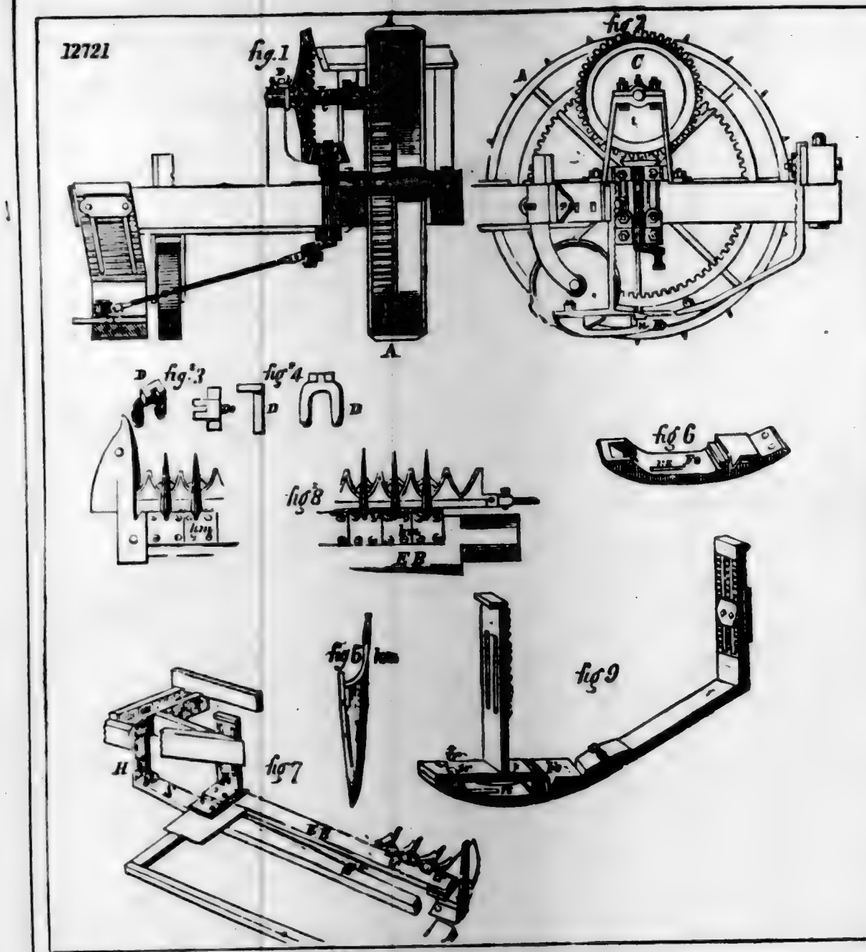
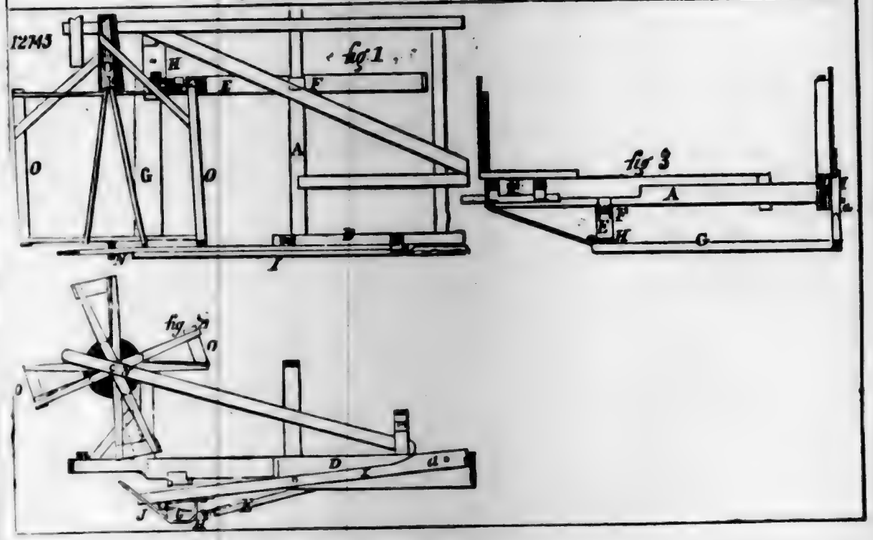

fig 1.
fig 3
12558


fig 2.


12721
fig 1
fig 2
fig 3
fig 4
fig 5
fig 6
fig 7
fig 8
fig 9


12743
fig 1
fig 3
fig 2

12756 fig. 1

fig. 2

fig. 3

12769

12768

fig. 1

fig. 3

fig. 2

Fig. 1

Fig. 2

Fig. 3.

Fig. 1

Fig. 2

13201 Fig 1. Fig 2.

13173 Fig 1. Fig 2. Fig 3.

13147 Fig 2. Fig 1.

13149. Fig 1. Fig 2.

13188 Fig 1. Fig 3. Fig 2

13160 Fig 1. Fig 2.

13226

13170 Fig 1. Fig 2.

13150

13205

13142

13480 fig. 1. fig. 2.

13330 fig. 3 fig. 4 fig. 2

13433 fig. 1. fig. 2.

13504

fig. 1.

13438

13285

13508

13246

13154 Fig 1. Fig 2.

13155 Fig 1. Fig 2.

13156 Fig 1. Fig 2.

13157 Fig 1. Fig 2.

13158 Fig 1. Fig 2.

13159 Fig 1. Fig 2.

13160 Fig 1. Fig 2.

13161 Fig 1. Fig 2.

13545

13517 fig.1.

fig.2.

fig.3

fig1 13512 fig.5.

fig2

13524 fig.1. fig.2.

fig.1.

fig.2.

13668

13523

fig.1

fig.2

13925

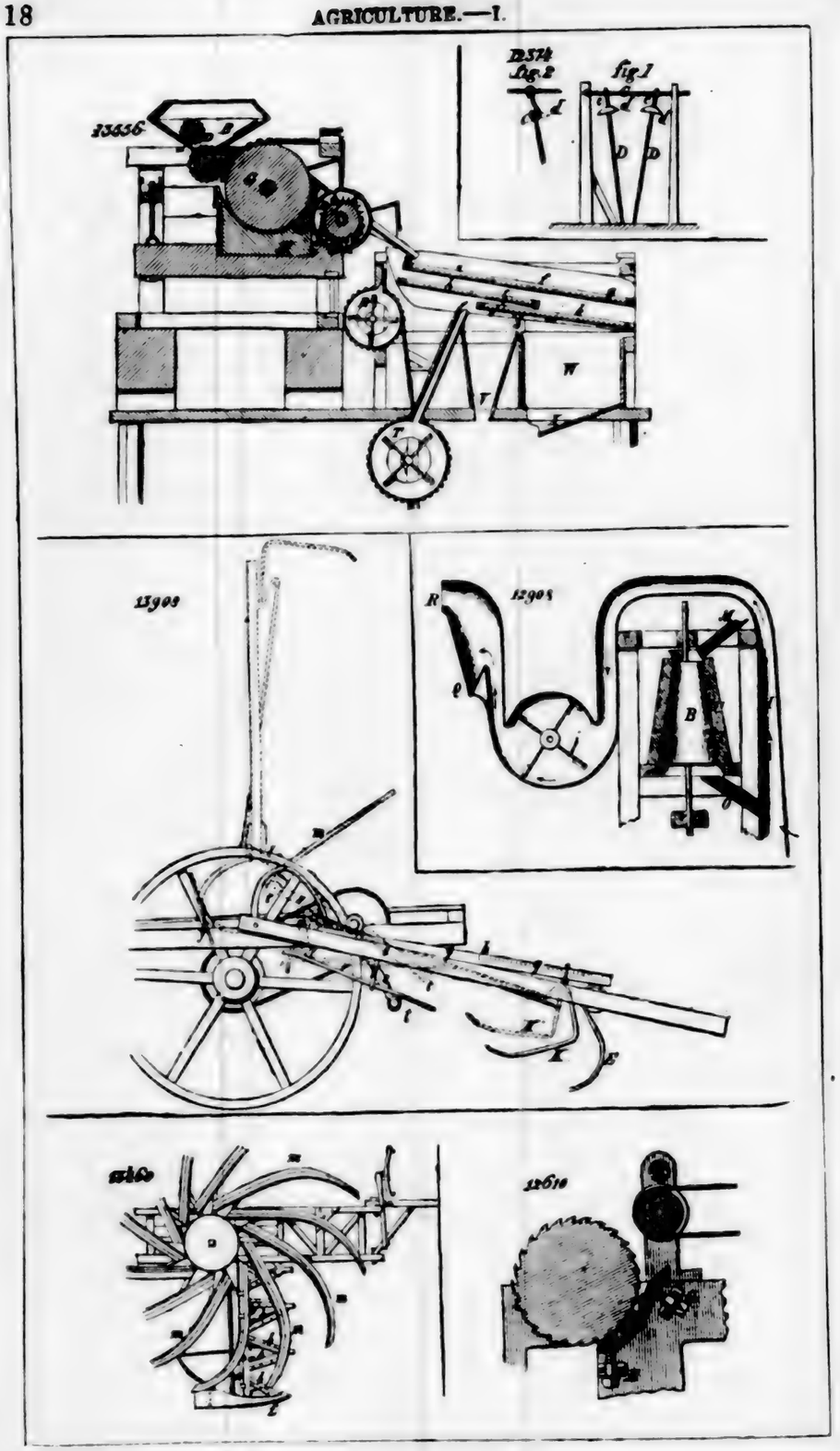
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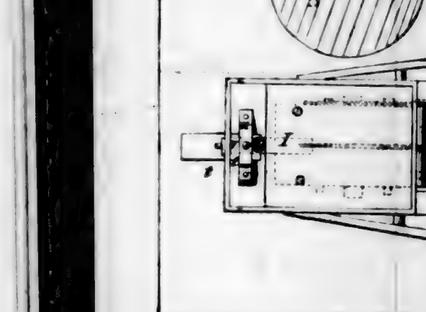
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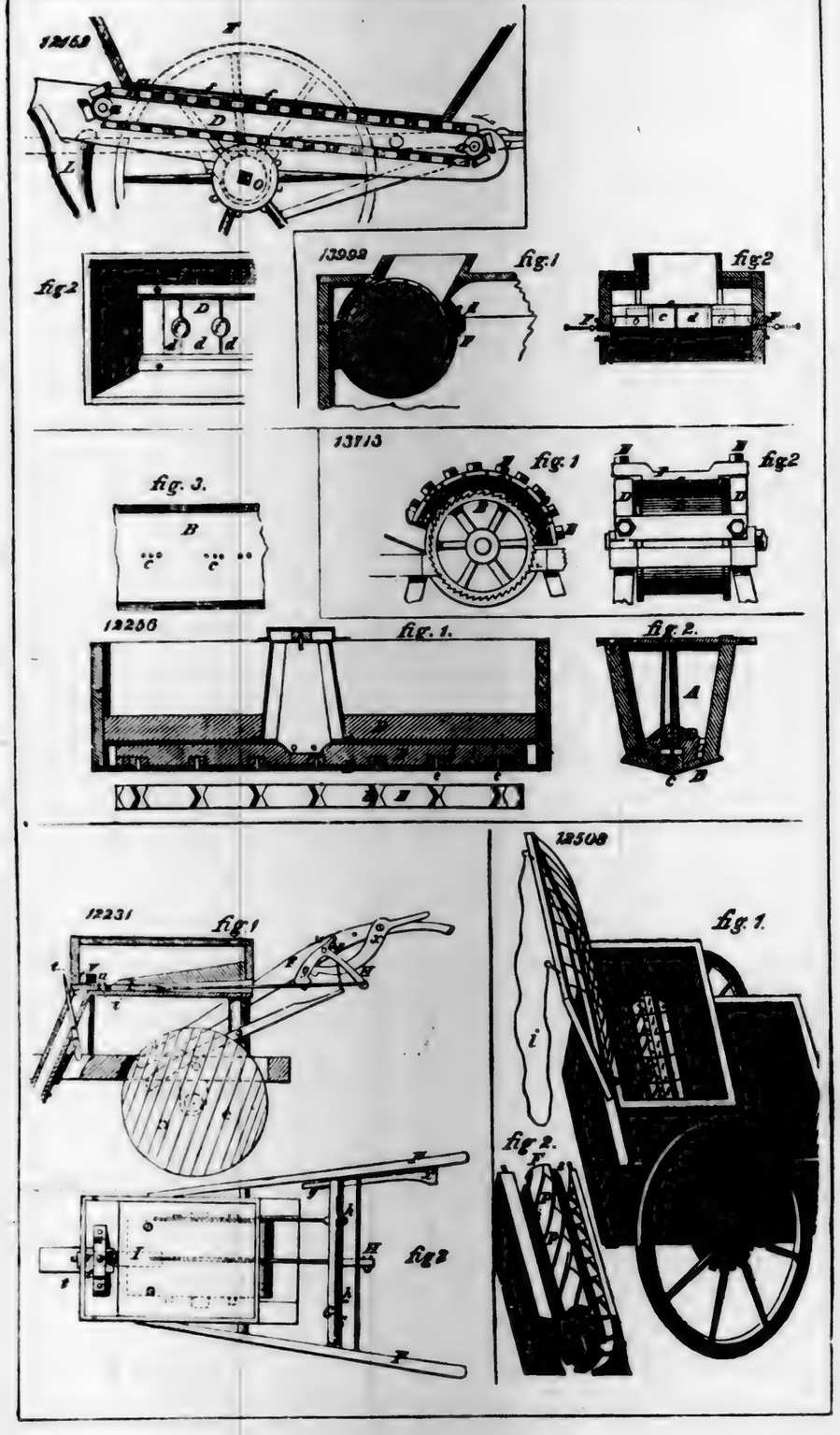
13935

fig.1 13728 fig.2 fig.3


13656
D574
fig. 2
fig. 1
13909
12909
R
B

12610


12610


12468
D
L
fig. 2
13992
fig. 1
fig. 2
fig. 3.
B
13713
fig. 1
fig. 2
12256
fig. 1.
fig. 2.
A
12231
fig. 1
fig. 2
12508
fig. 1.
i
fig. 2.

12260

fig. 1

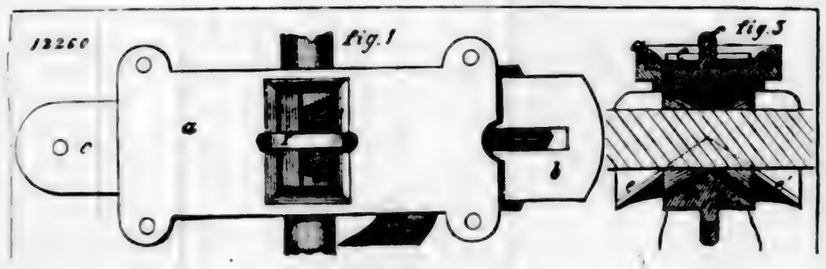
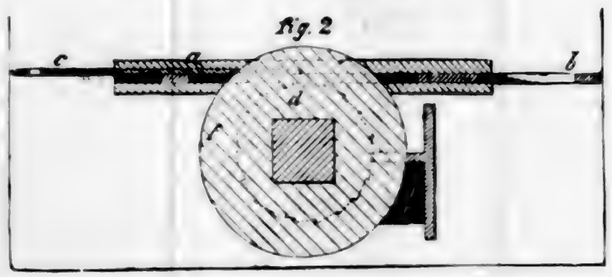
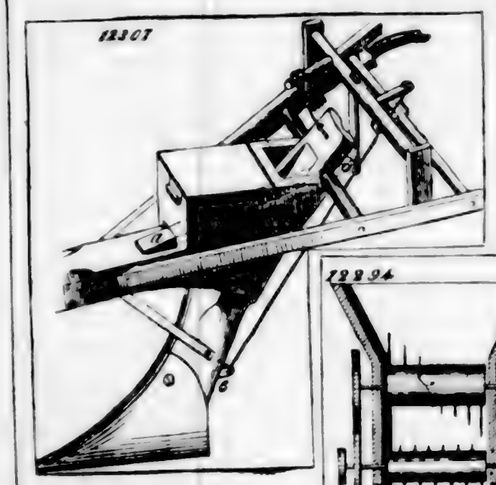


fig. 3

fig. 2

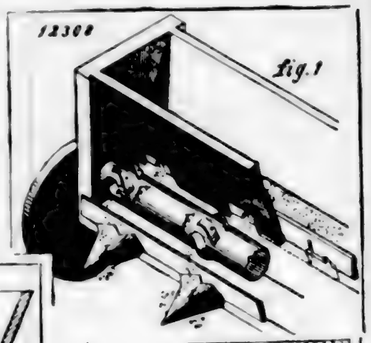


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12304

fig. 1



12294

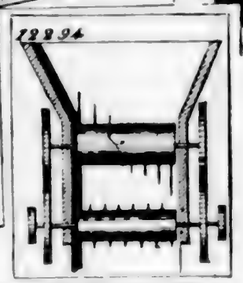
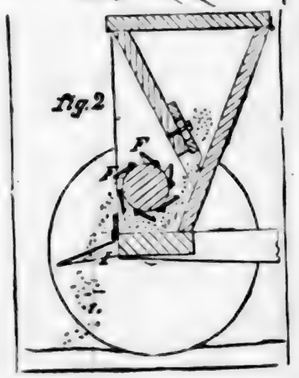
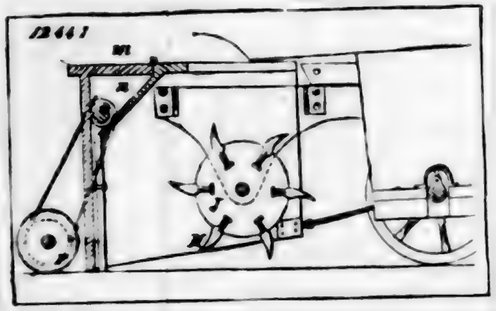


fig. 2



12461



12605

fig. 1

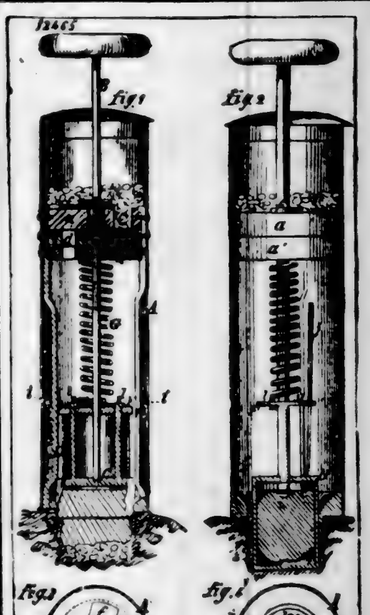


fig. 2

fig. 3

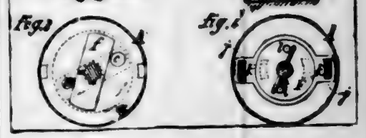


fig. 4

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fig. 1

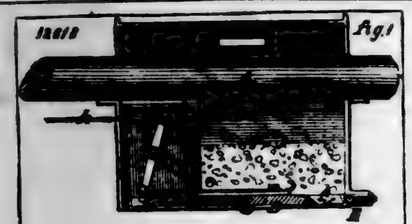


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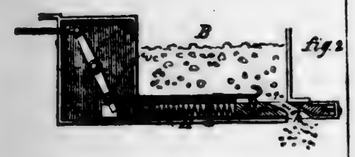


fig. 3



12603

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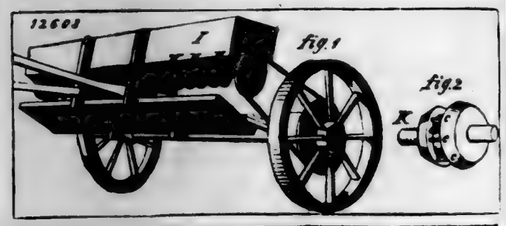


fig. 2



12557

fig. 1

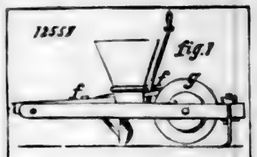
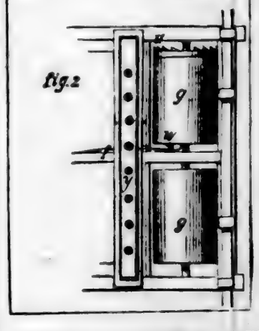


fig. 2



12554

fig. 1

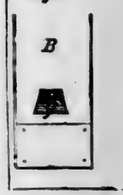


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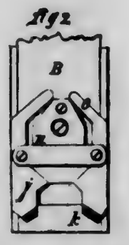


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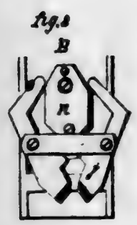
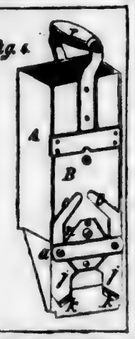


fig. 4



12561

fig. 1

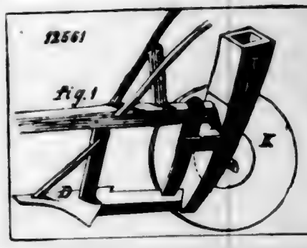
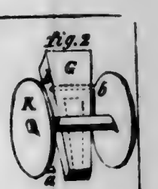


fig. 2



12604

fig. 2

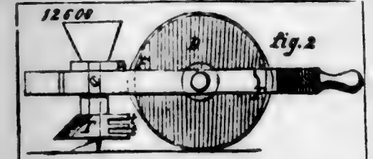
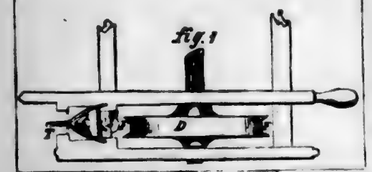
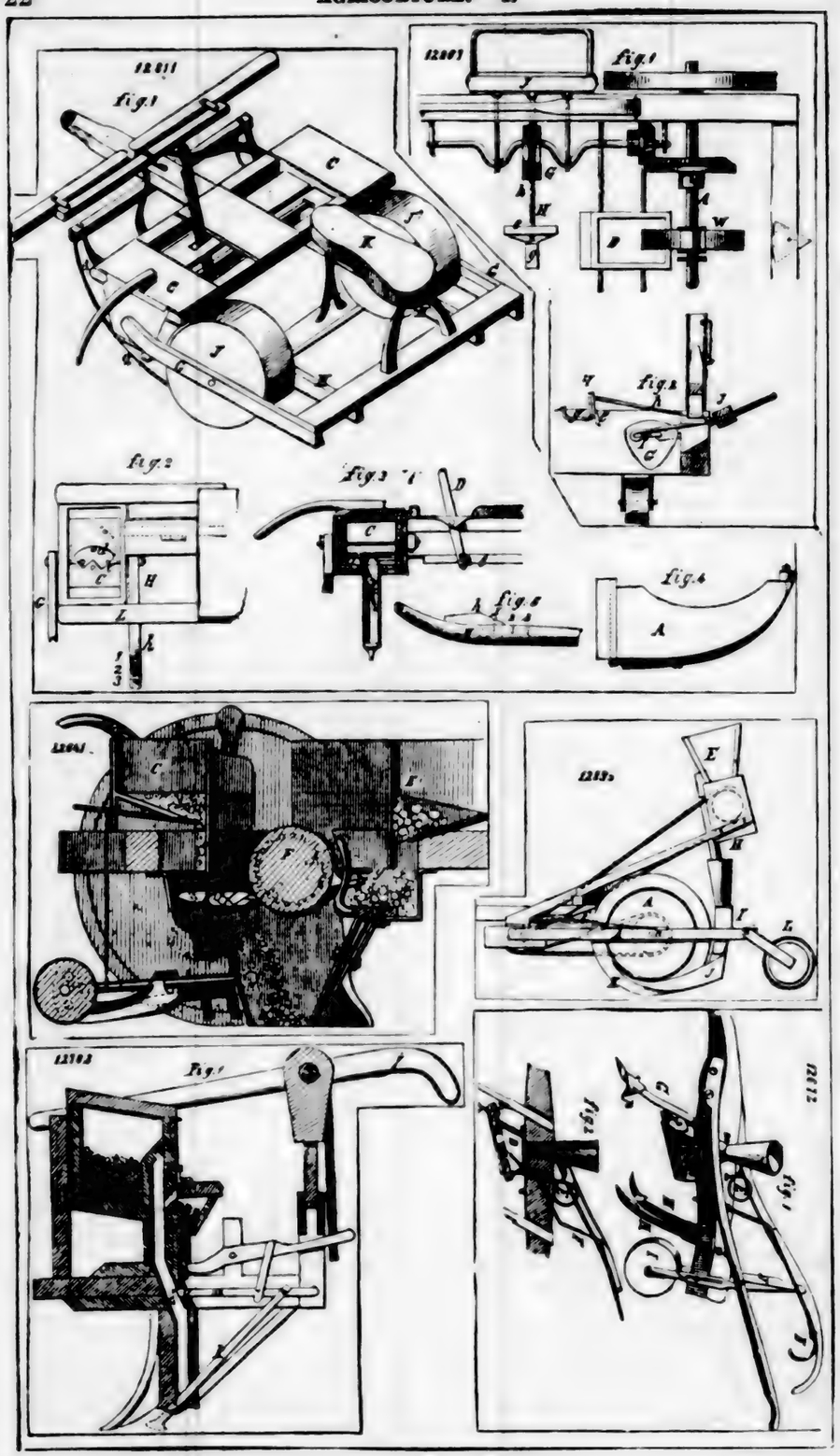
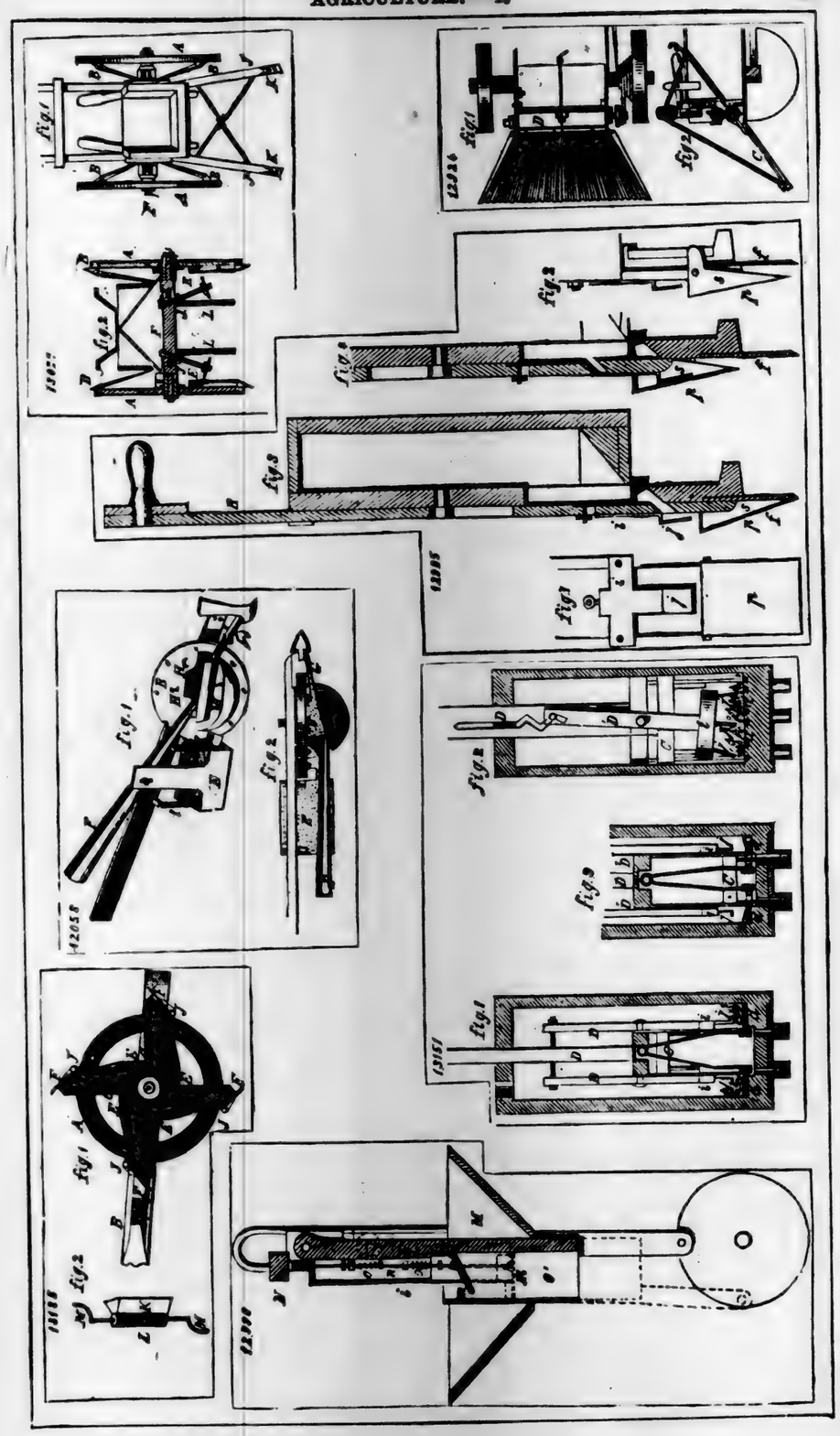


fig. 1




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fig.1

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fig.2

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fig.1 fig.2 fig.3

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fig.2.

fig.1

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fig.1.

fig.2. fig.3.

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fig.1

fig.2

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fig.1

fig.2 fig.3

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fig.1

fig.3

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fig.1 fig.2

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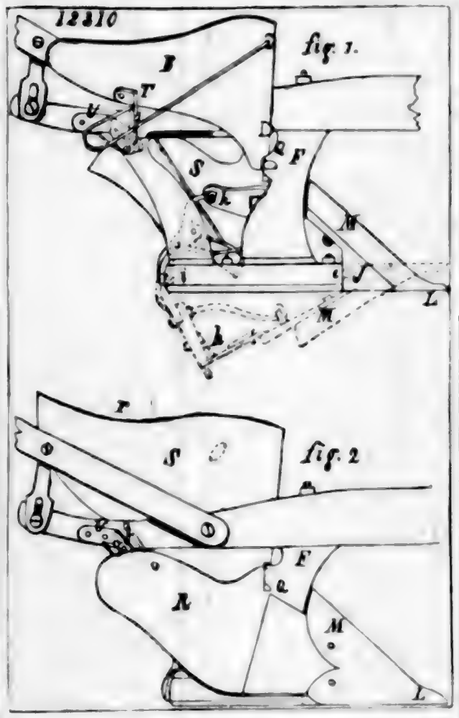
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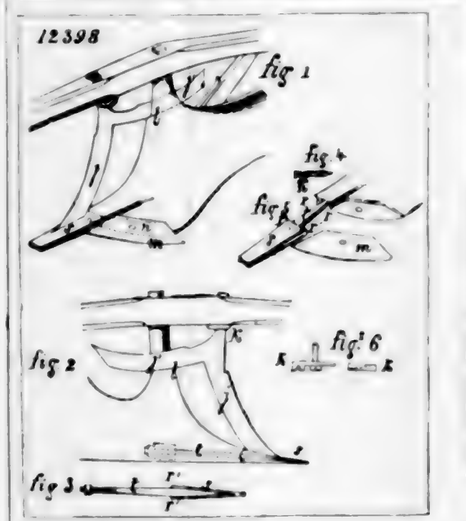
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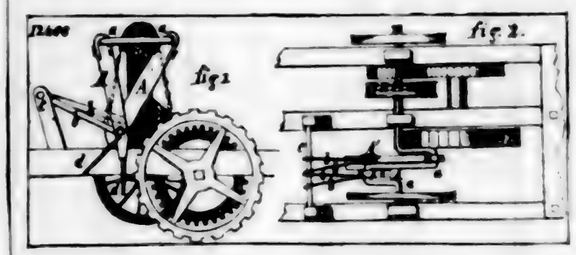
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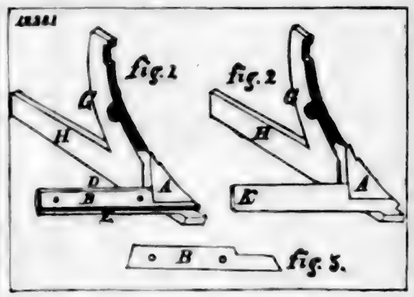




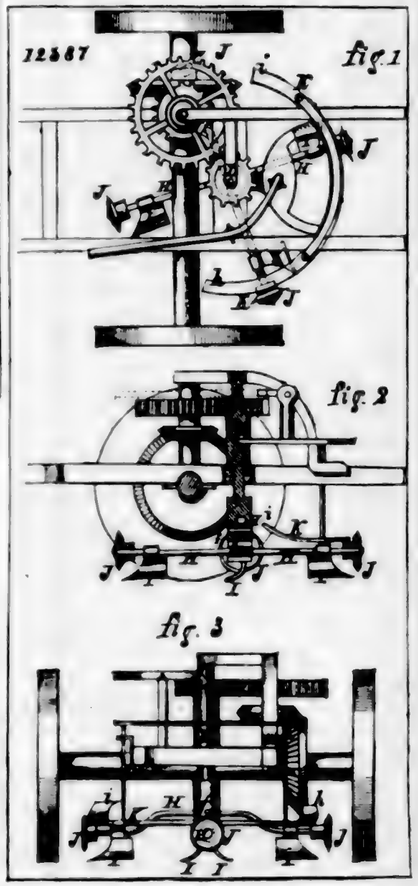
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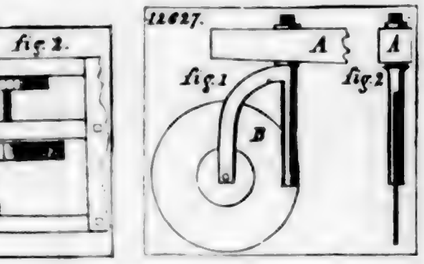


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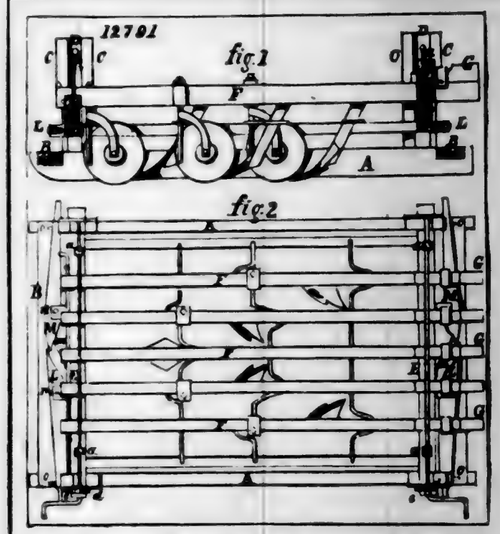
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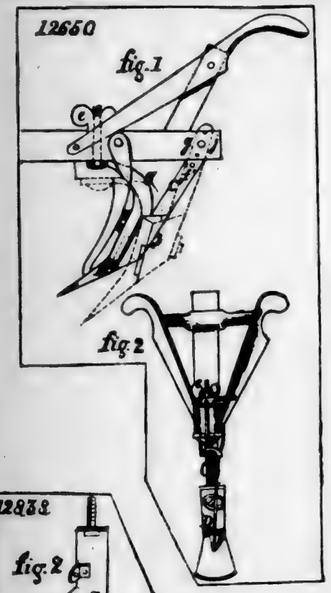


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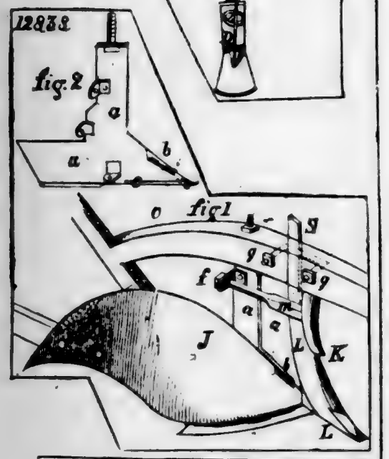
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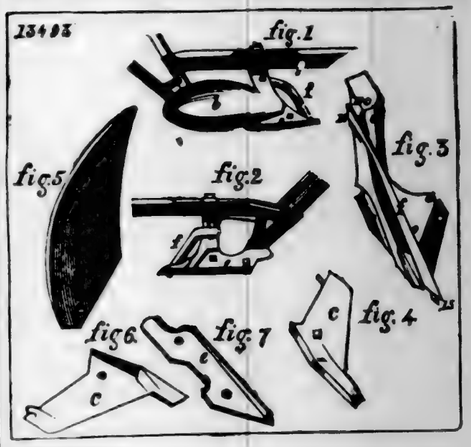
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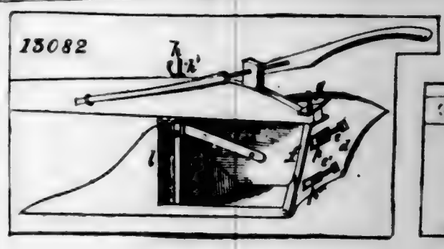
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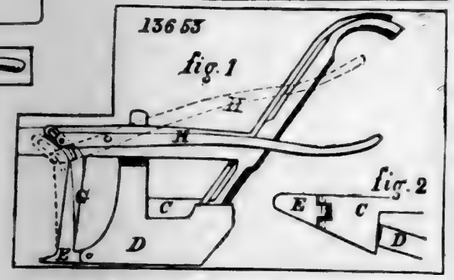
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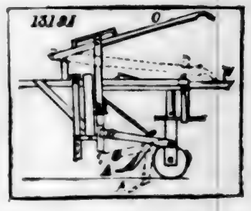
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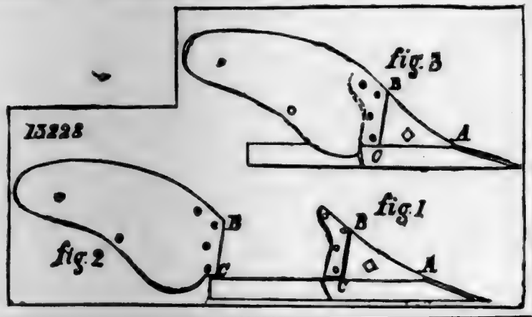
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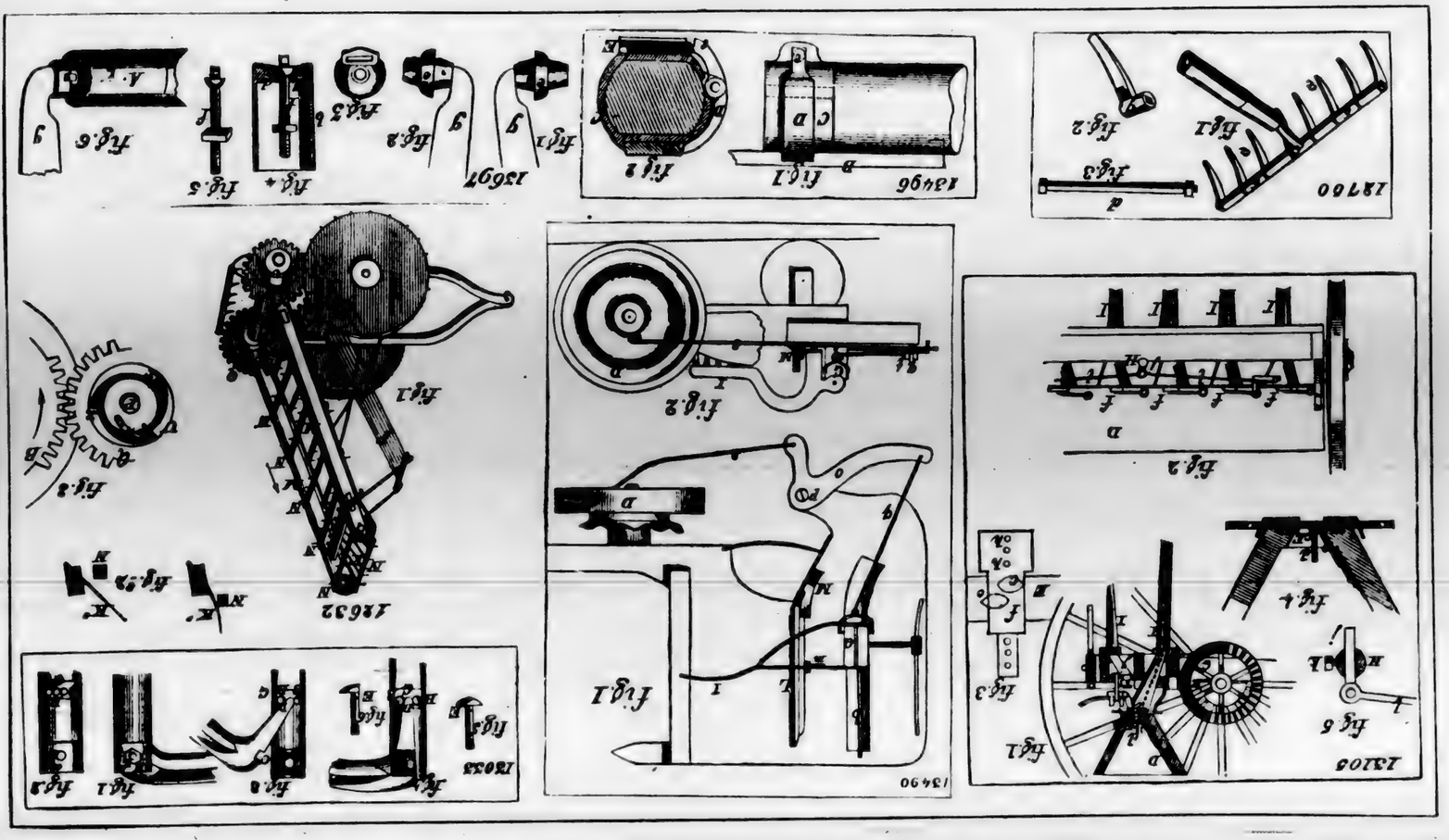


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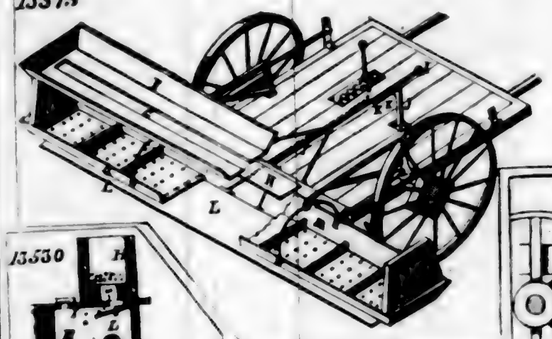


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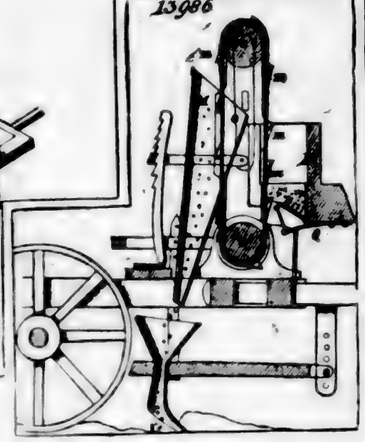



Fig 1
Fig 2
Fig 3
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Fig 5
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Fig 13
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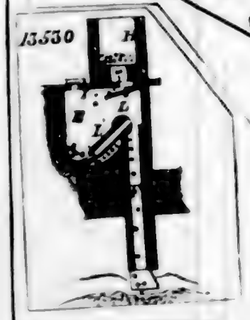
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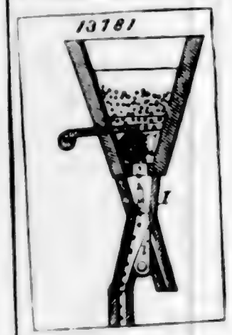
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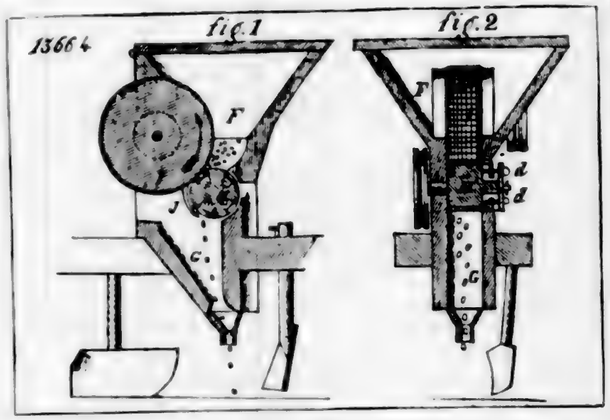
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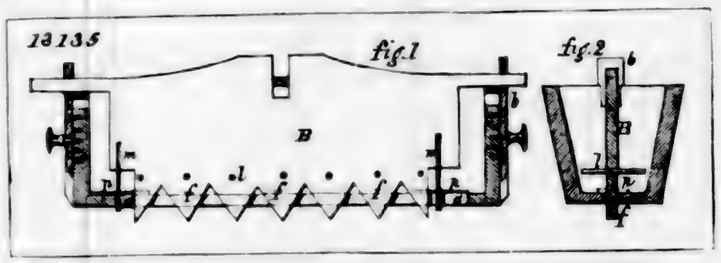
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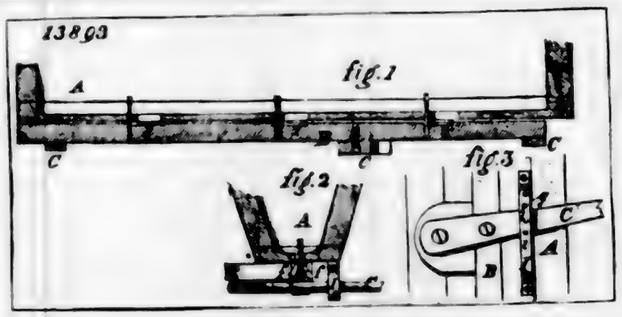
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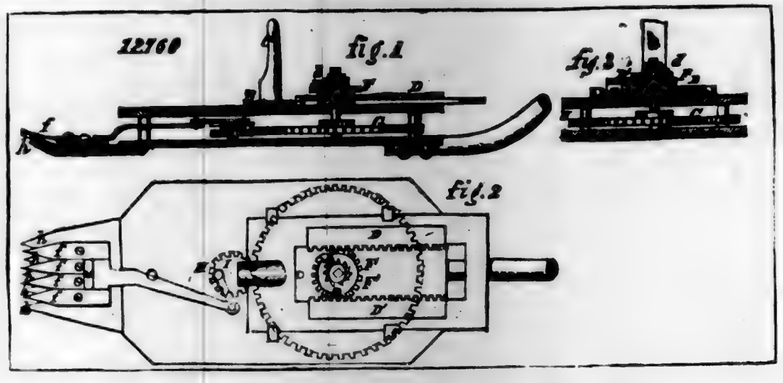
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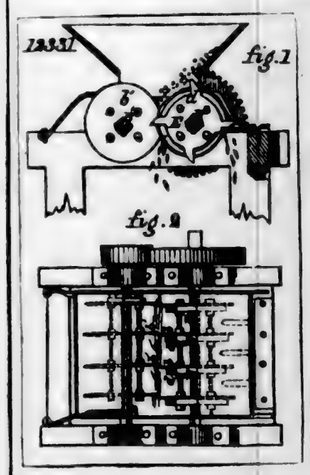
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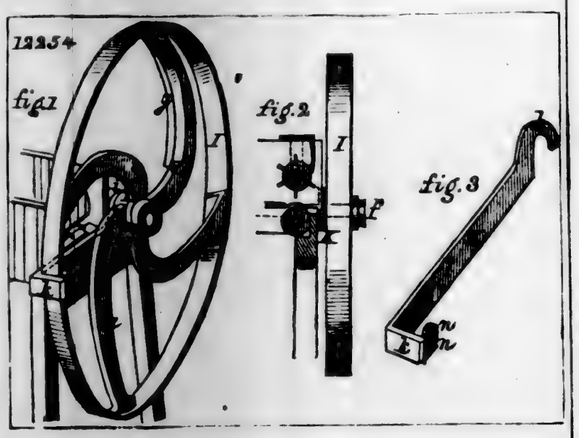
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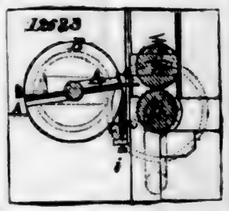
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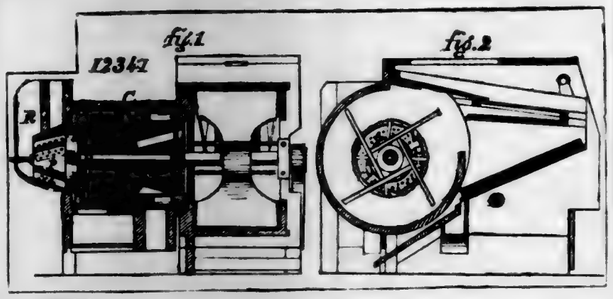
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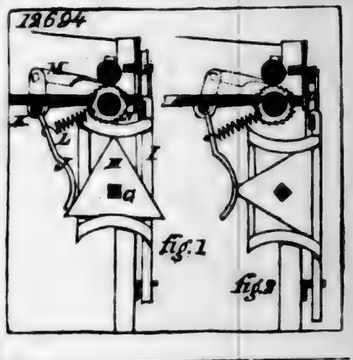
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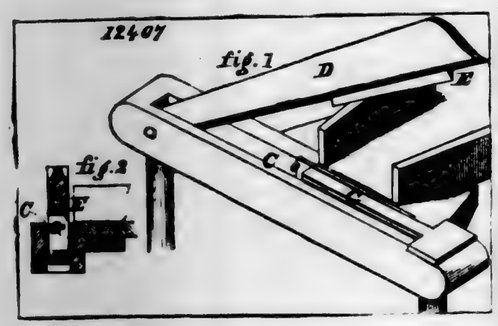
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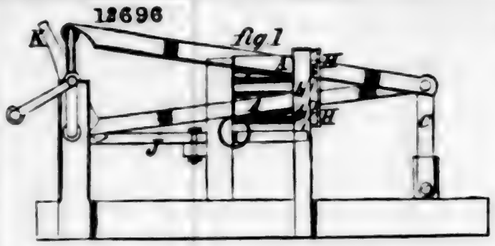
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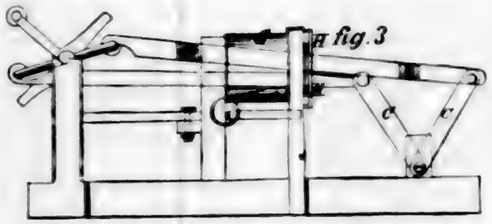


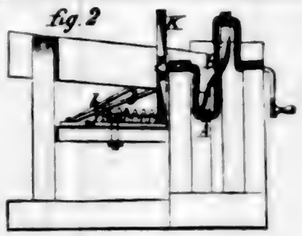
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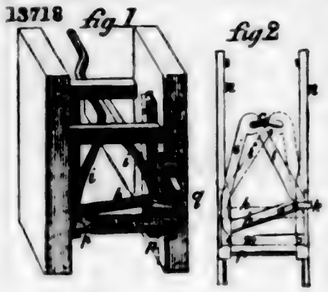
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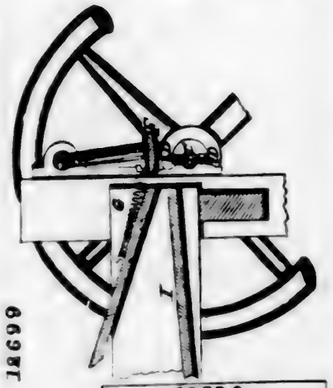




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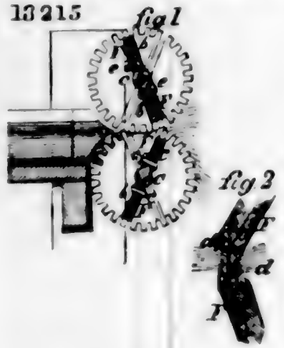
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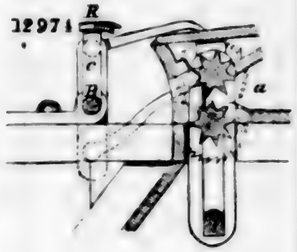
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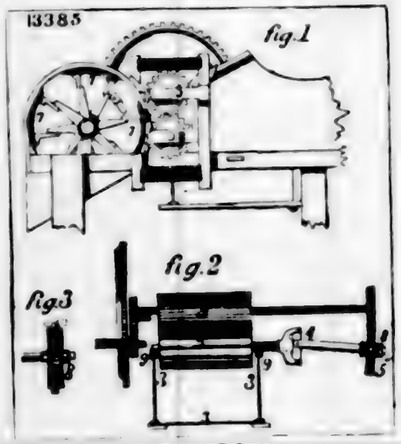
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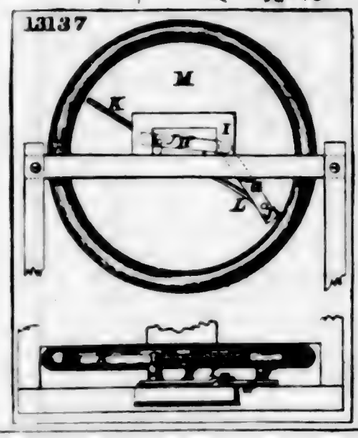
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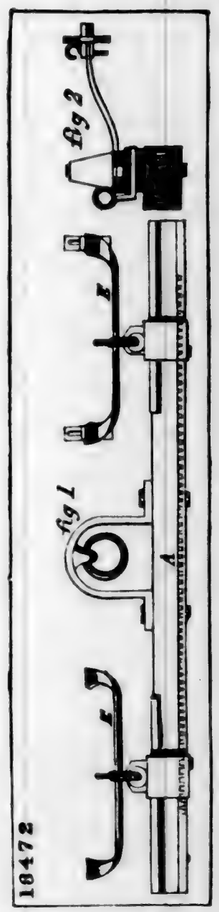


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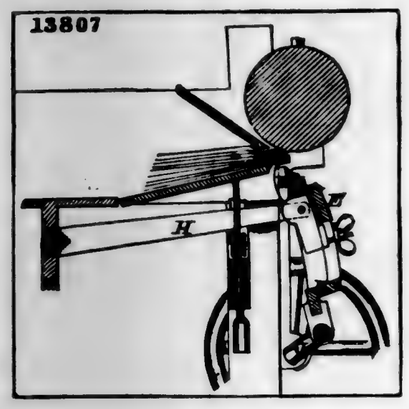
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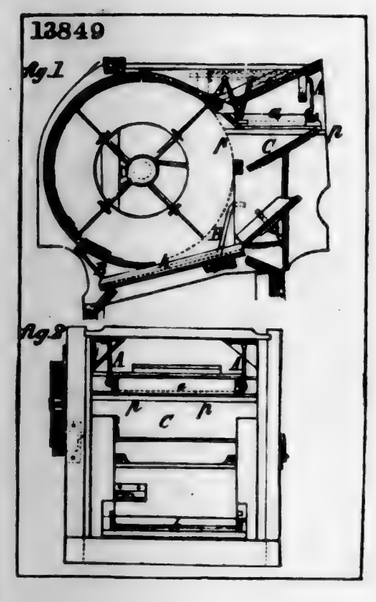


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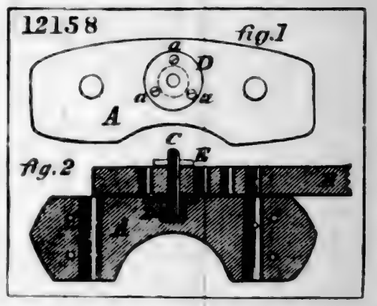
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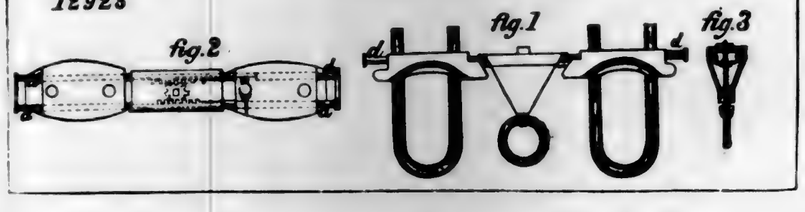
13849



12158



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fig 1
fig 2

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fig 2

fig 4

fig 3

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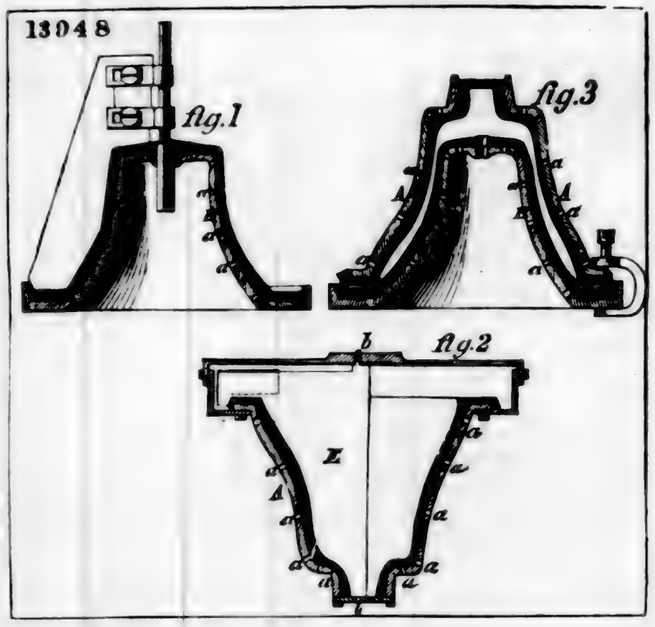
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fig 12
fig 8
fig 9
fig 13
fig 14
fig 10

13695
fig 1
fig 2

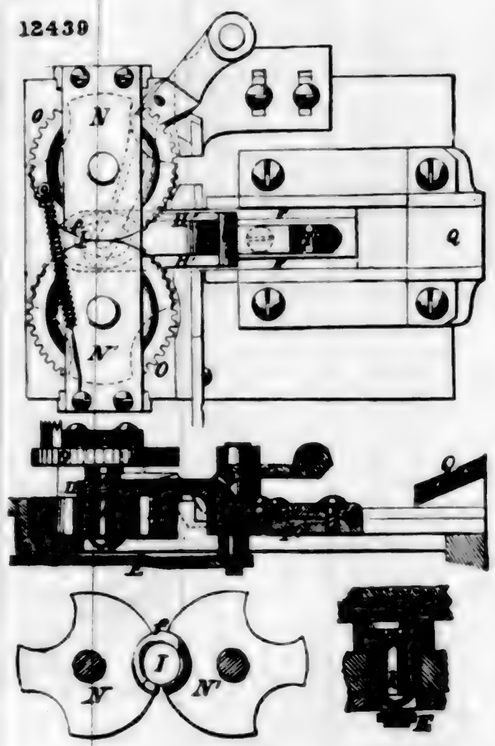
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fig 1

fig 2

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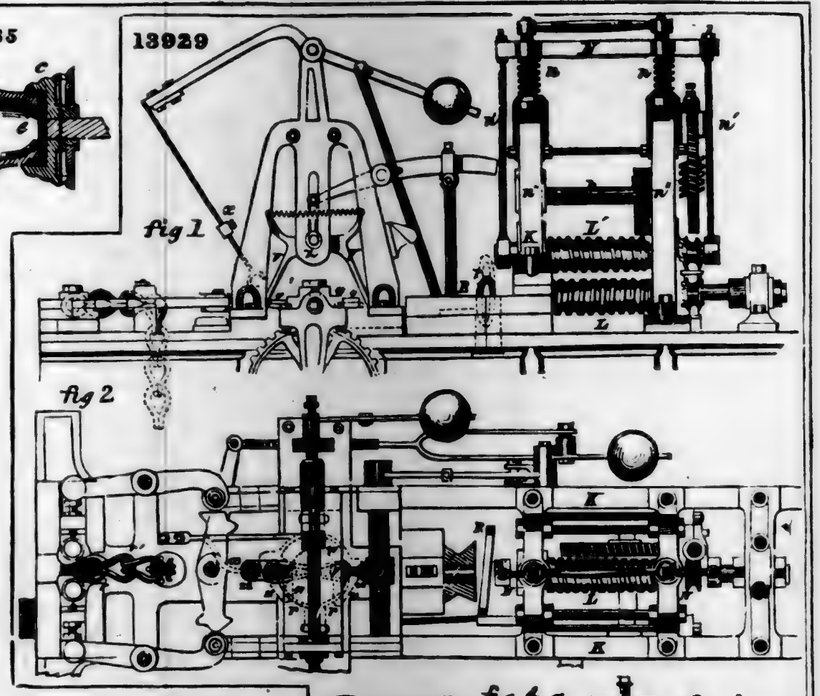
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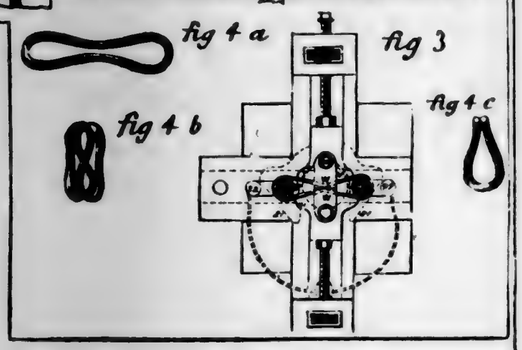


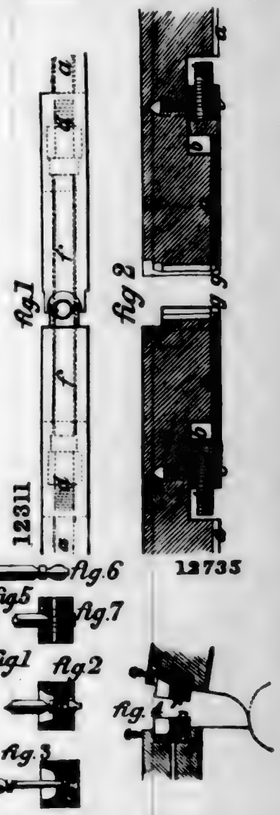
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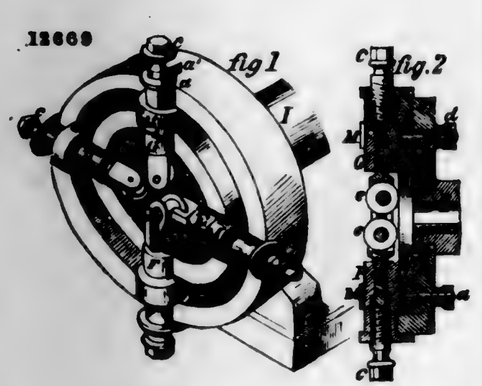
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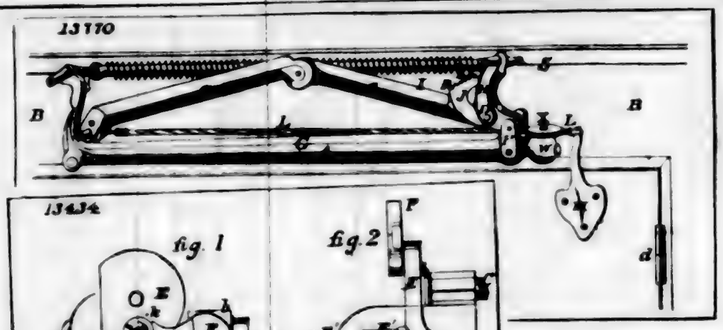




12669



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13434

fig. 1

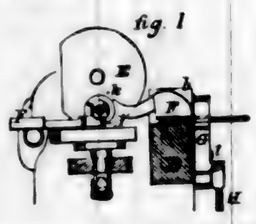
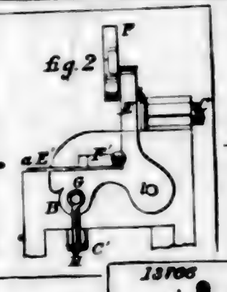
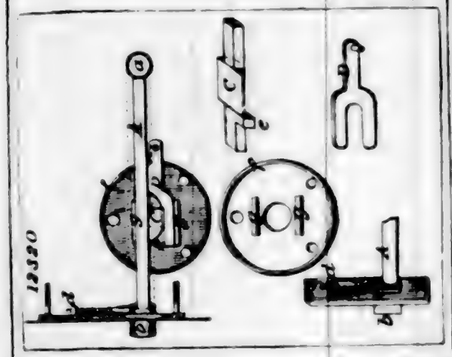


fig. 2



12520



13166

fig. 1

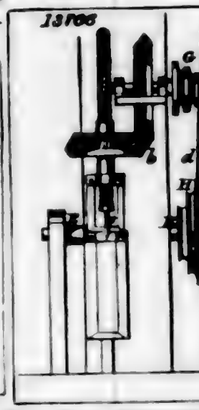
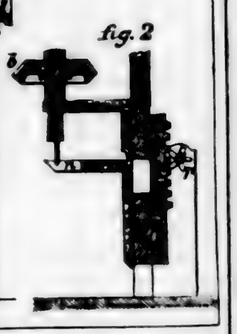
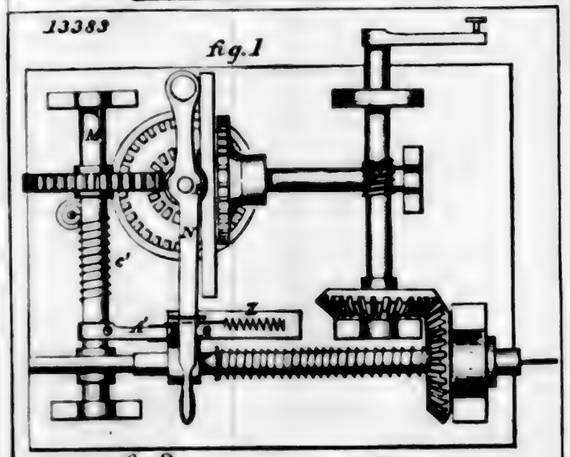


fig. 2



13383

fig. 1



12618

fig. 1

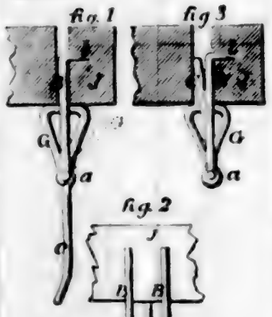


fig. 3

fig. 2

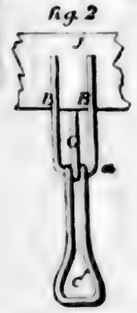
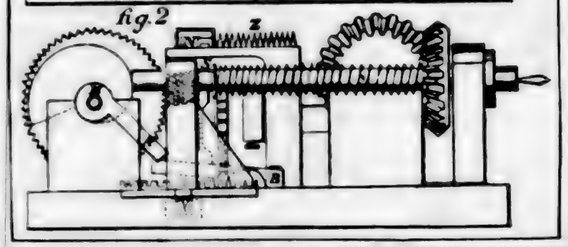


fig. 2



13310

fig. 1

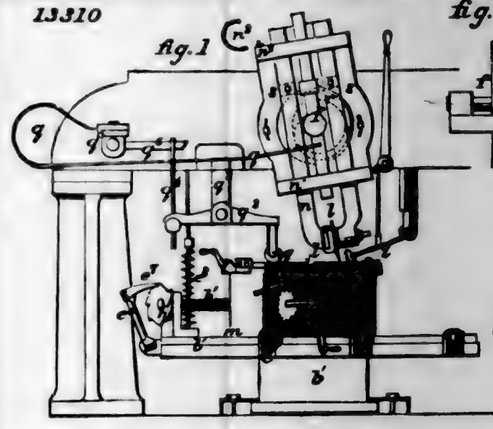
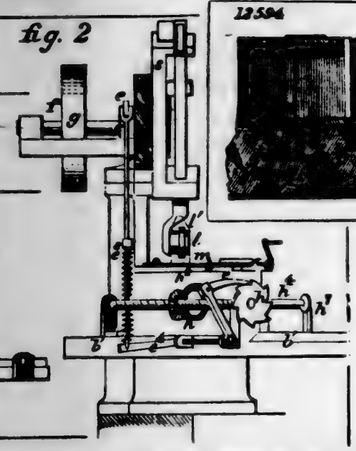


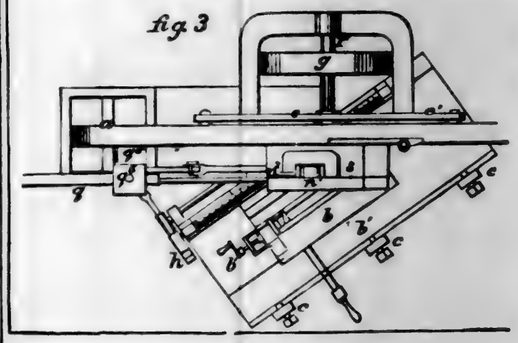
fig. 2



13594



fig. 3



13845

fig. 1

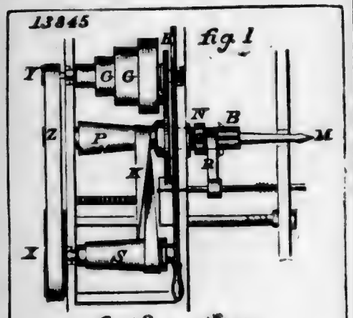


fig. 2



12133

fig. 2

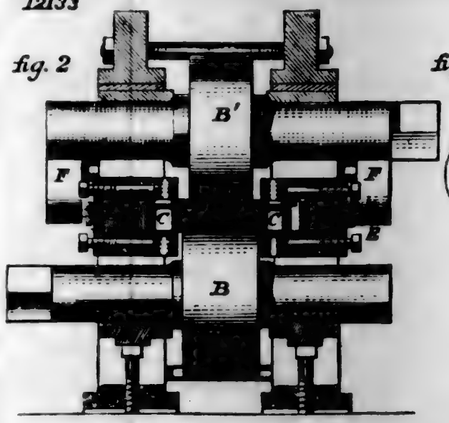


fig. 1

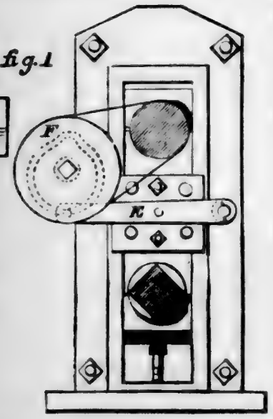


fig. 3

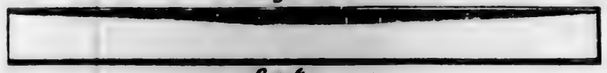
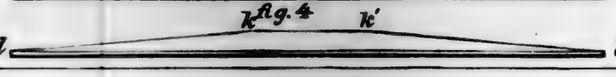
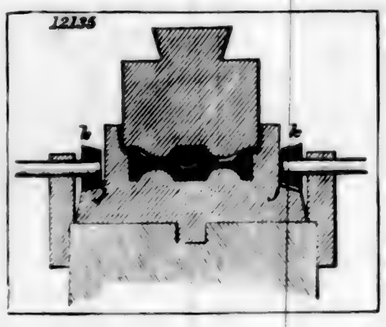


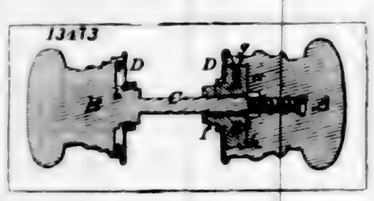
fig. 4



12135



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fig. 1

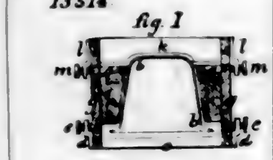


fig. 2

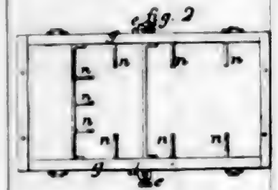
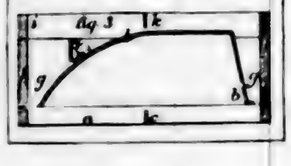
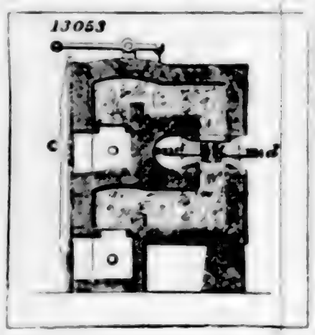


fig. 3



13053



13941

fig. 1

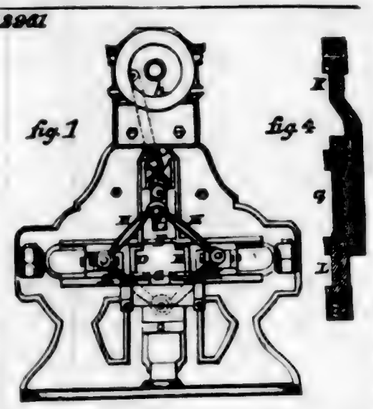


fig. 4

fig. 2

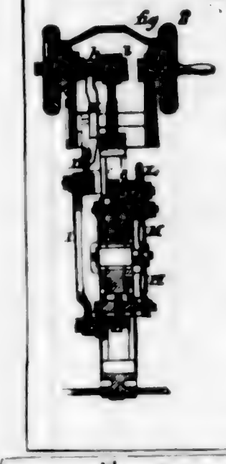
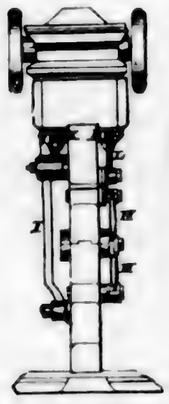


fig. 3

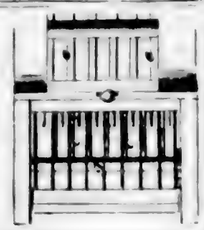


13490

fig. 1



fig. 2



13382

fig. 1

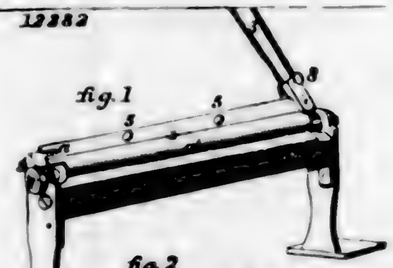
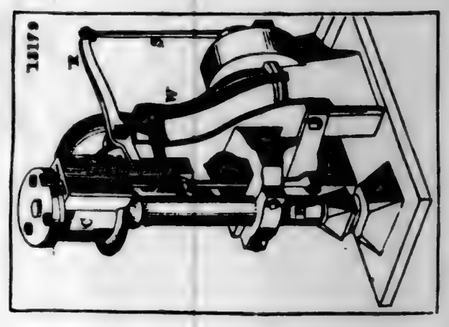


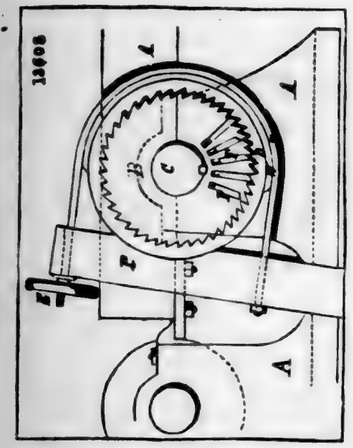
fig. 2



13170



13608



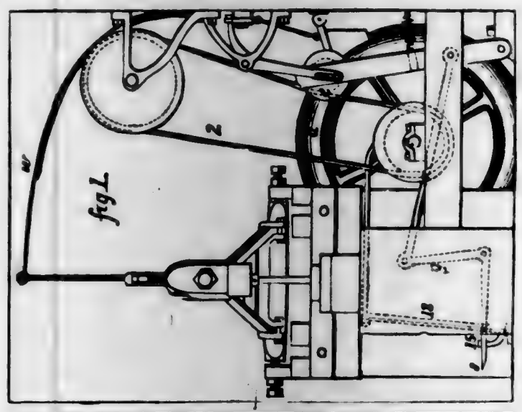


fig. 1

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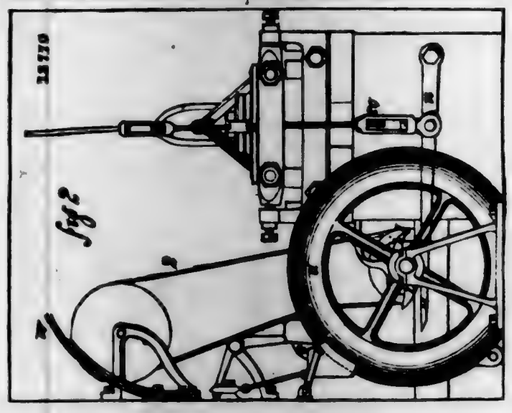


fig. 2

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fig. 2

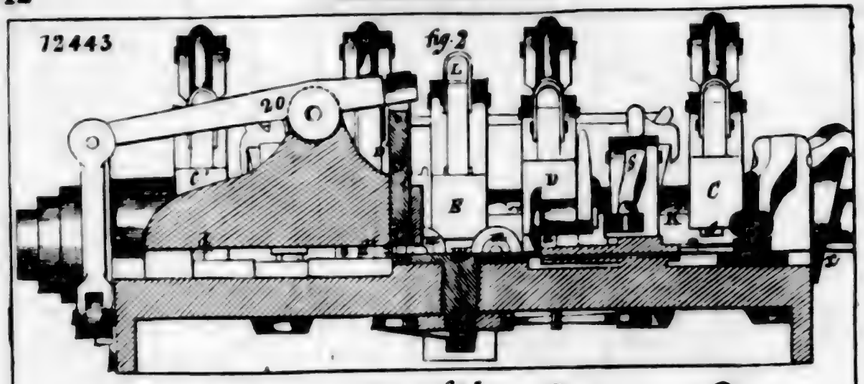


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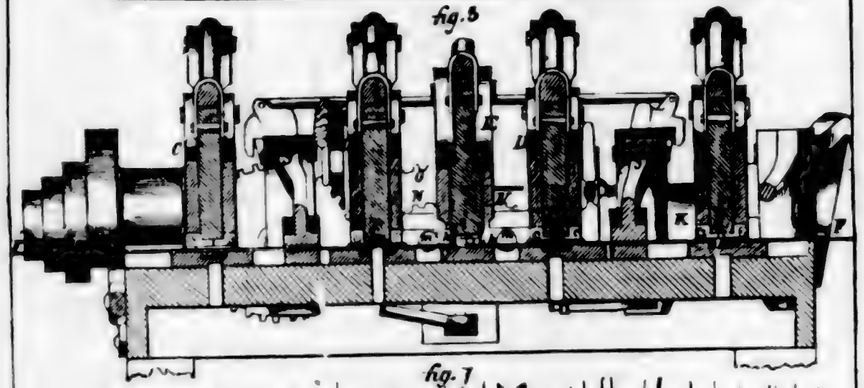


fig. 1

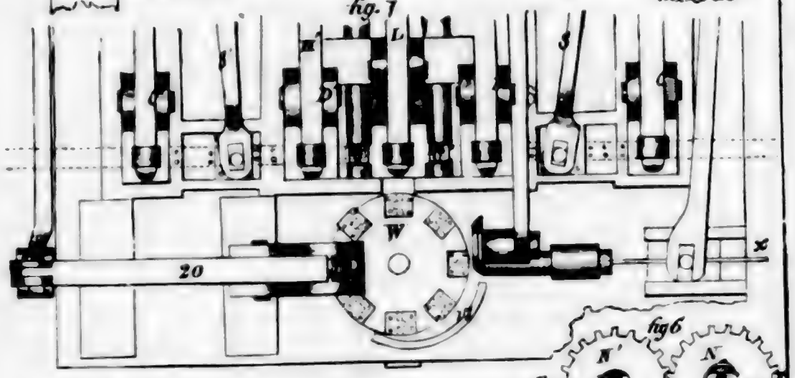


fig 6

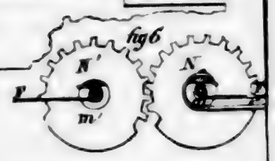
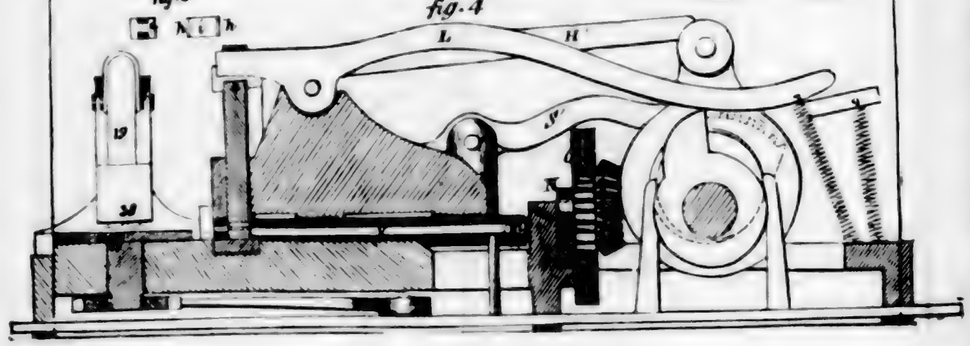


fig. 5



fig. 4



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fig. 7

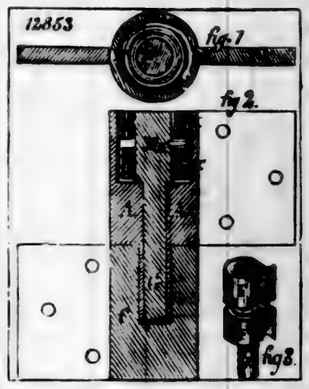
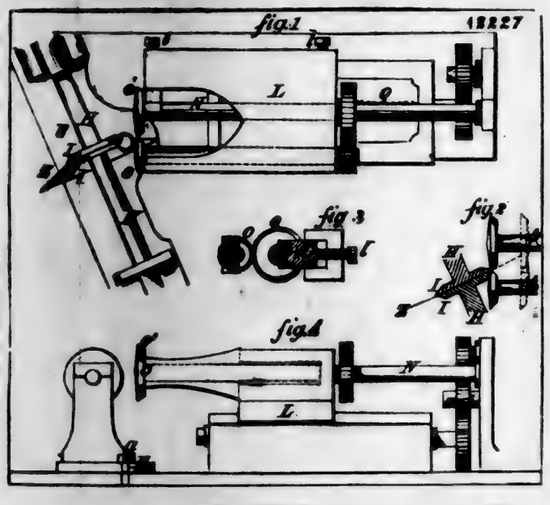
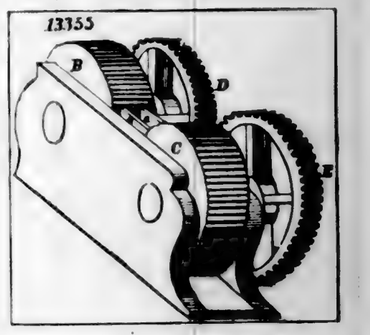


fig. 1

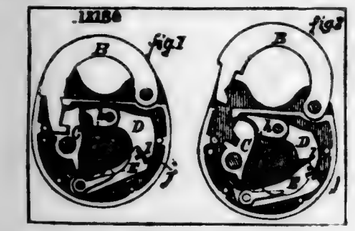
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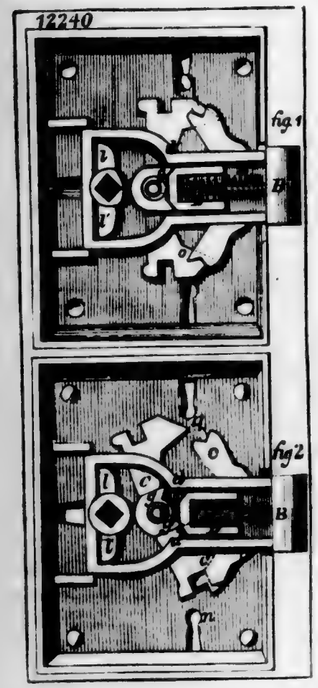
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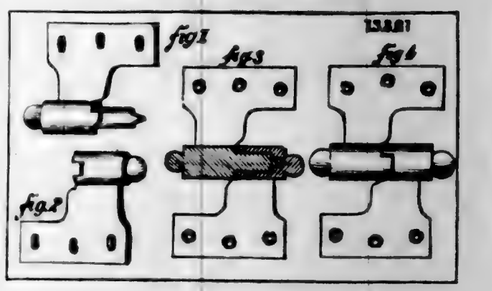
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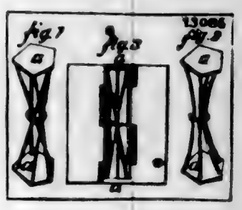
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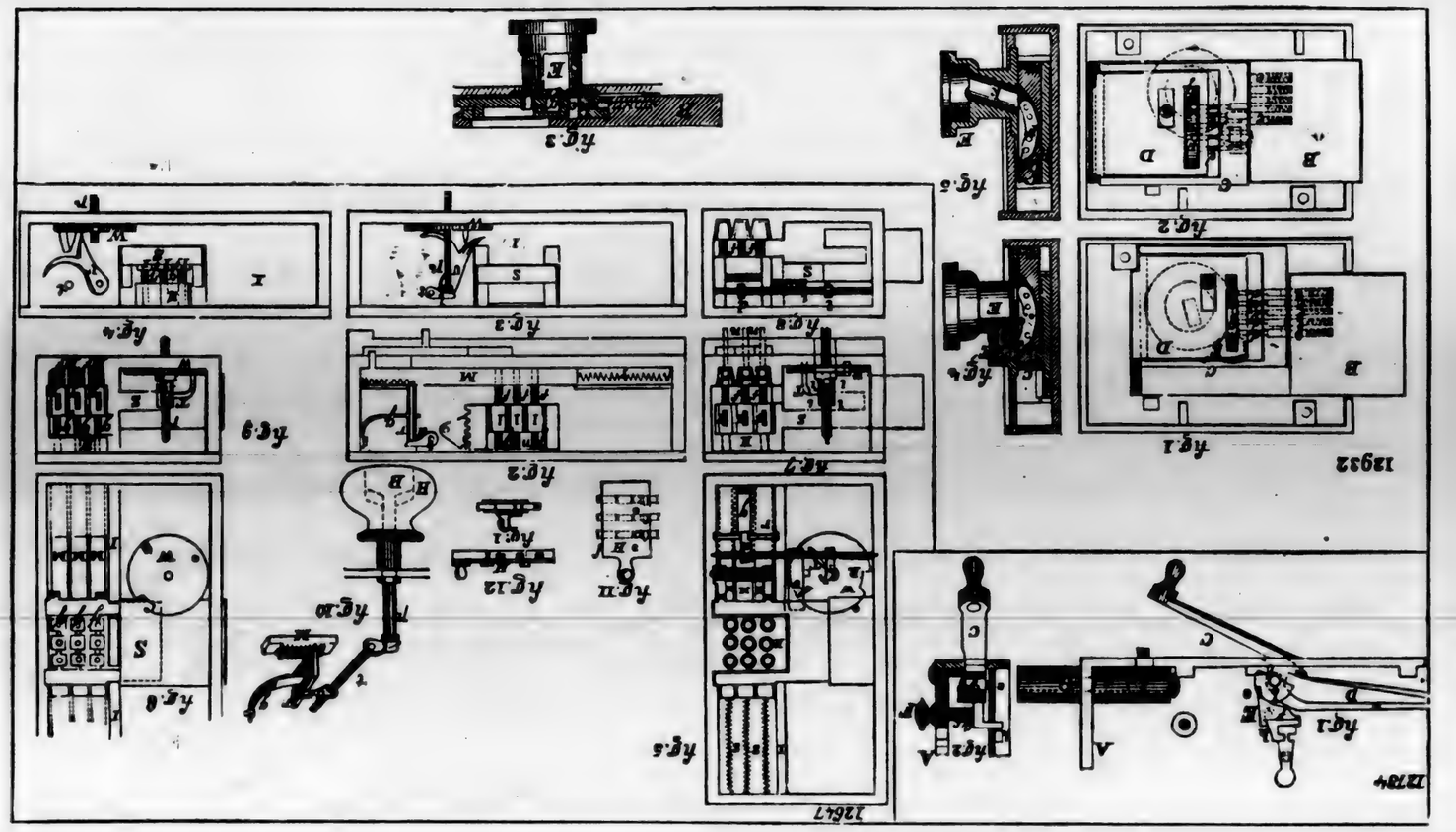


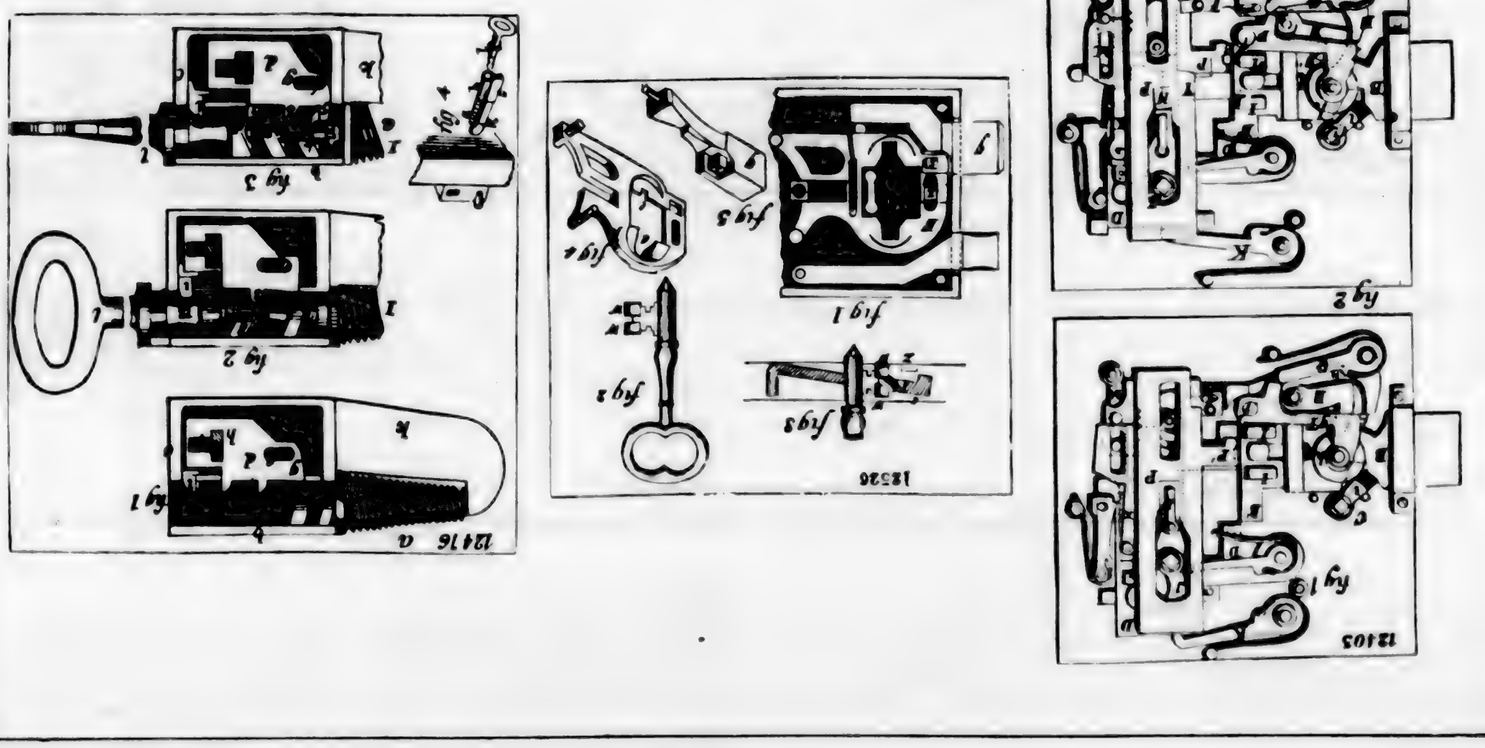
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Fig. 1

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Fig. 2.

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fig. 1

fig. 3

fig. 2

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fig. 3

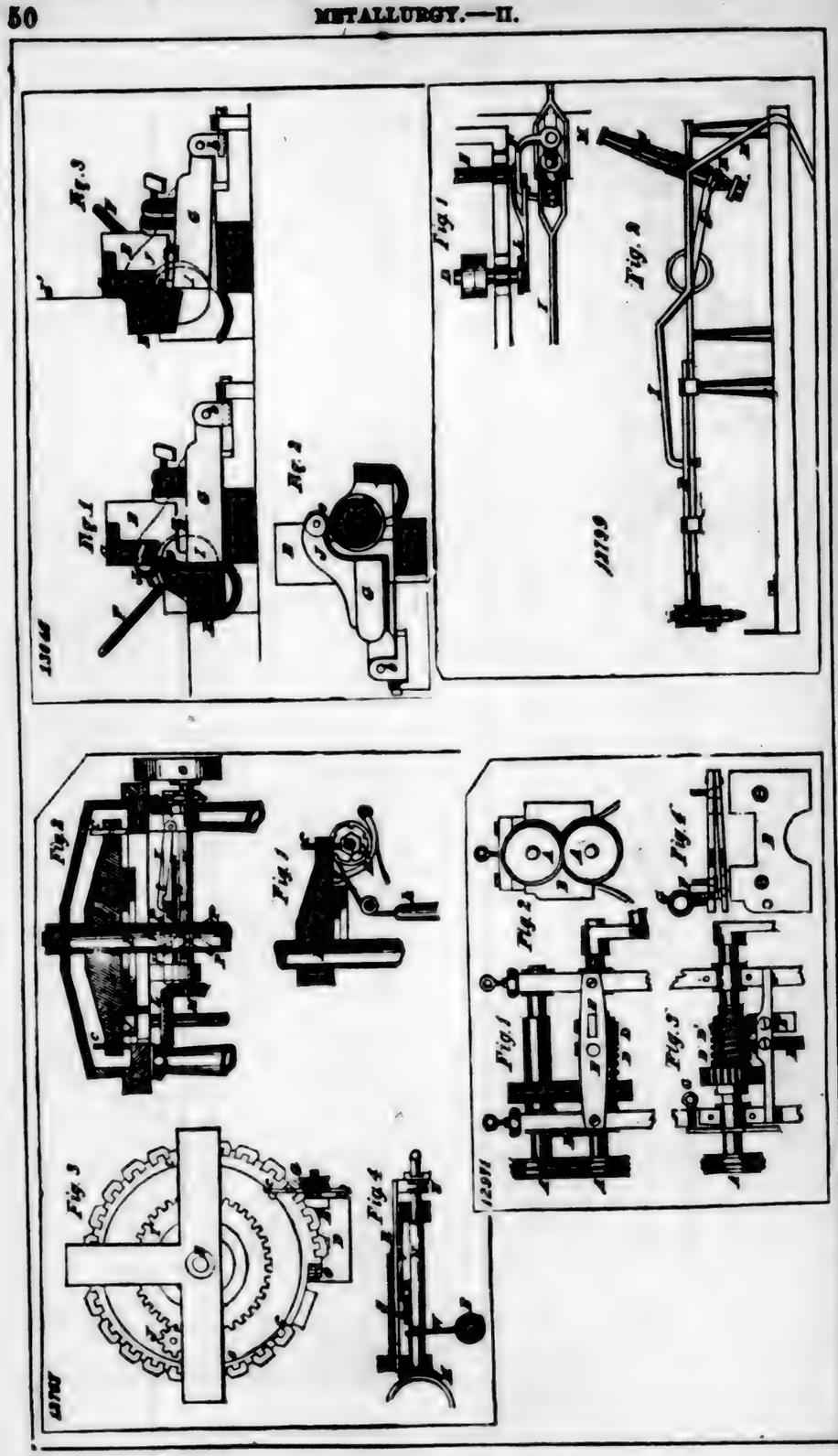
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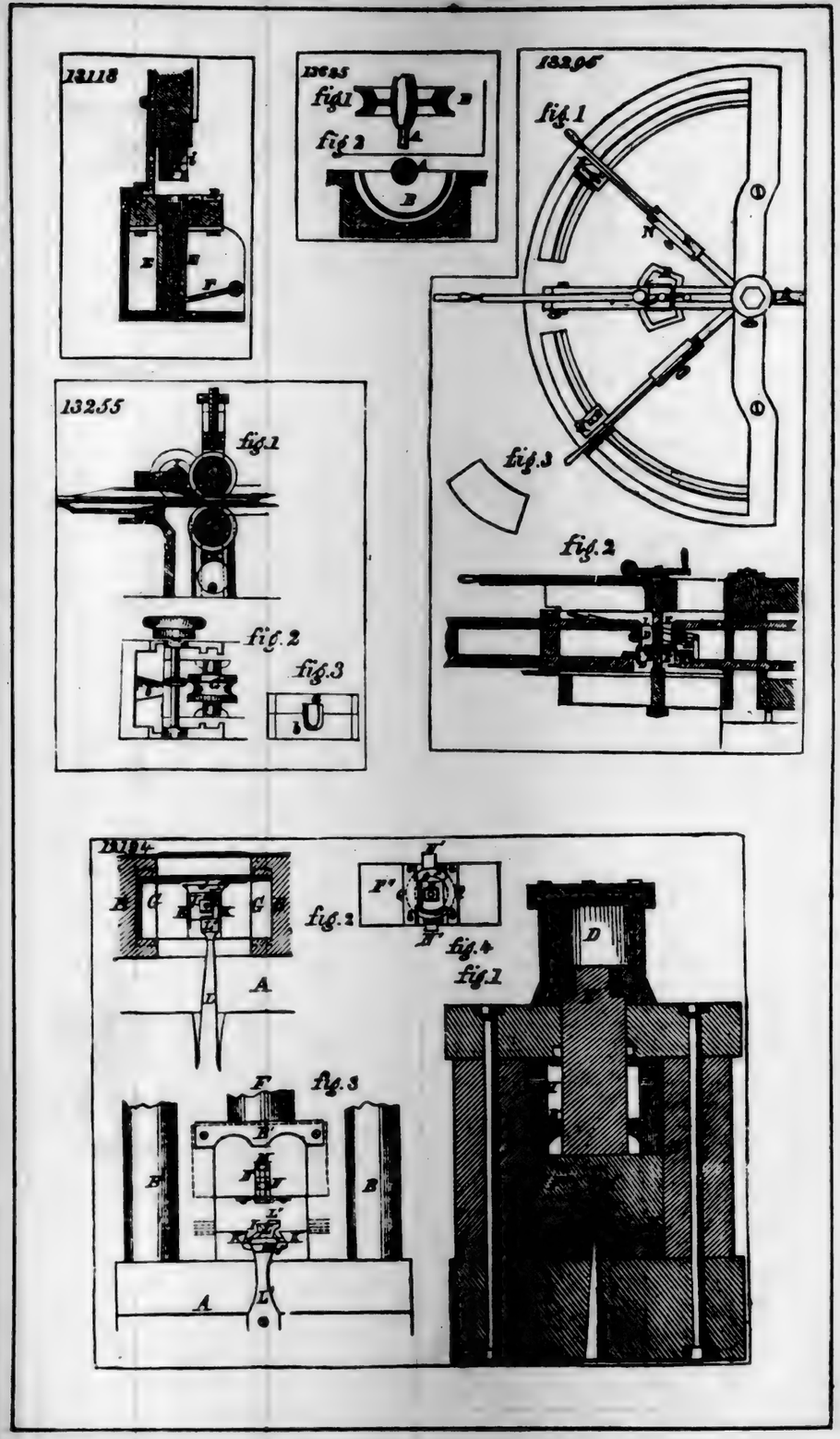
Fig. 1

Fig. 4.

Fig. 2

Fig. 3.


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13553 fig.1 fig.2 fig.3 fig.4 fig.5

fig.5 fig.6

12210 fig.1 fig.2 fig.3 fig.4 fig.5 fig.6 fig.7

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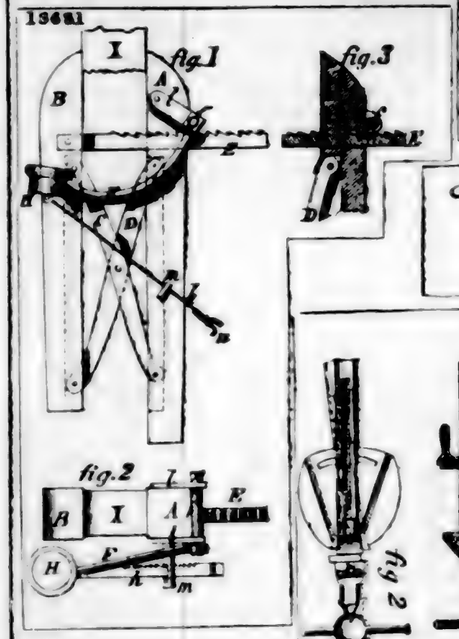
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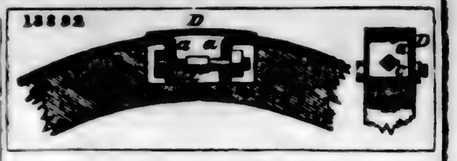
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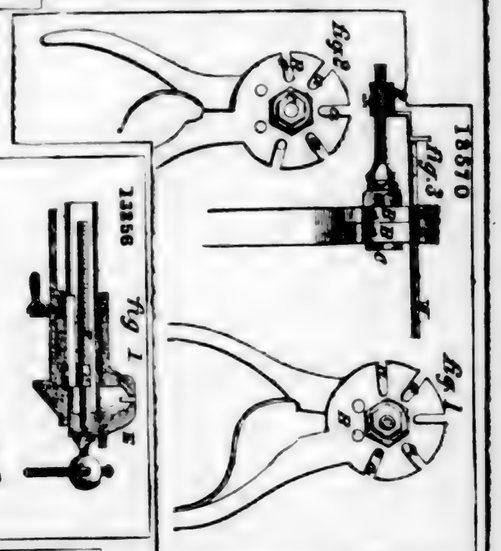
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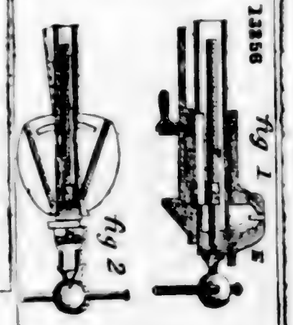


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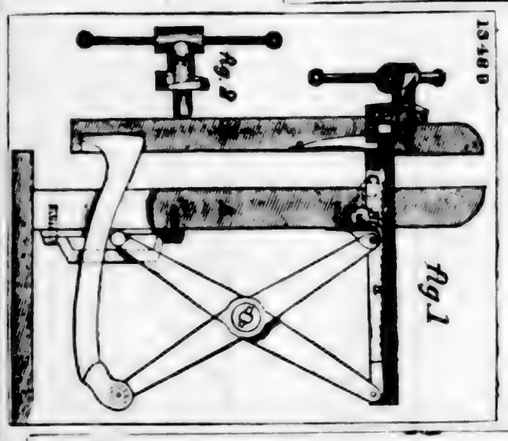




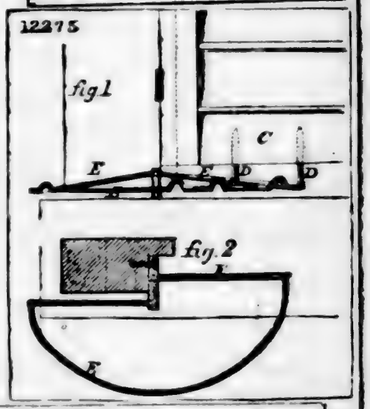
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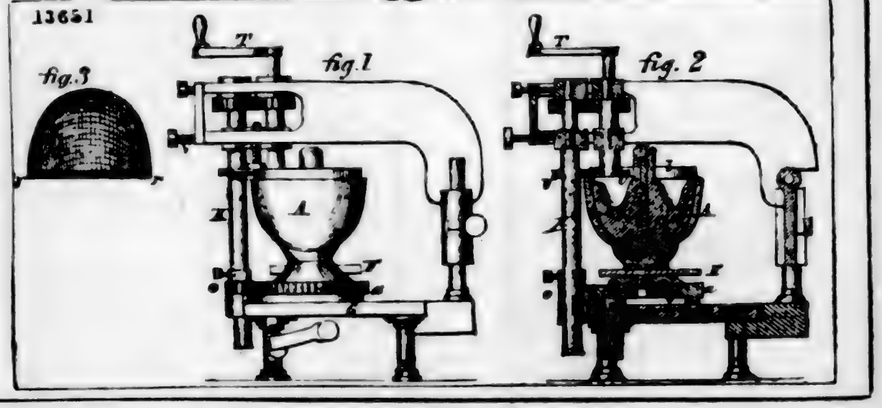
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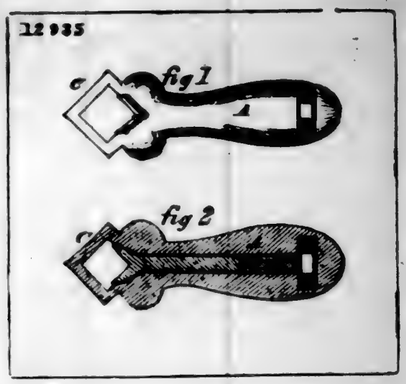
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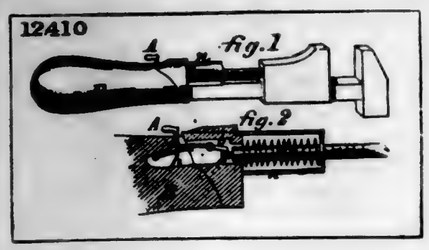
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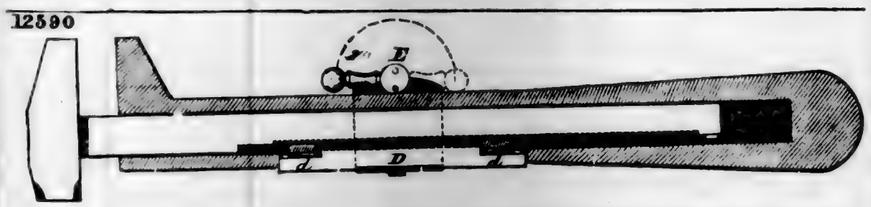
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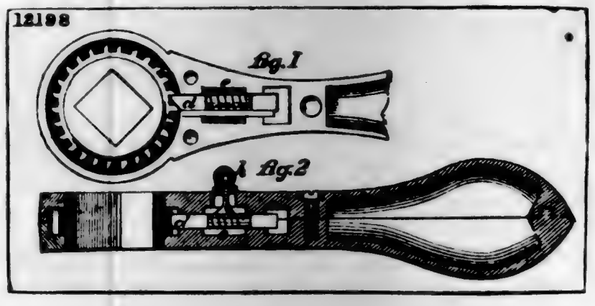
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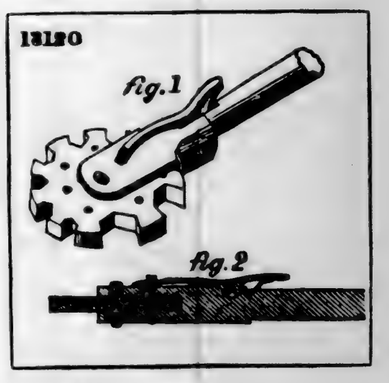
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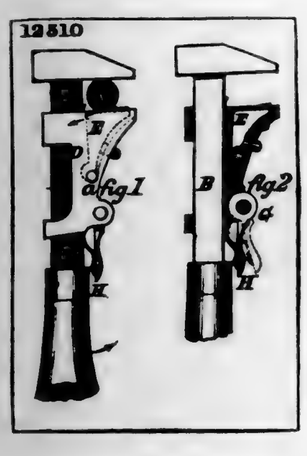
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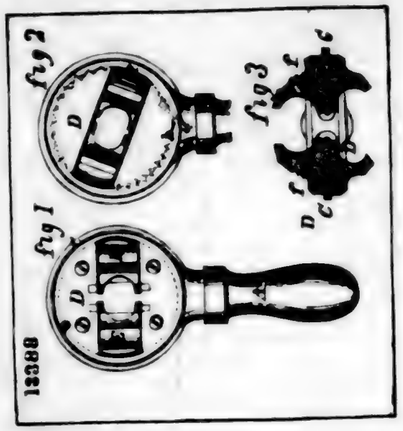
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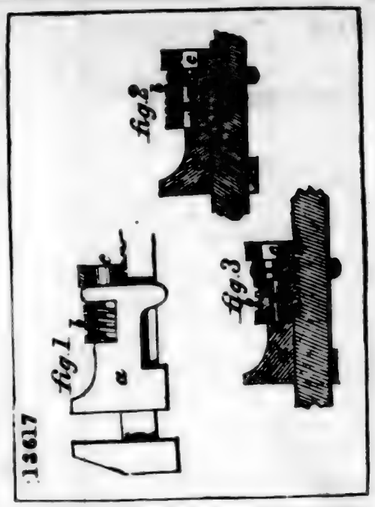
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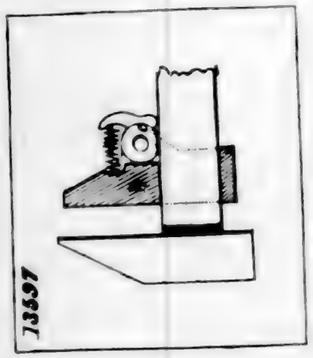
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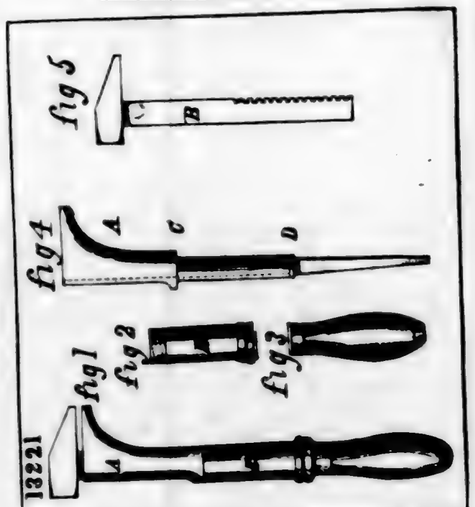
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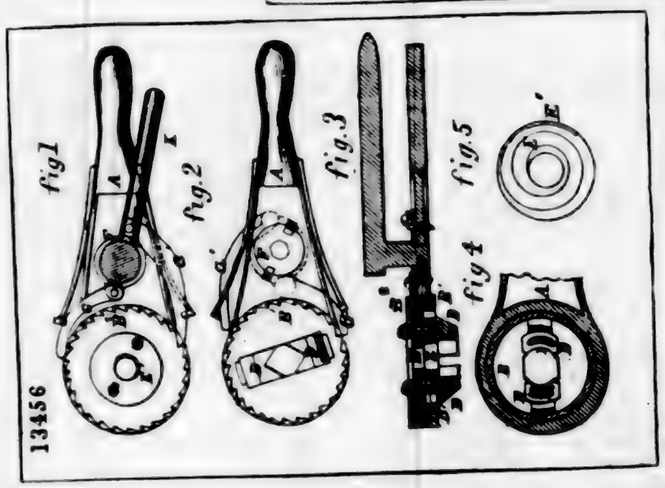
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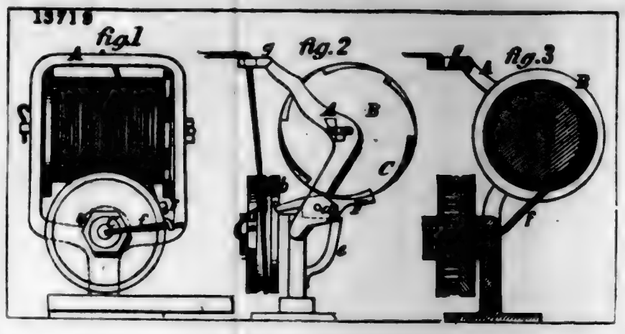
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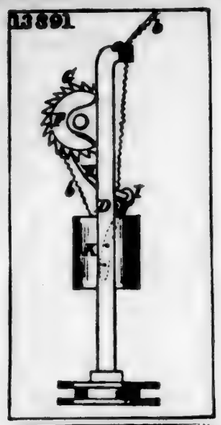
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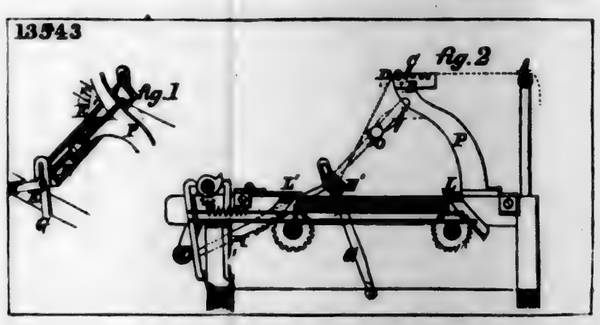
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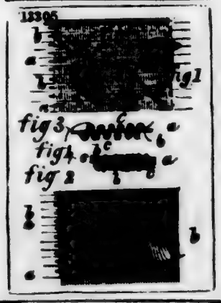
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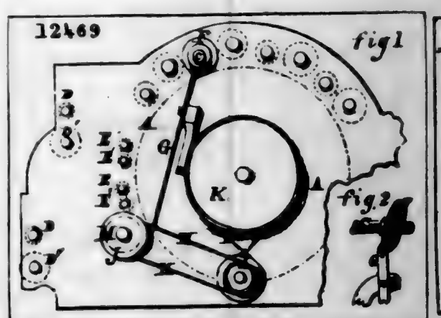
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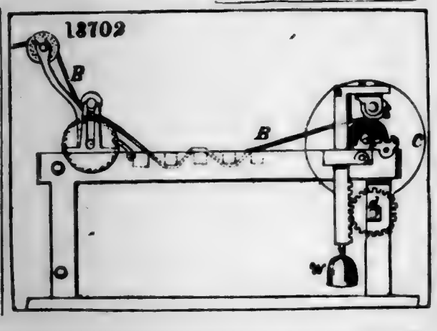
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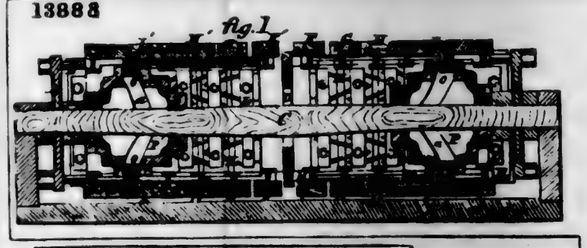
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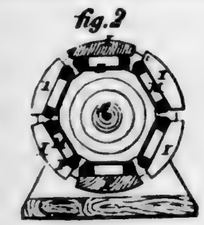


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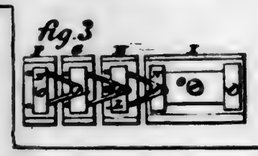
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fig. 2

fig. 1

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fig 5

fig 1

fig 3

fig 2

fig 4

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fig 1

fig 2

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fig. 1

fig. 3

fig. 2

fig. 4

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fig. 1

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fig. 1

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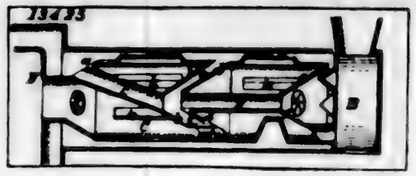
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fig. 1

fig. 2

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13132 fig. 1

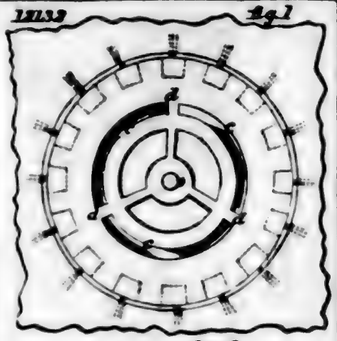
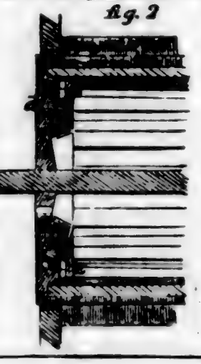
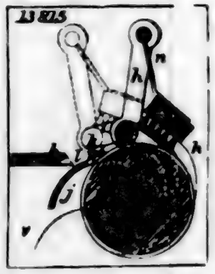


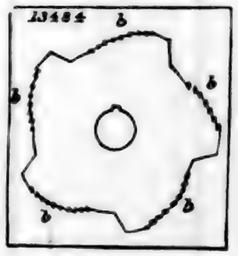
fig. 2



13475



13484



12376 fig. 1

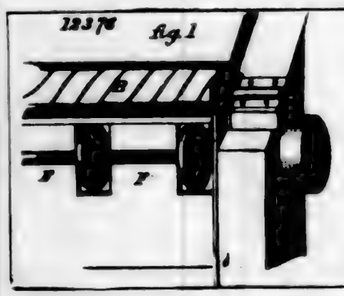
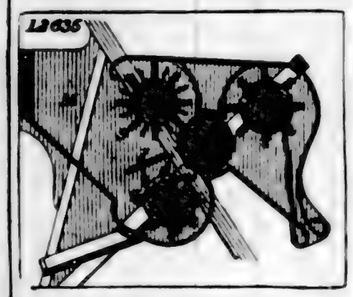


fig. 2



12635



13131 fig. 1

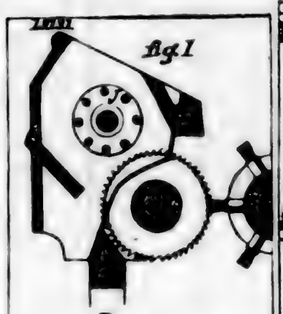
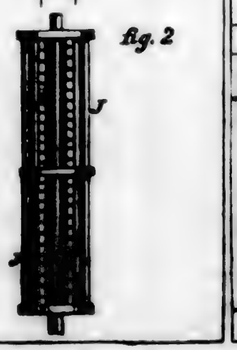


fig. 2



13141

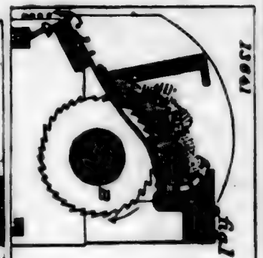


fig. 1

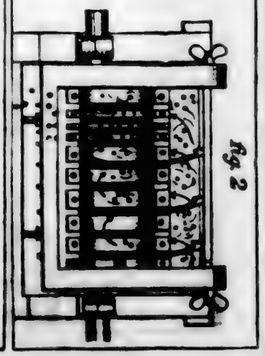
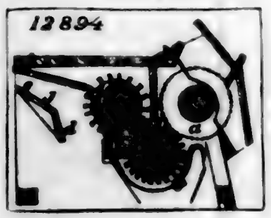
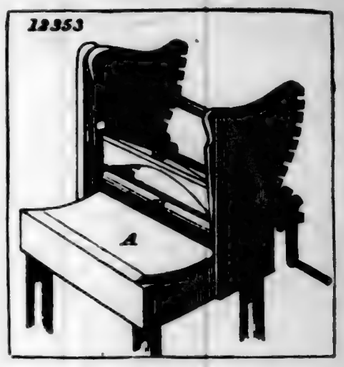


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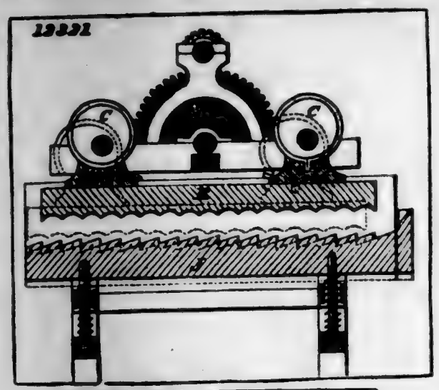
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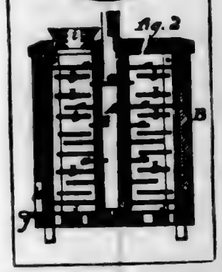
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13361 fig. 1



fig. 2



13441 fig. 1

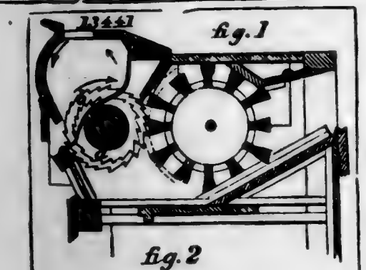


fig. 2



13304 fig. 1

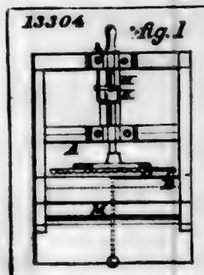
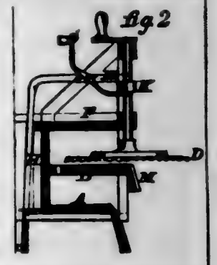
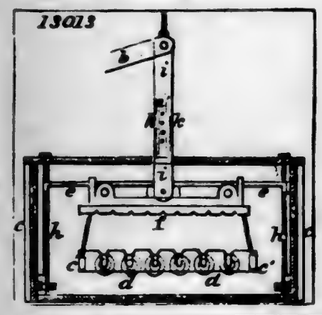


fig. 2



13013



12913 fig. 1

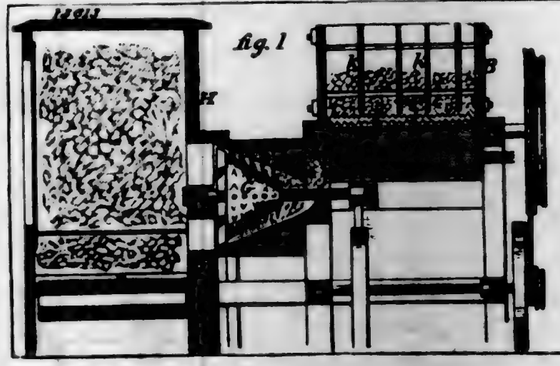


fig. 2



13614

Fig. 1

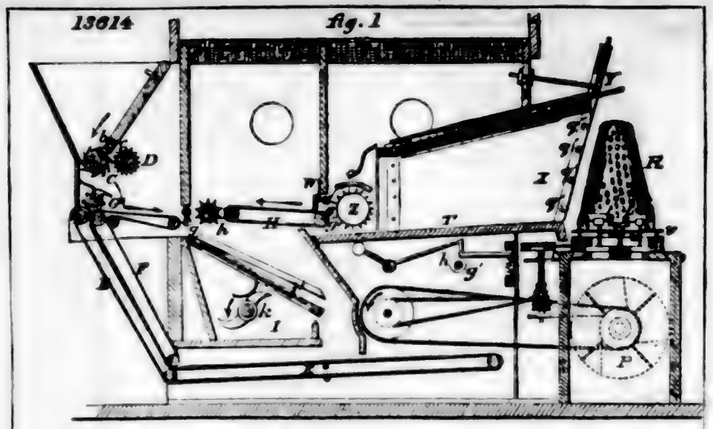


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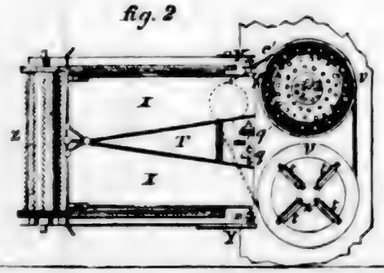
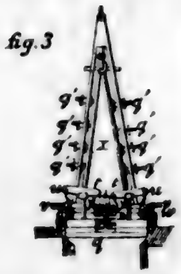


fig. 3



13698

fig. 1

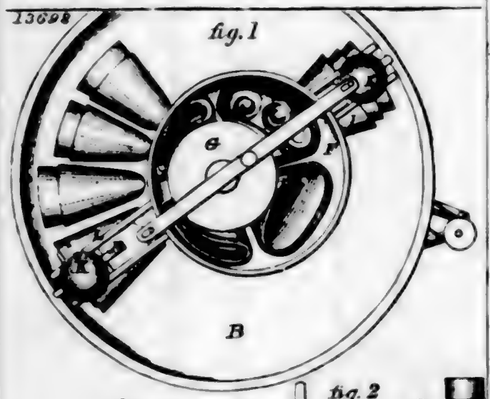
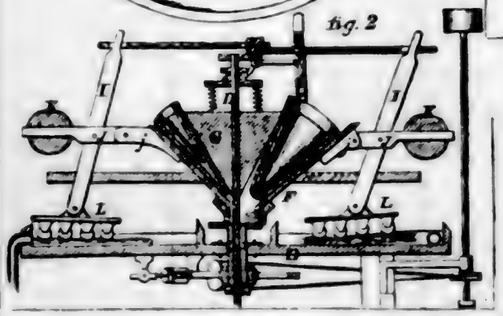


fig. 2



12436

fig. 1

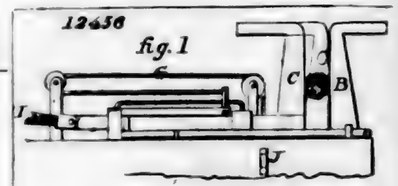
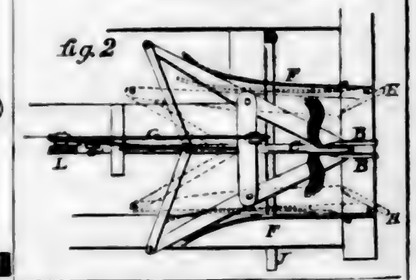


fig. 2



13963

fig. 1

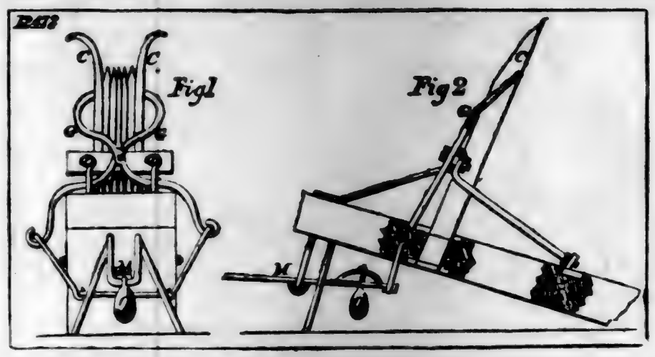


fig. 2



Fig 1

Fig 2



12296

Fig 1

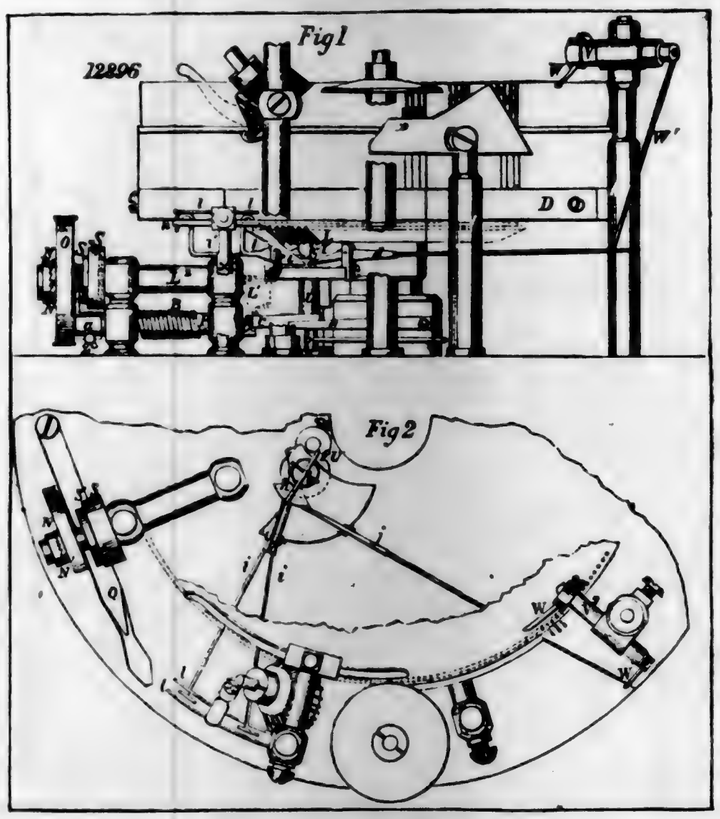
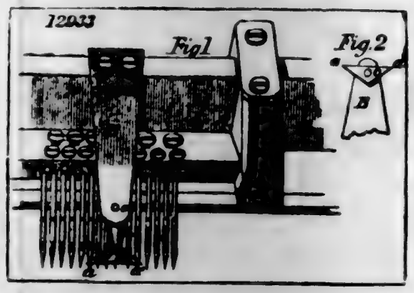


Fig 2

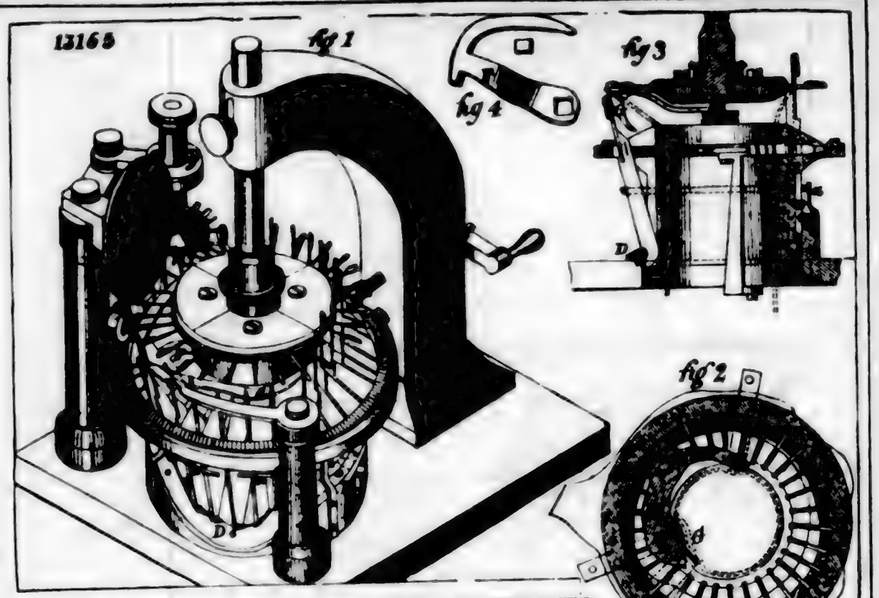
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Fig 1

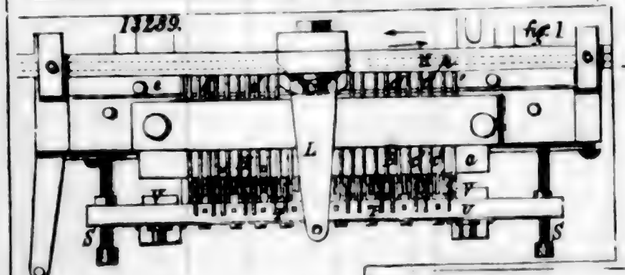
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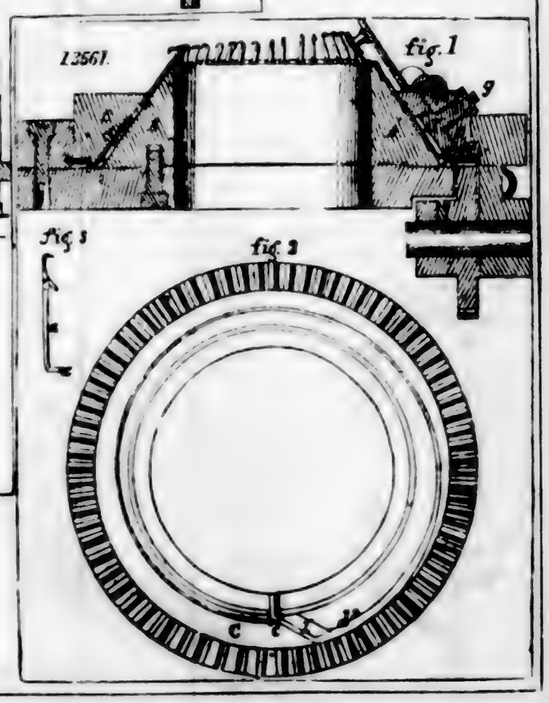
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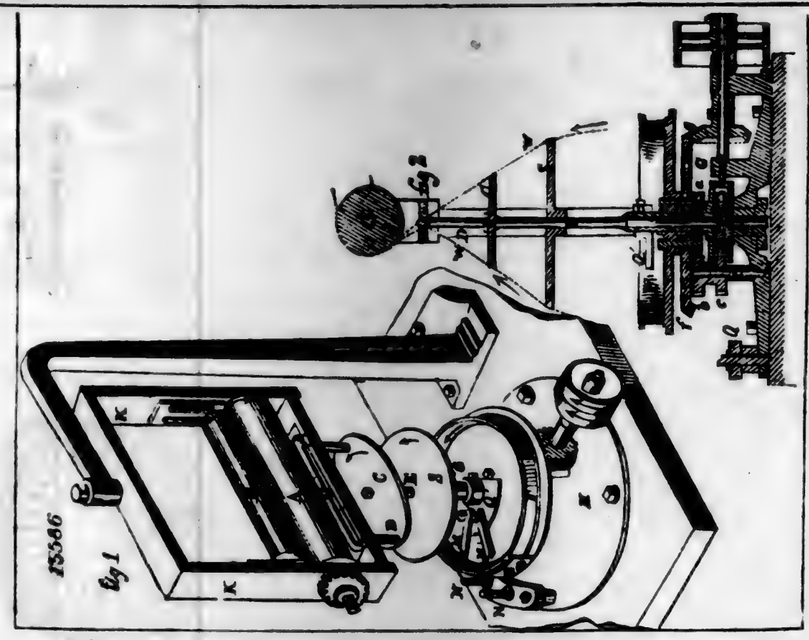
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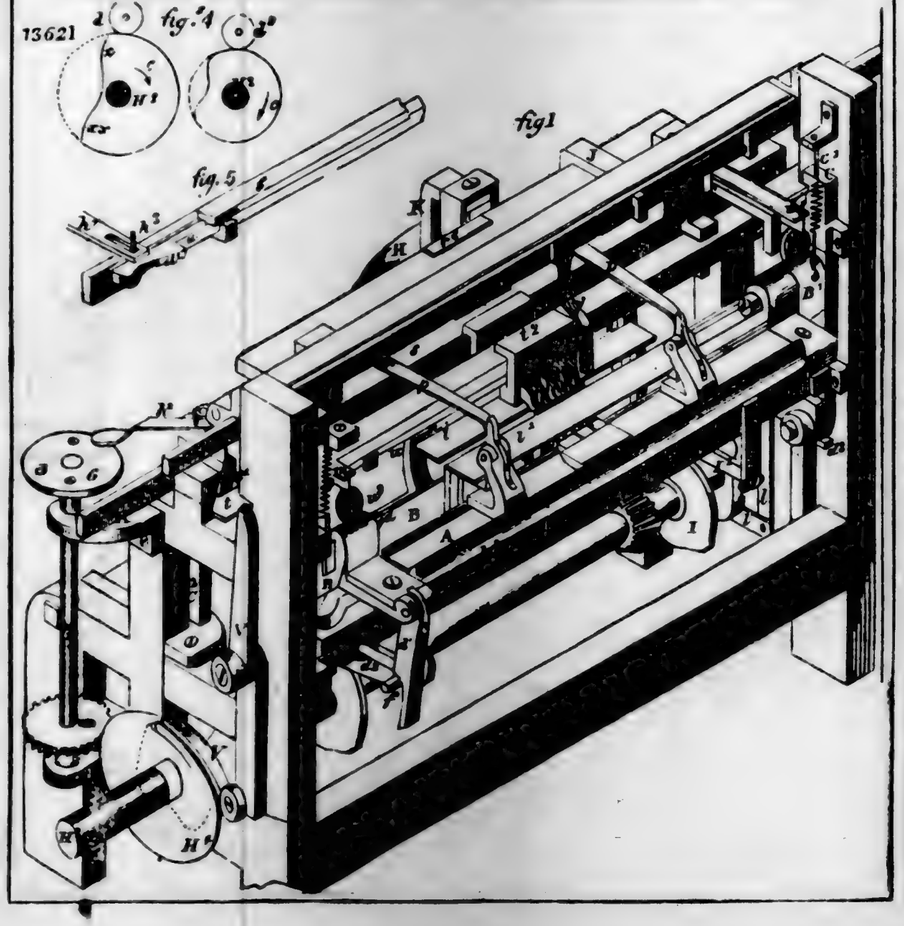
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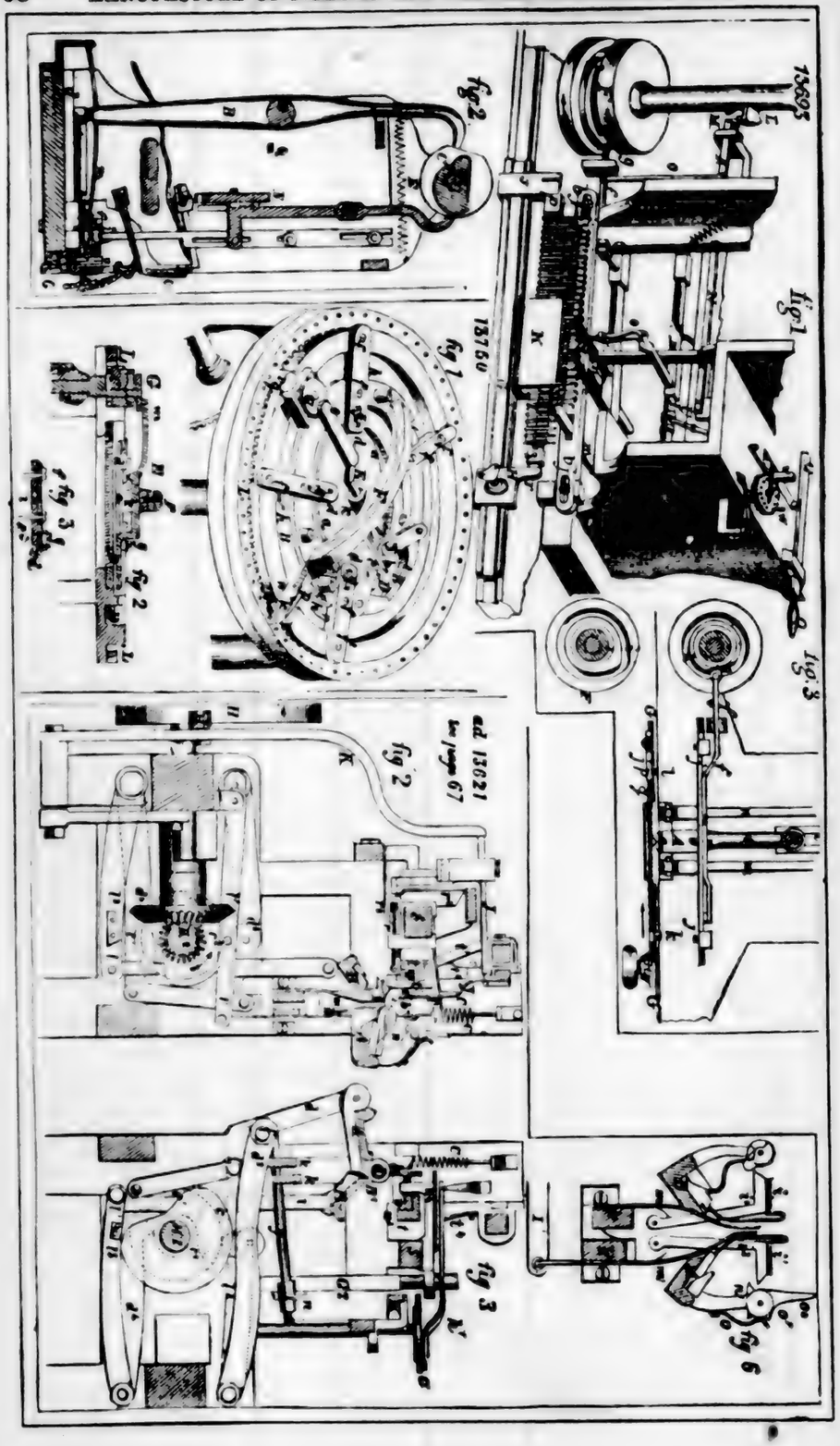


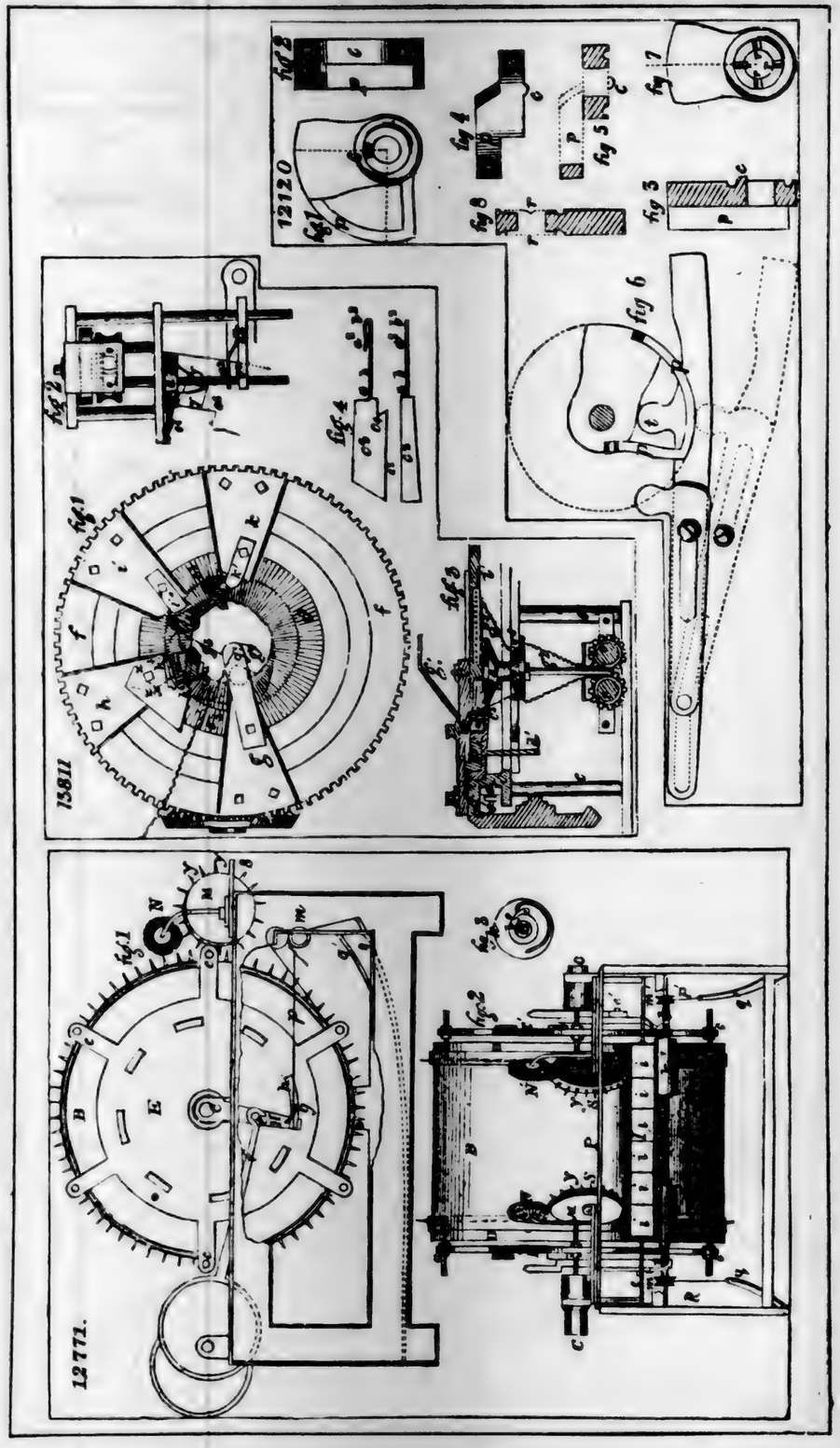
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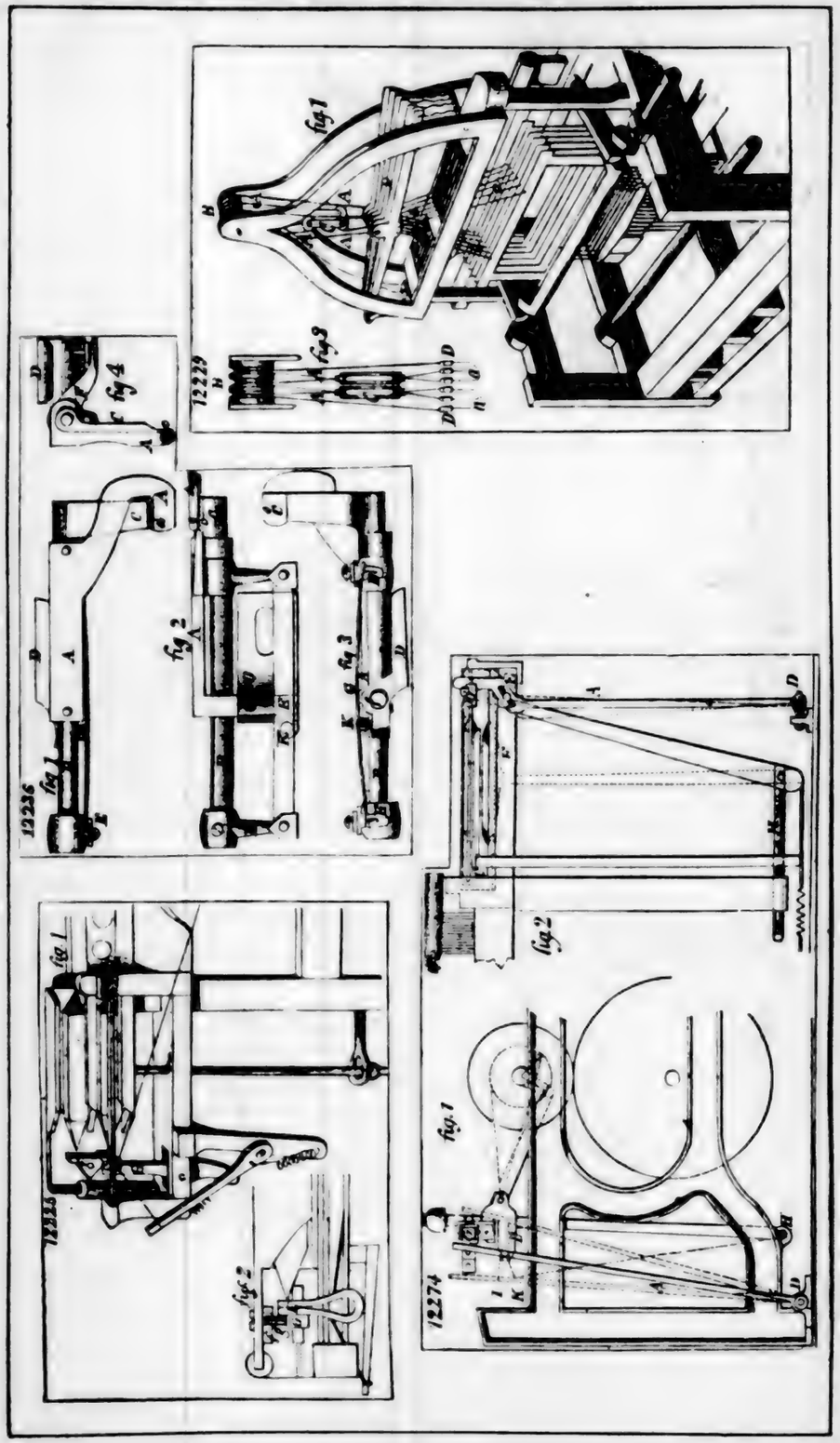


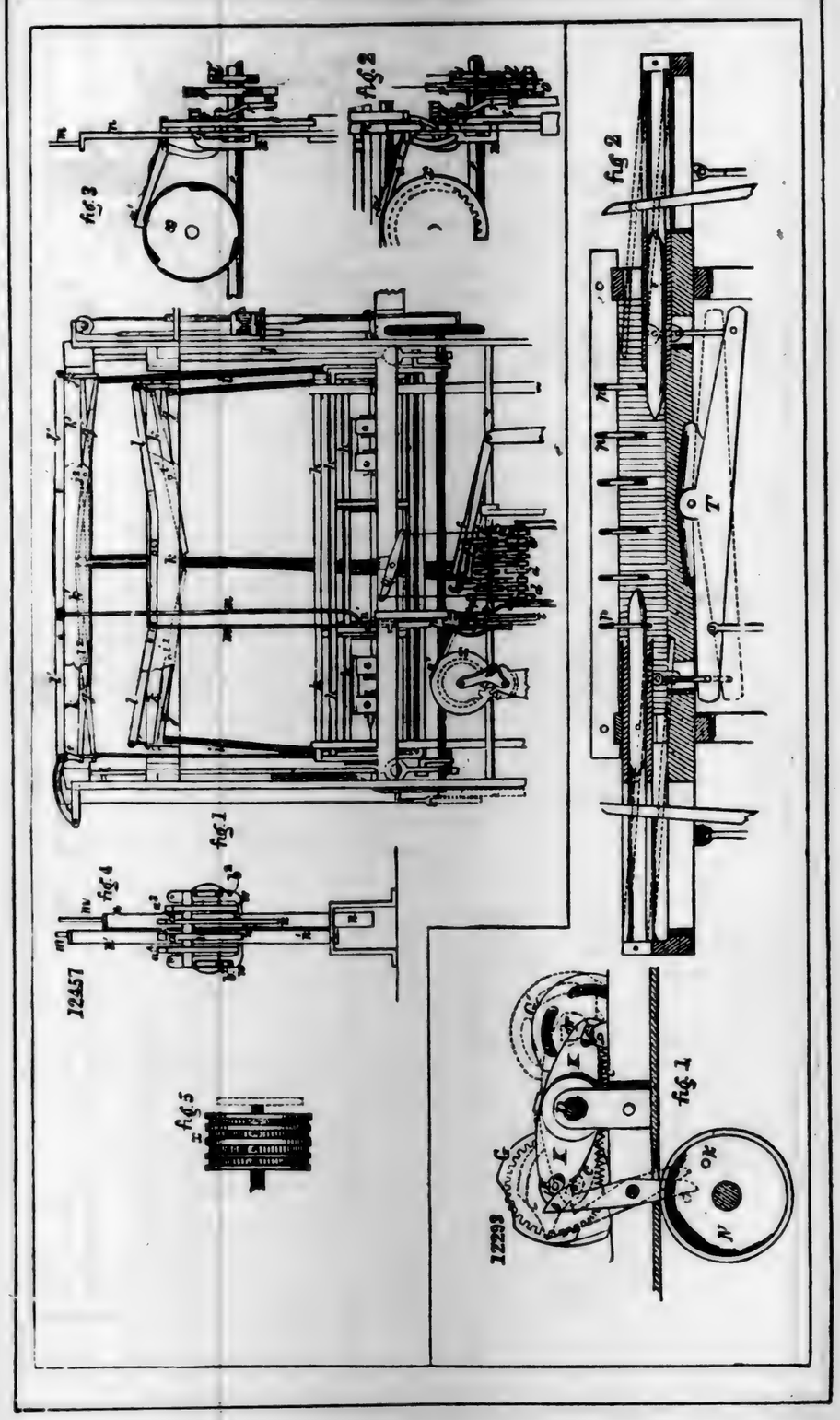
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fig 1.

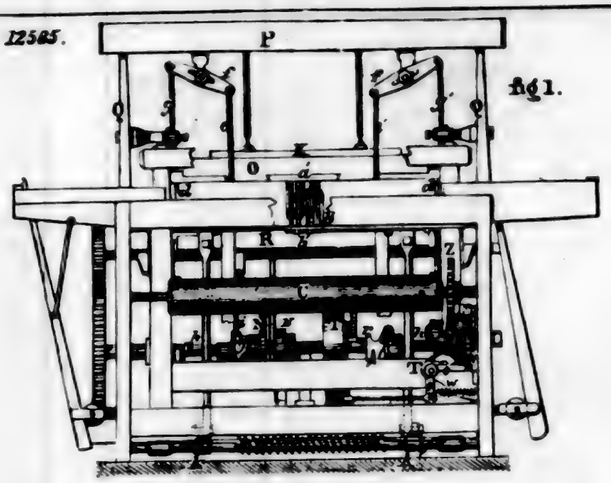


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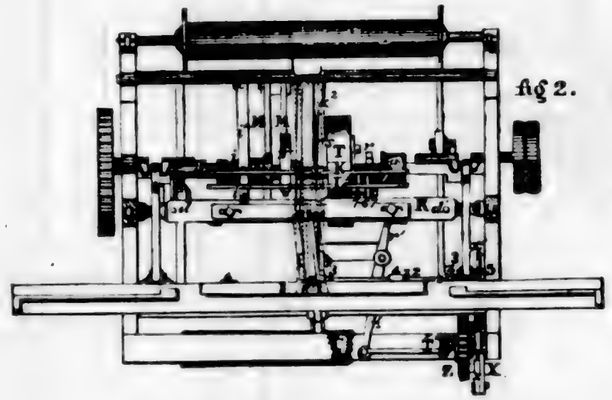


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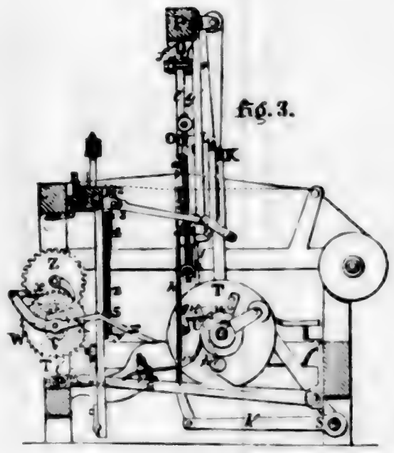


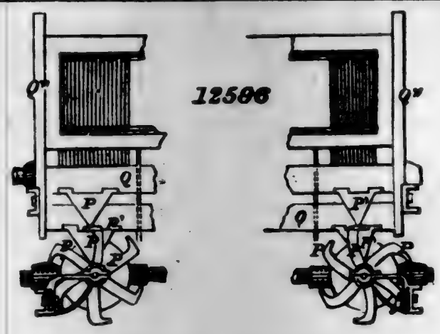
fig 4.



fig 5.



12586



12630

Fig. 1

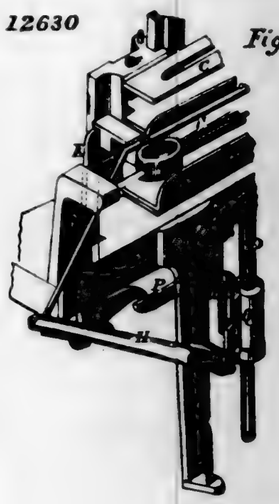
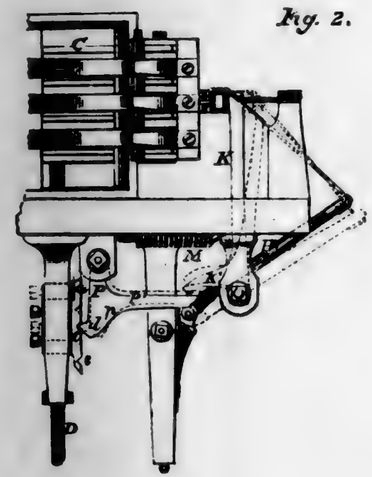


Fig. 2.



12593

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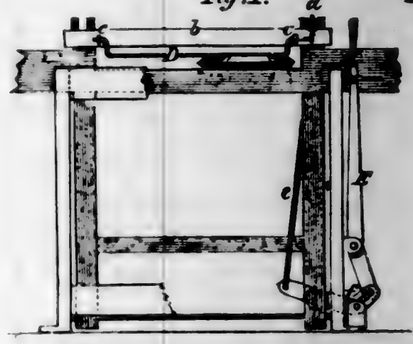
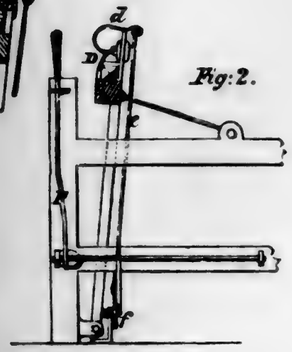
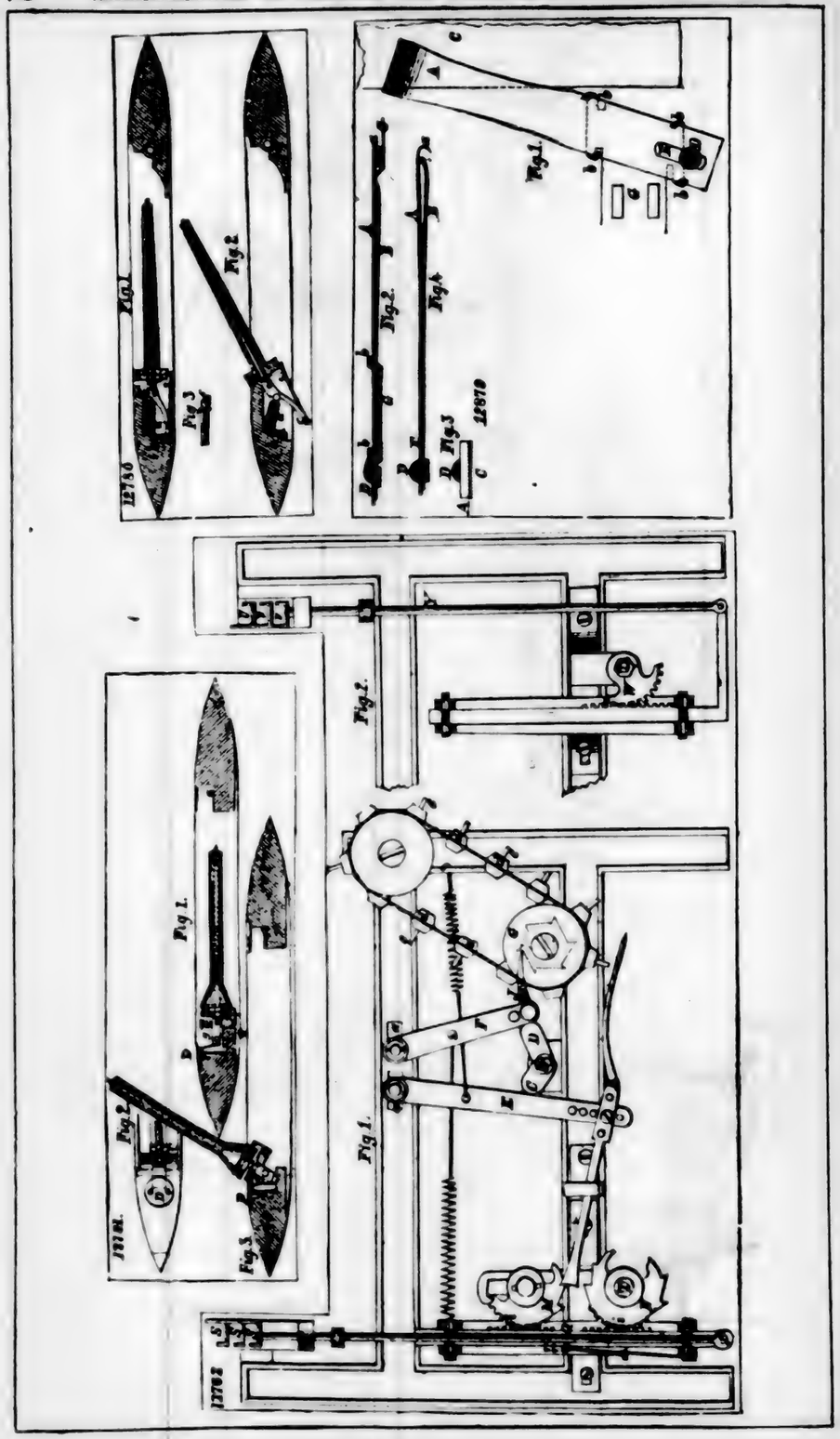


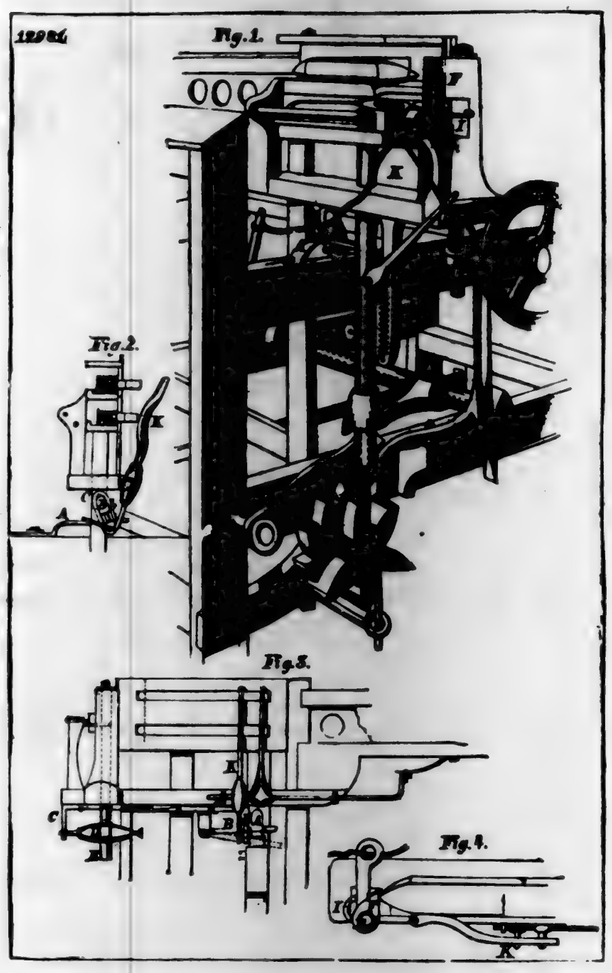
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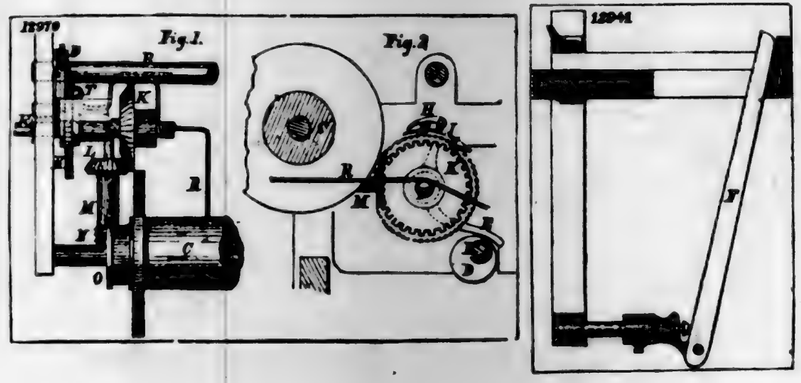


Fig. 2.




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Fig.1
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Fig.4
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Fig.2.
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Fig.3.
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Fig.1.
Fig.2.
Fig.3.
Fig.4.


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Fig.1.
Fig.2
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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

13153

Fig. 1.

Fig. 2.

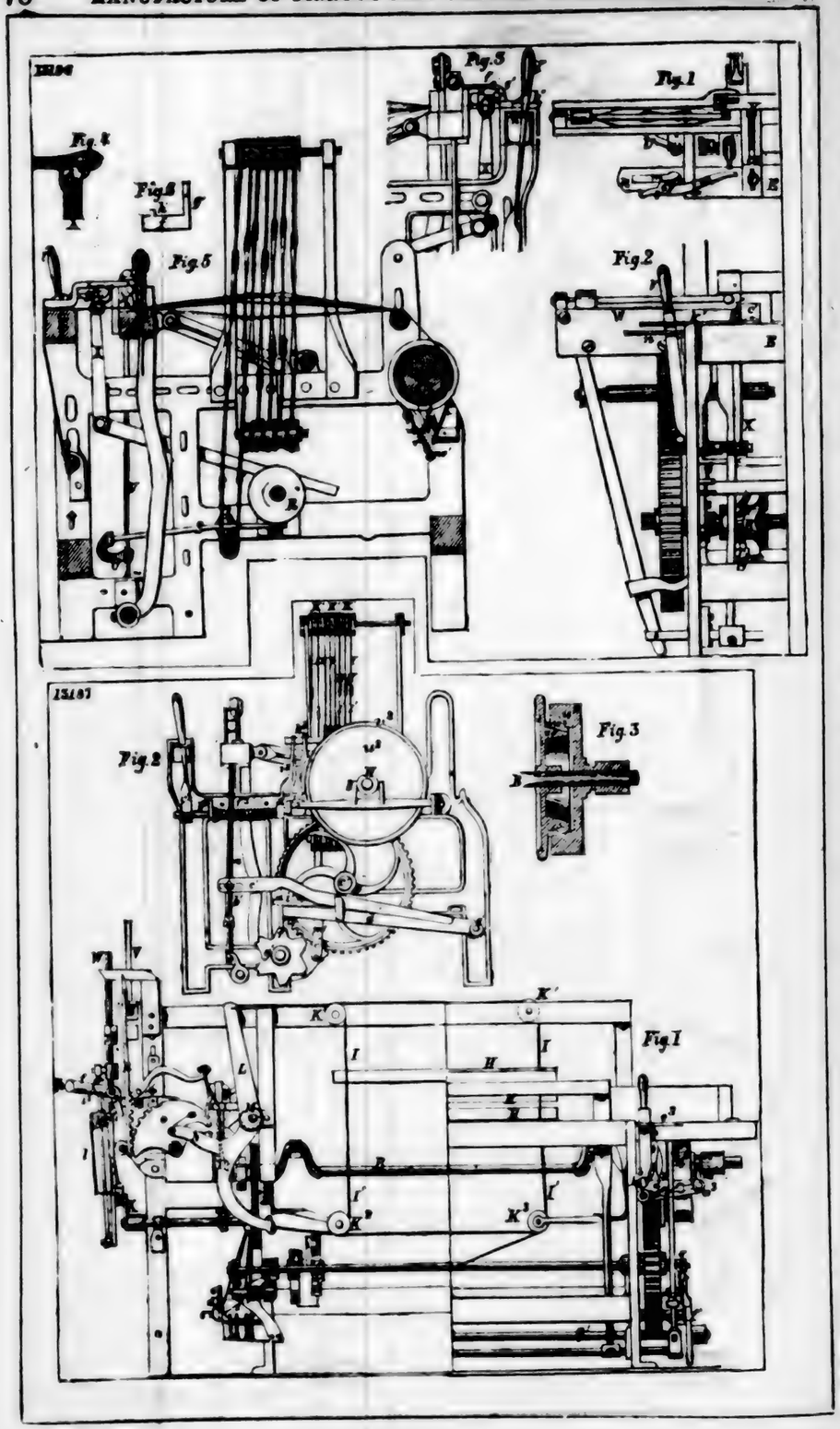
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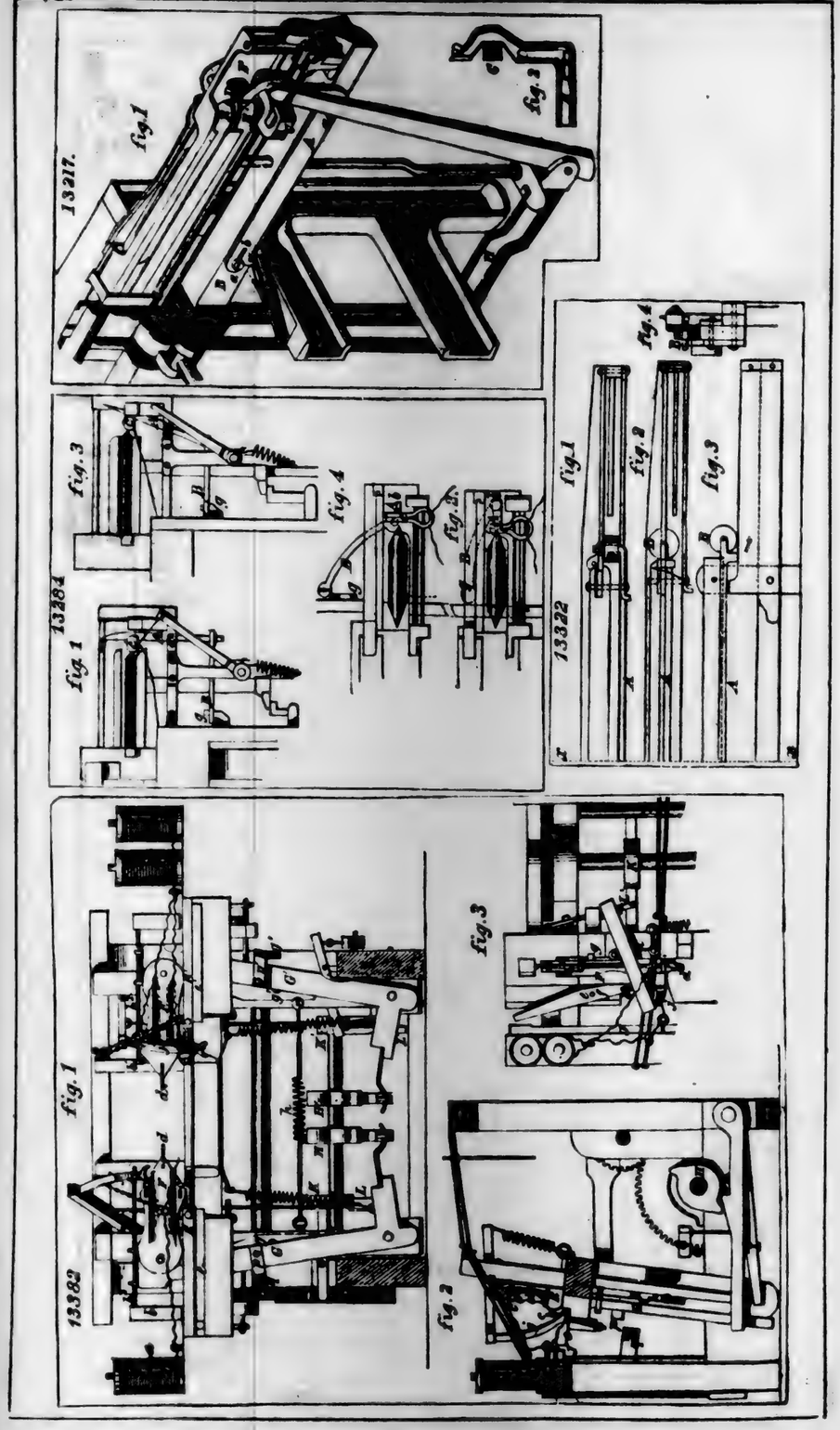
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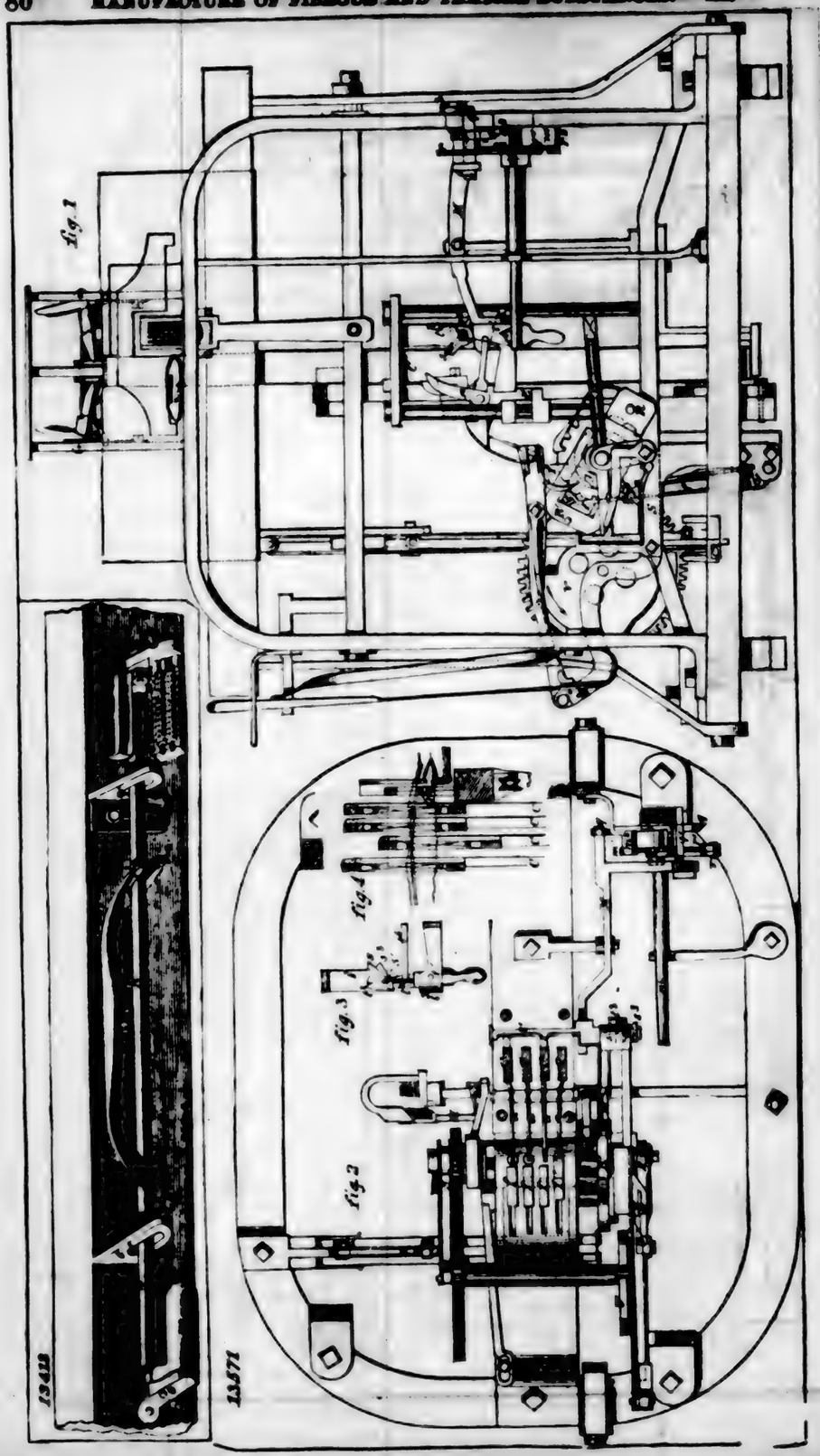
Fig. 6.

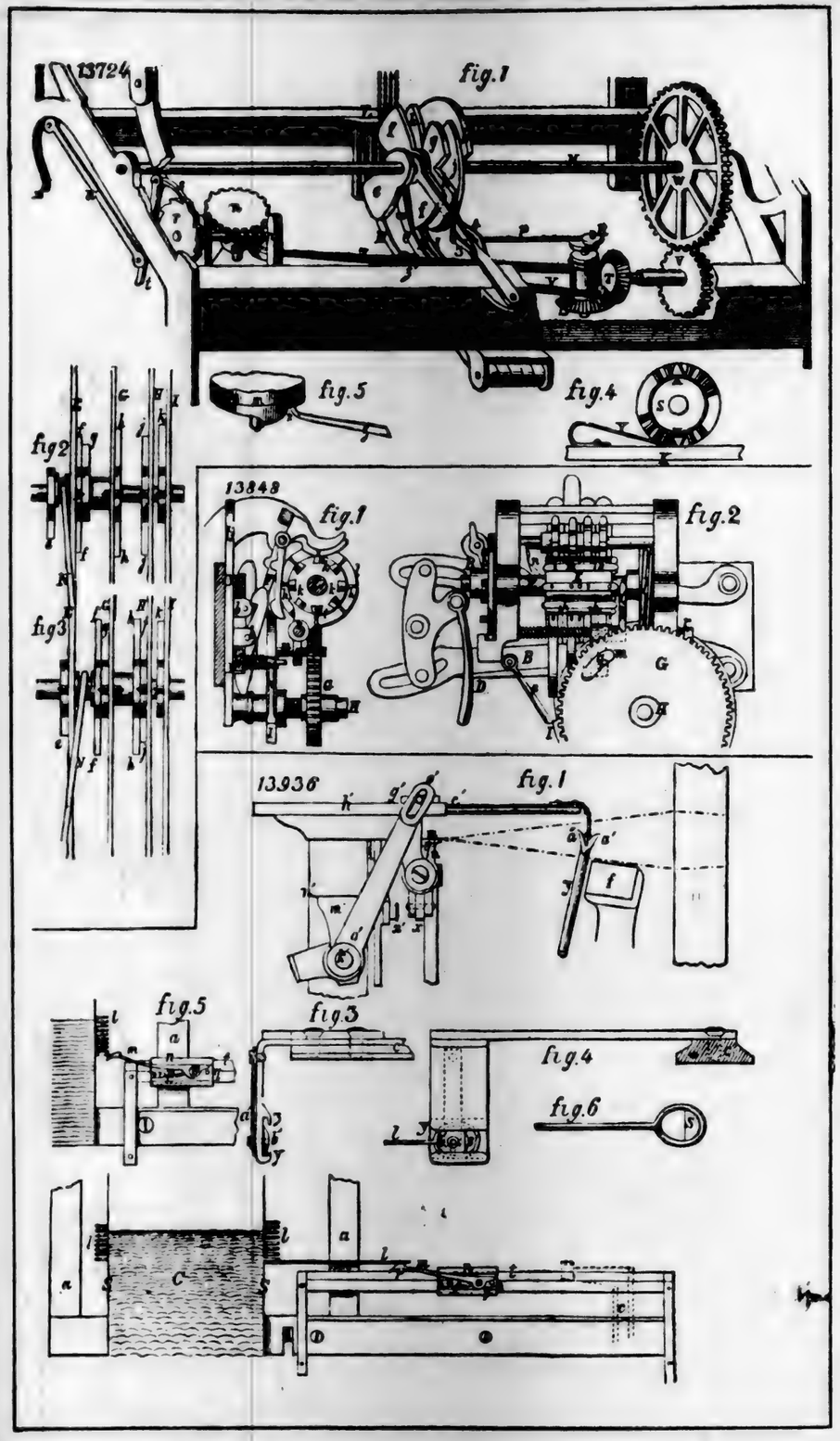
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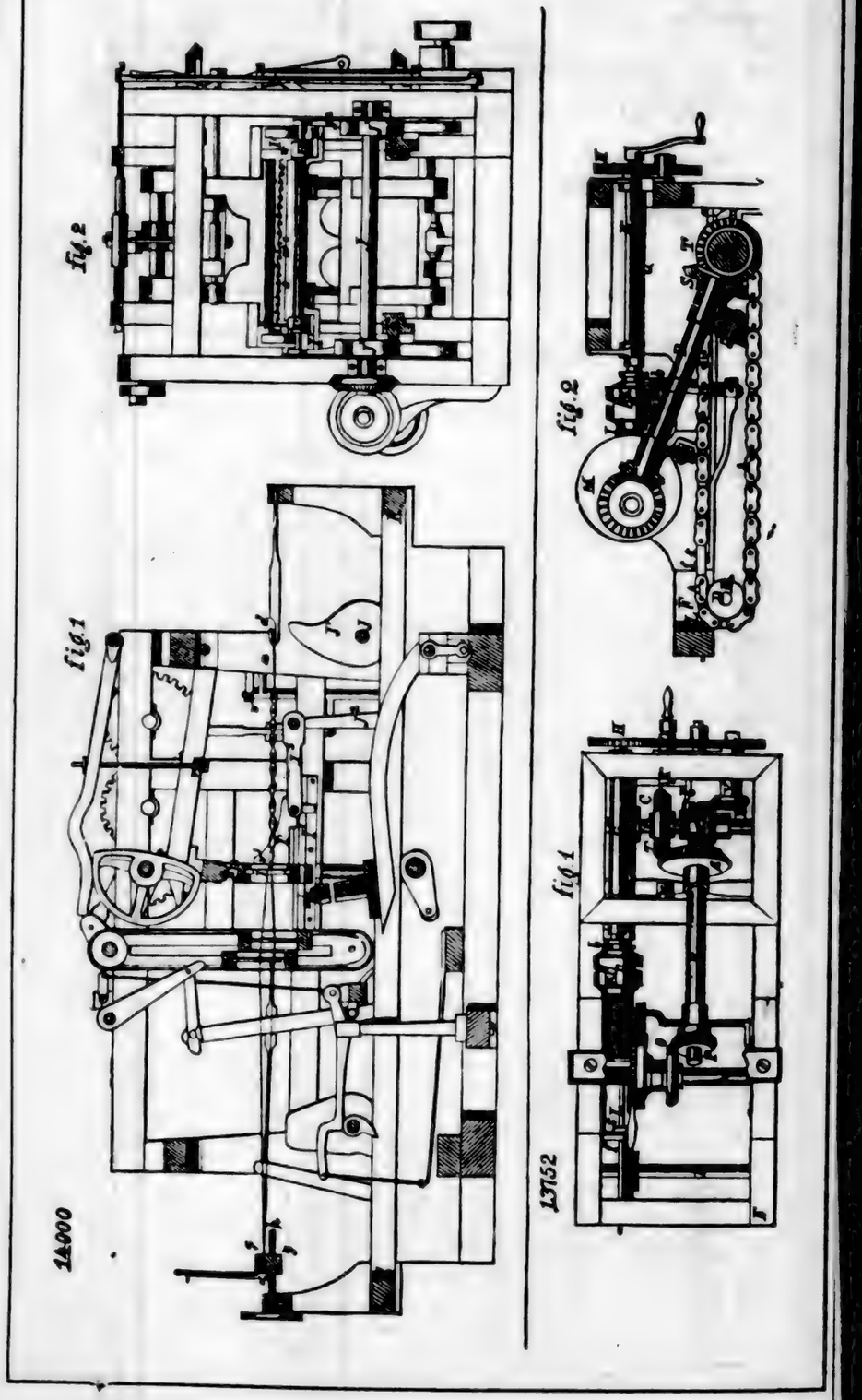

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Fig. 4
Fig. 5
Fig. 6
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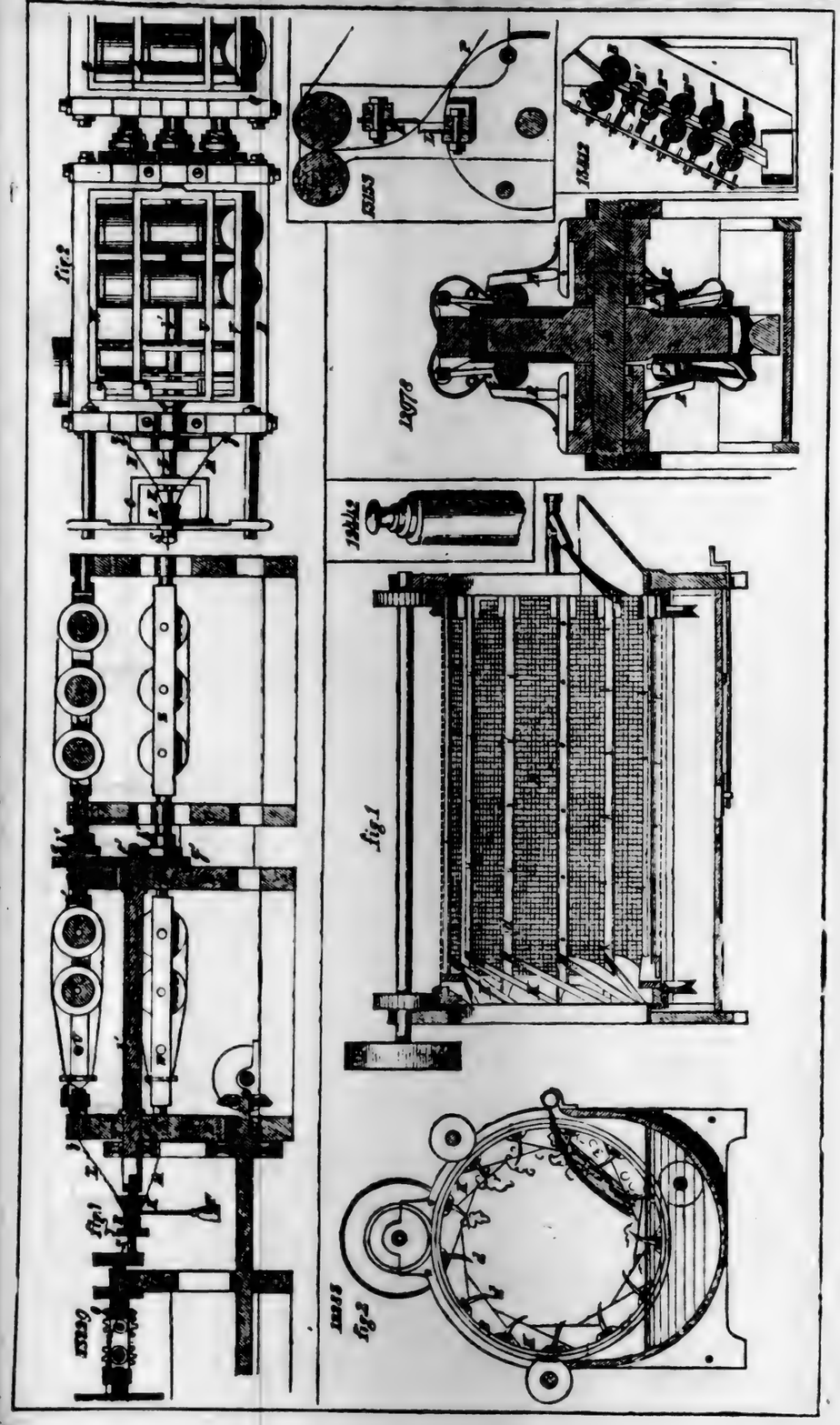

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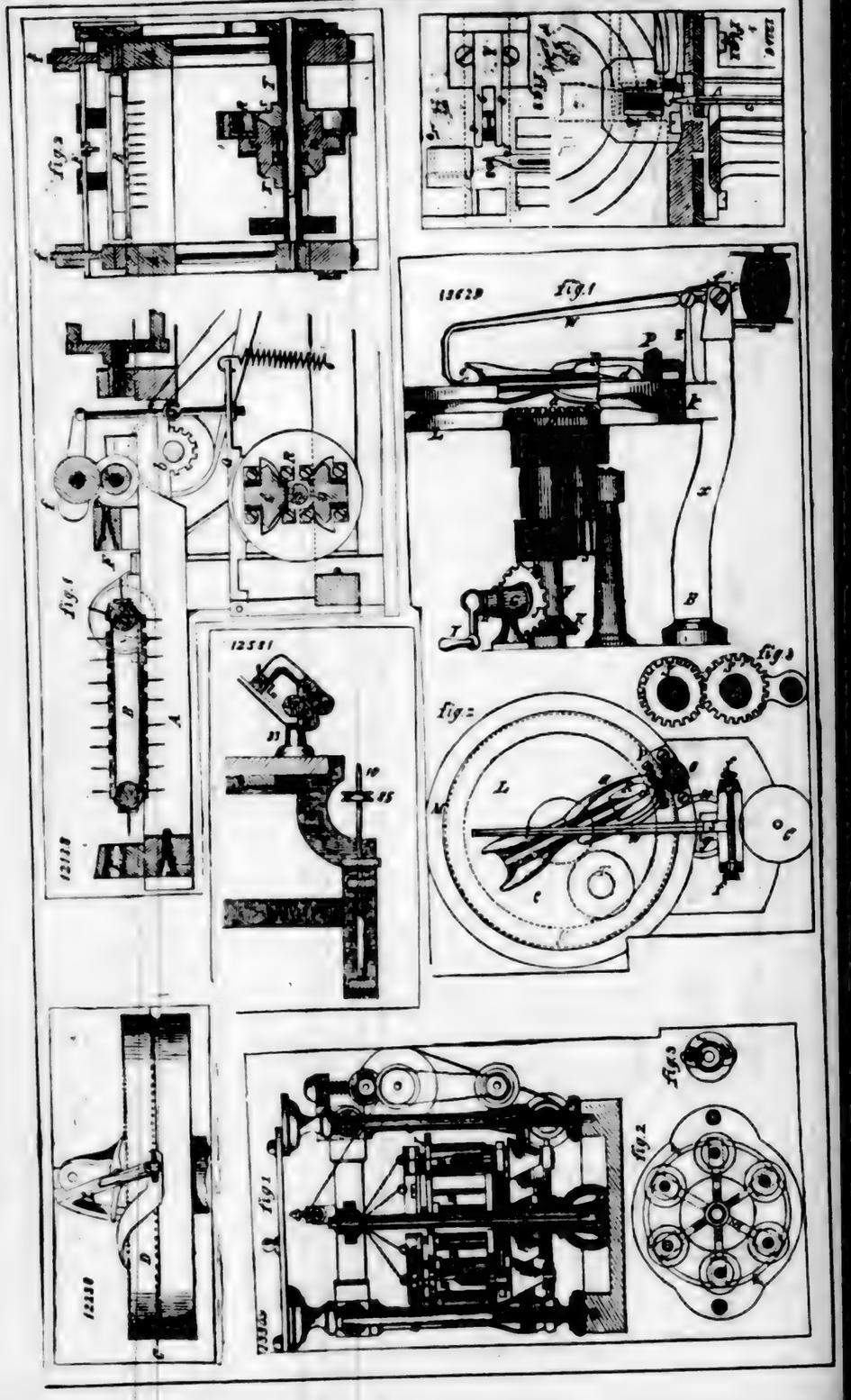
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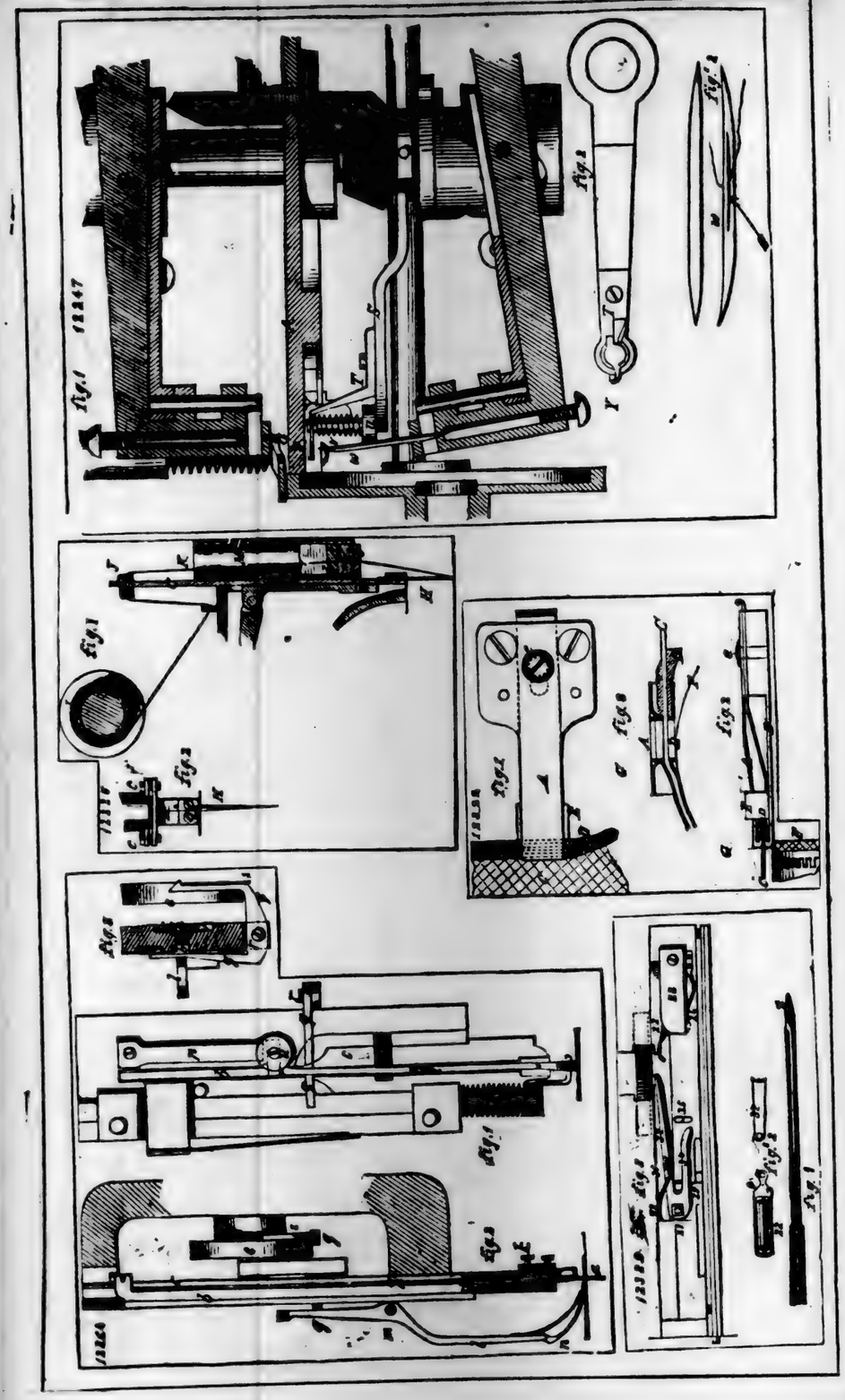

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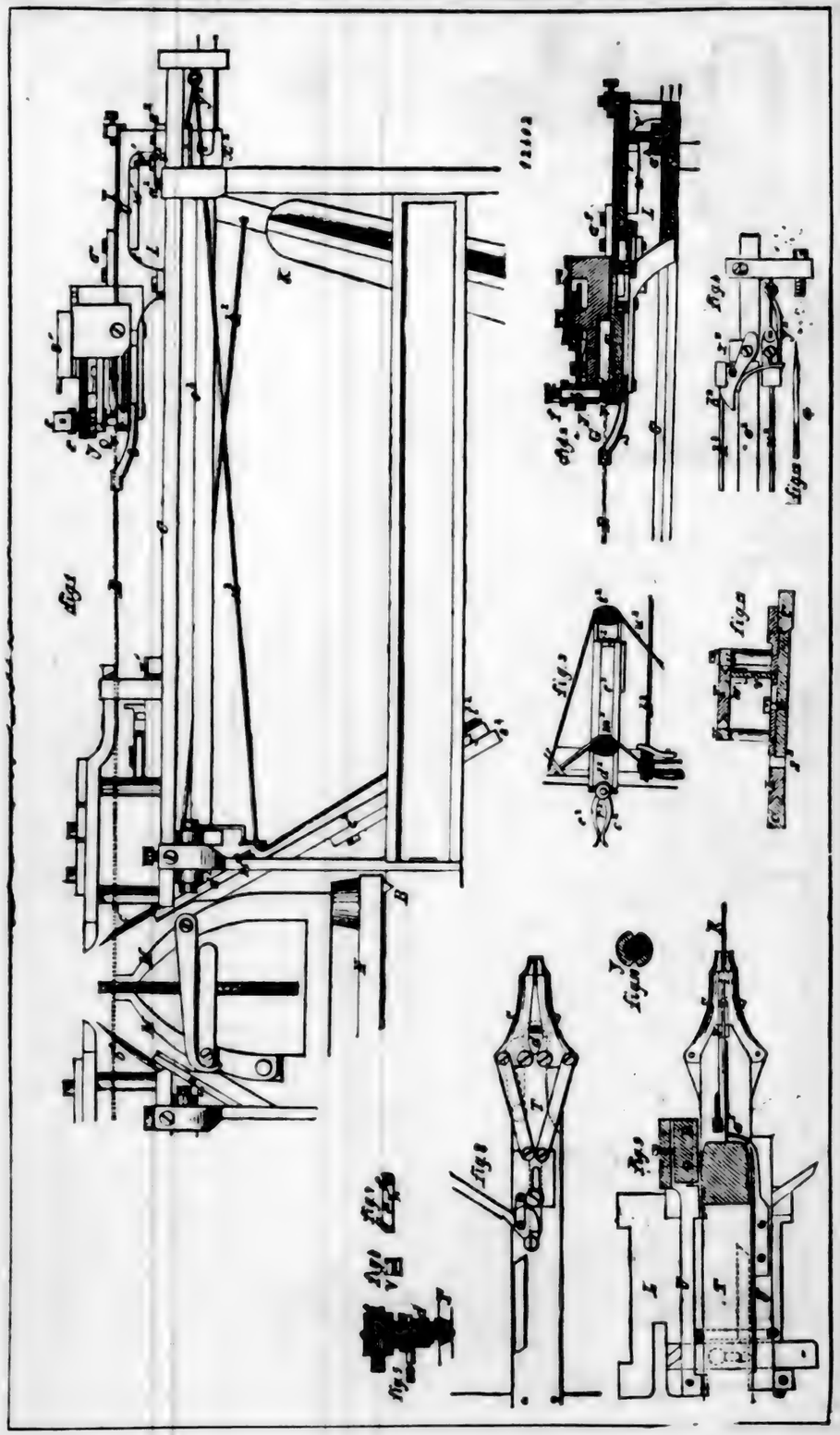

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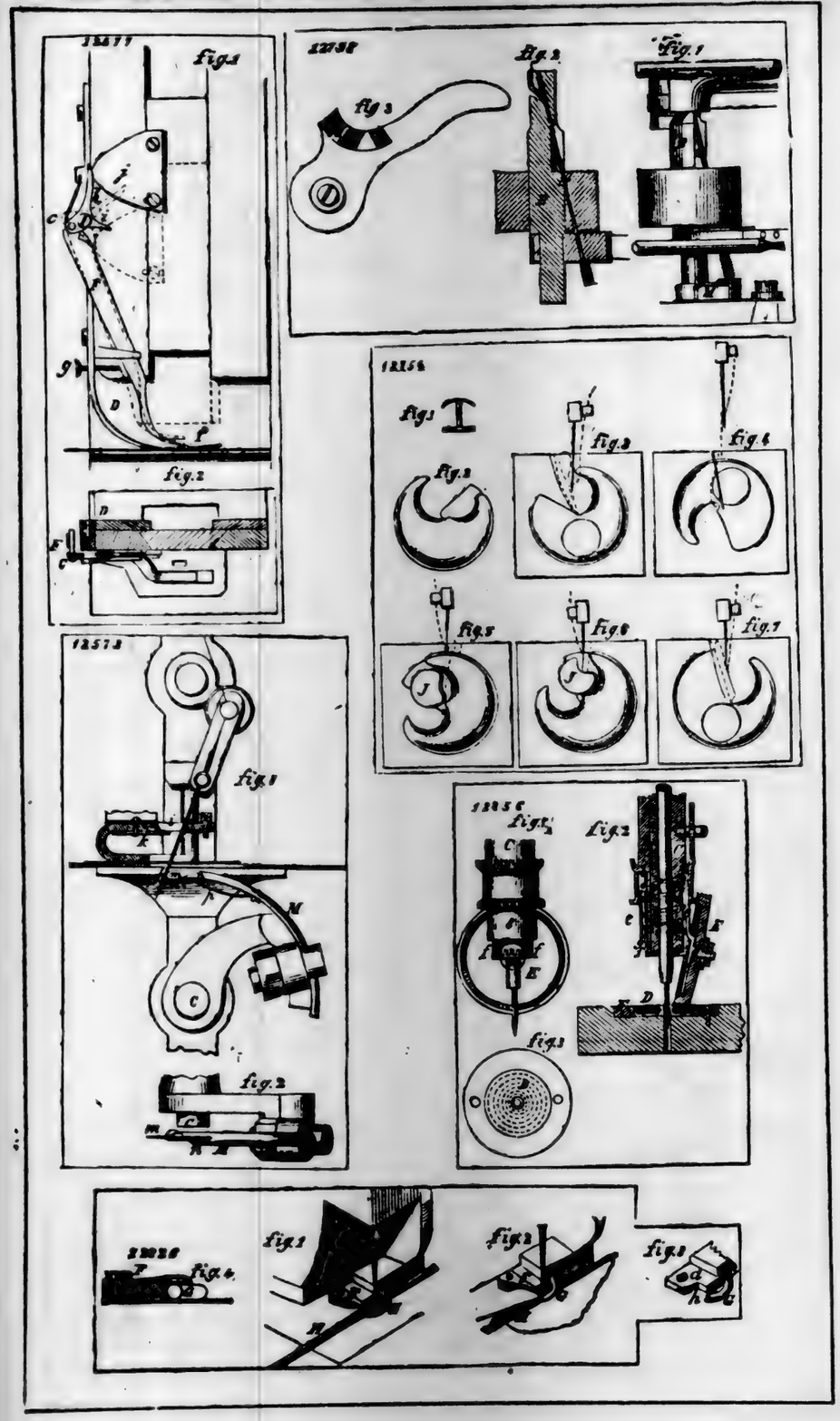

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fig.2
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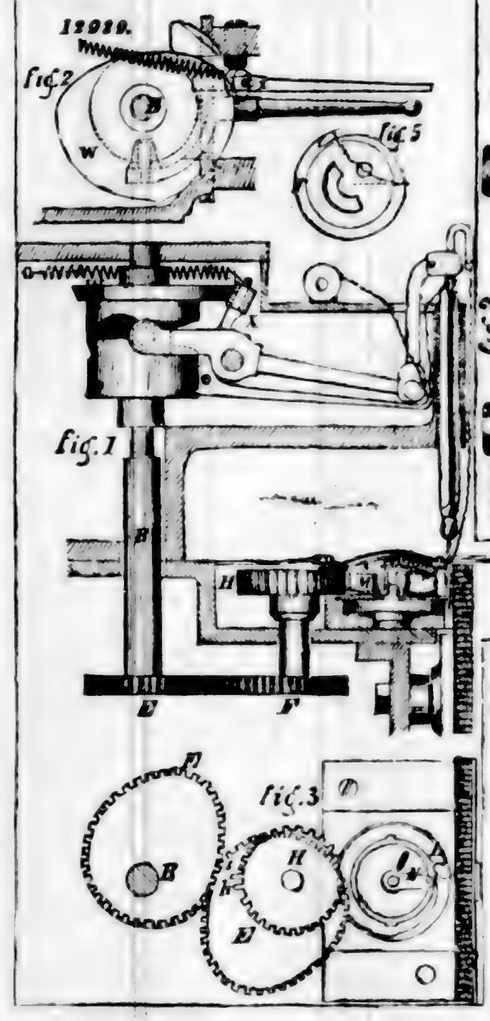


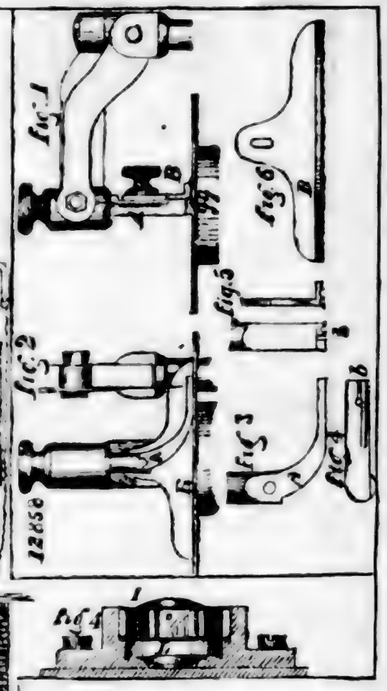




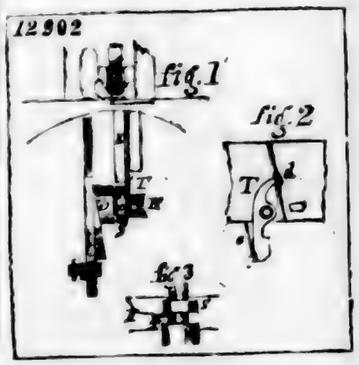


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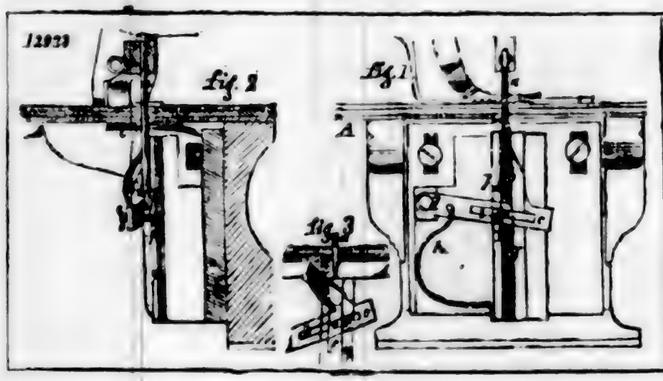




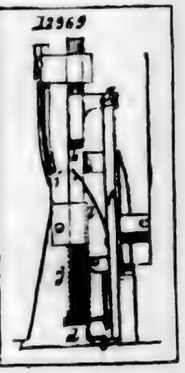
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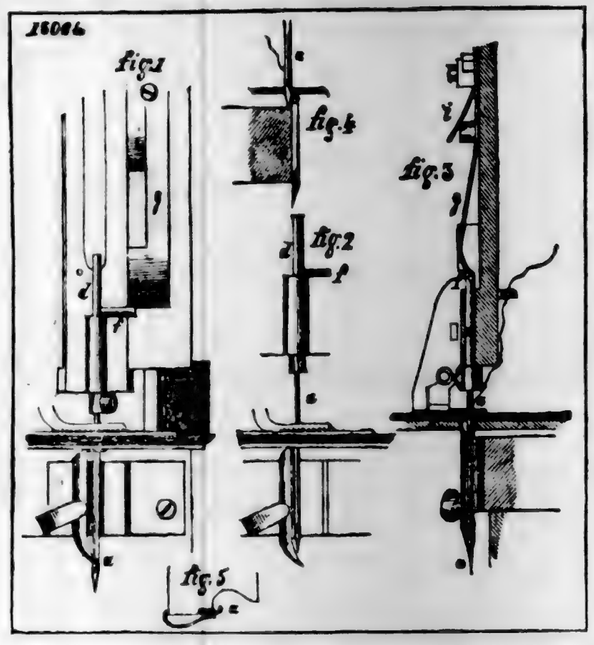
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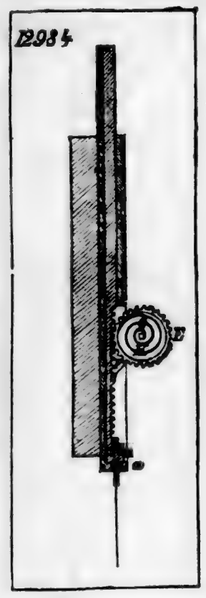
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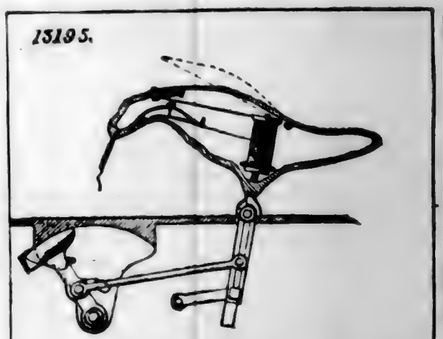
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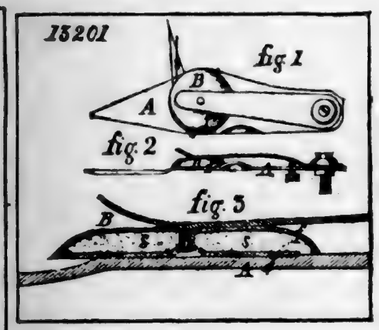
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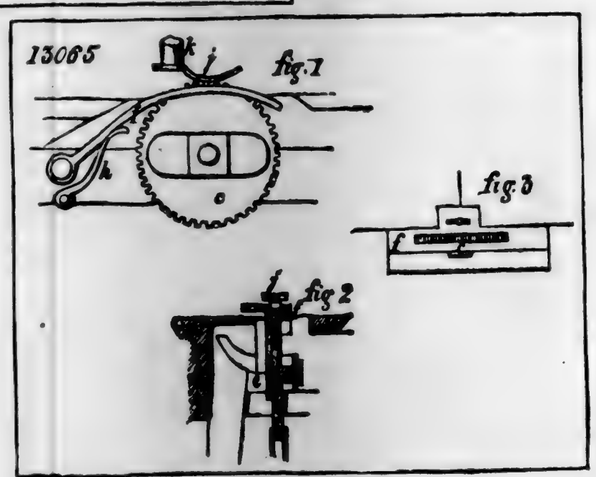
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13201



13065



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fig 1

fig 2

fig 4

fig 3

13362 fig 1

fig 2

13358 fig 1

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fig 2.

13274 fig 2

13460 fig 1

fig 2

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fig 2

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fig 1

fig 2

fig 3

fig 4

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fig. 1

fig. 3

fig. 2

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fig. 1

fig. 4

fig. 2

fig. 3.

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fig. 1

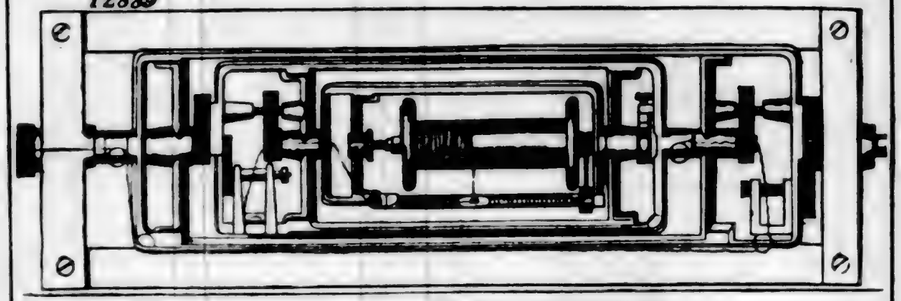
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fig. 1

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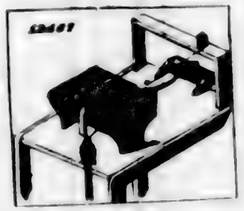
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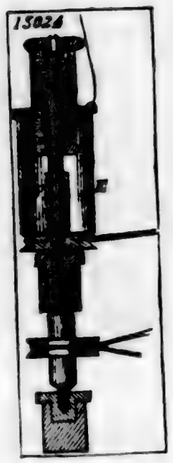
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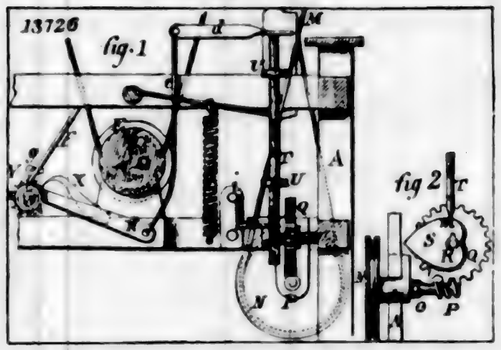
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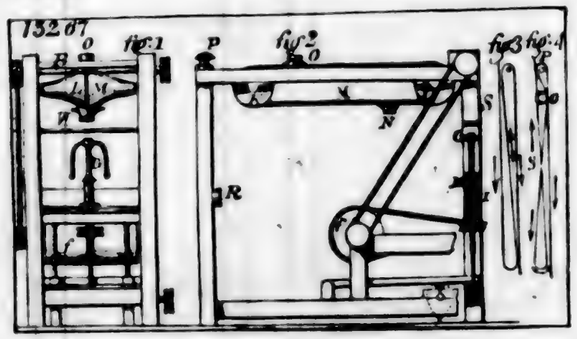
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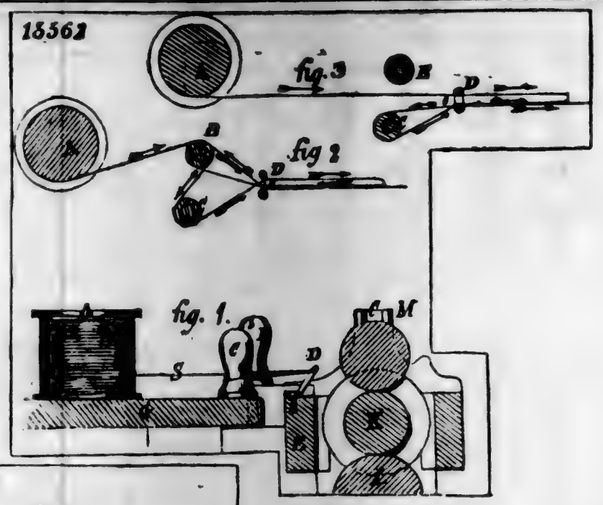
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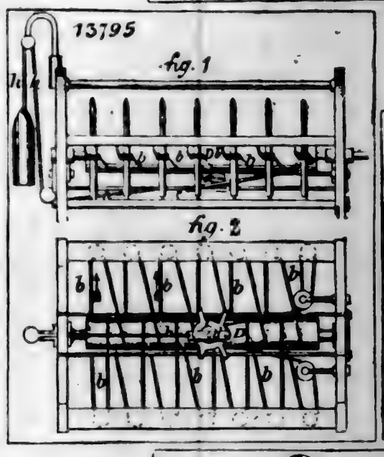
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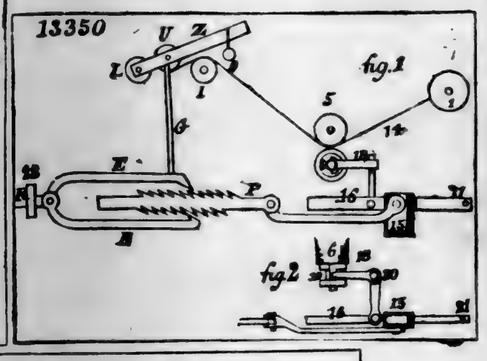
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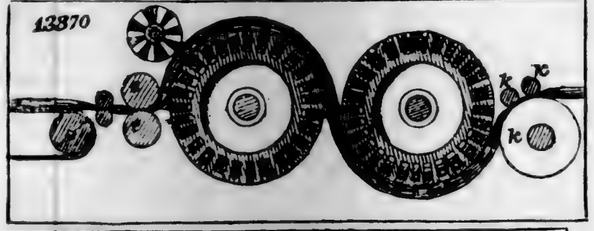
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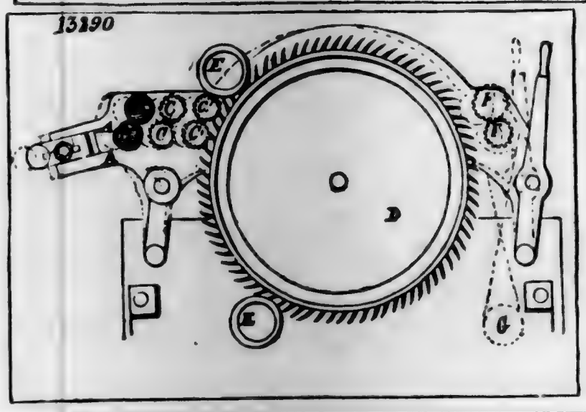
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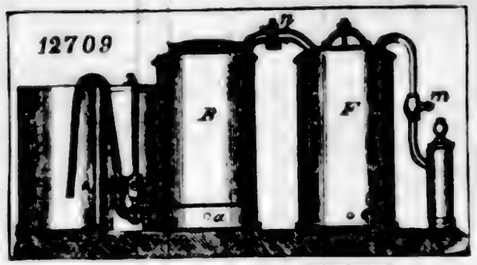
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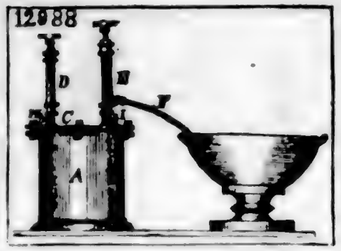
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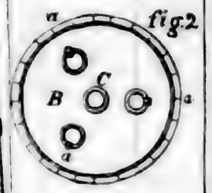
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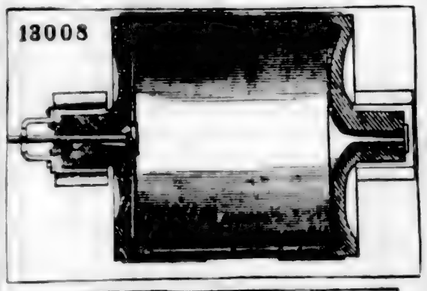
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fig 2



13008



13928 fig 1

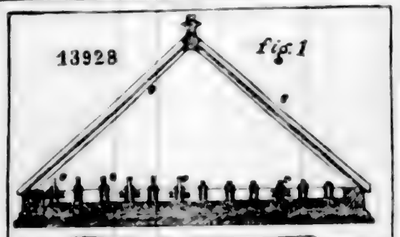
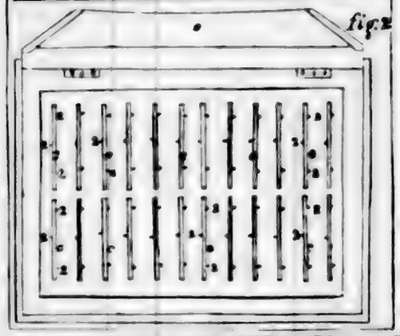


fig 2



12193 fig 1

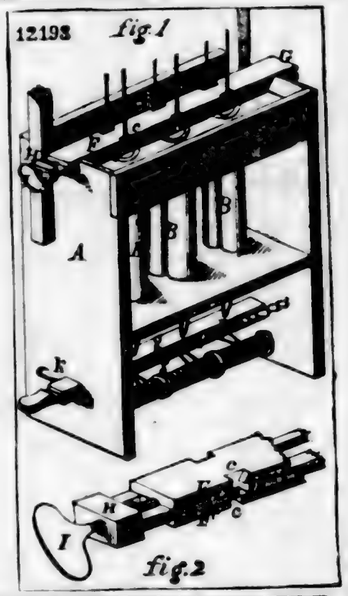


fig 2

12346 fig 1

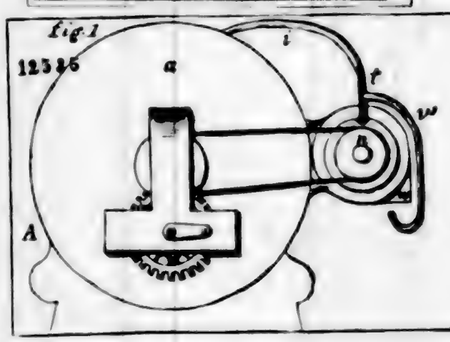
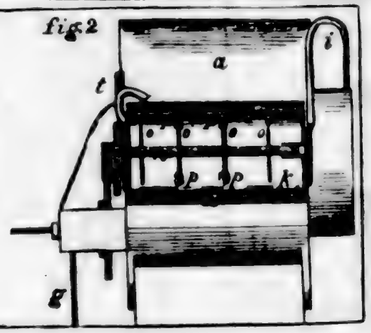
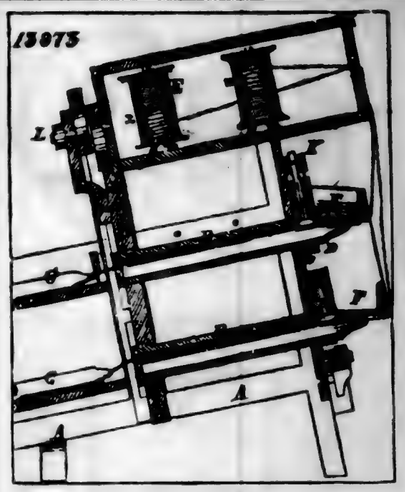


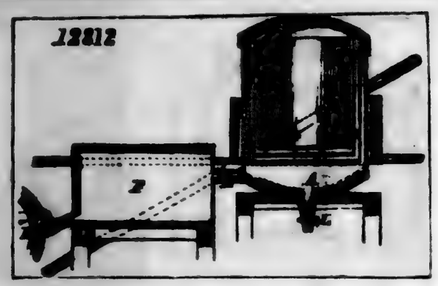
fig 2



13073



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13033 fig 1

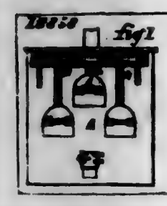
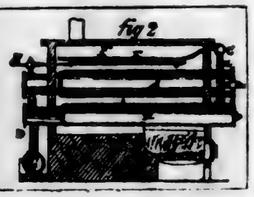


fig 2



12692 fig 1

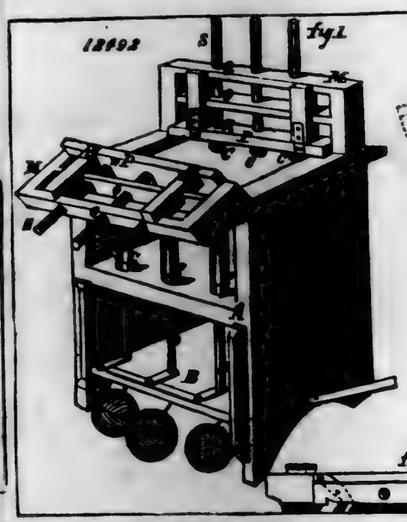
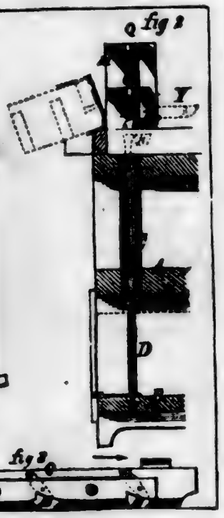


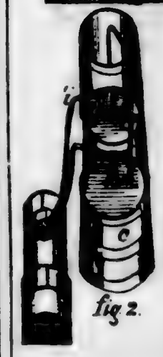
fig 2



12576 fig 1



fig 2



12334 fig 1

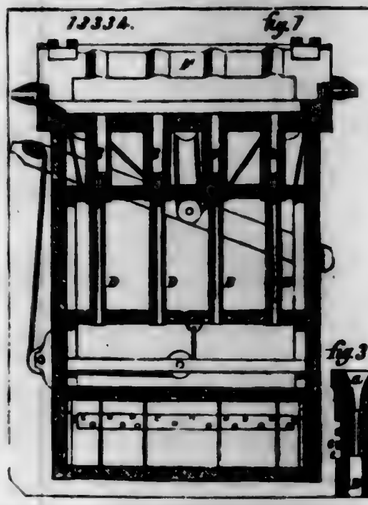
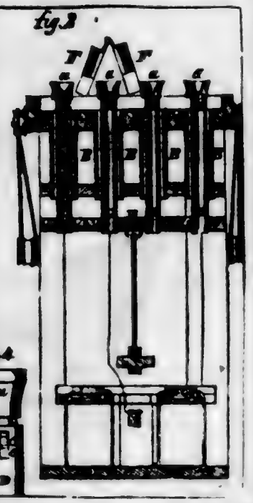


fig 3

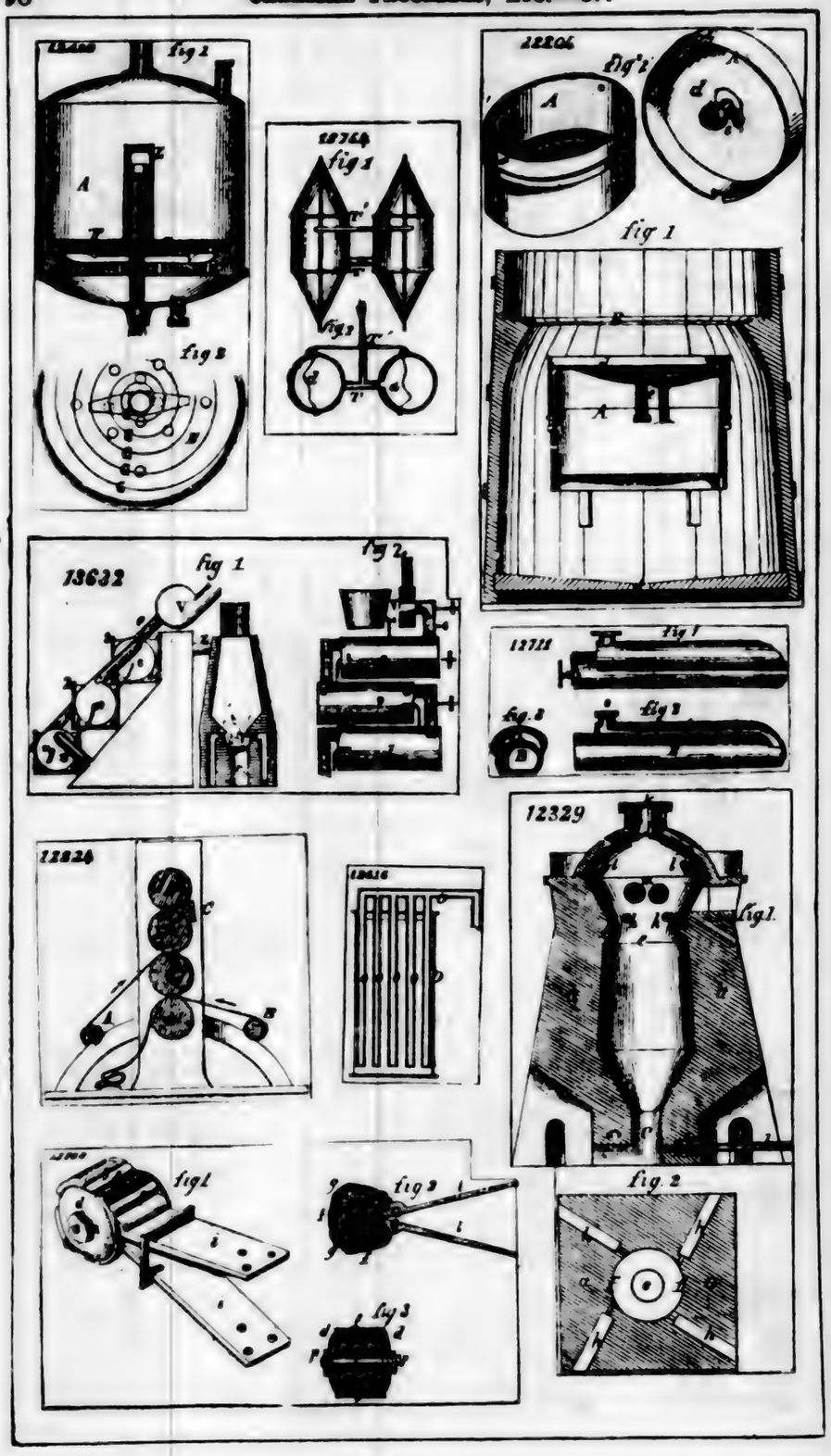


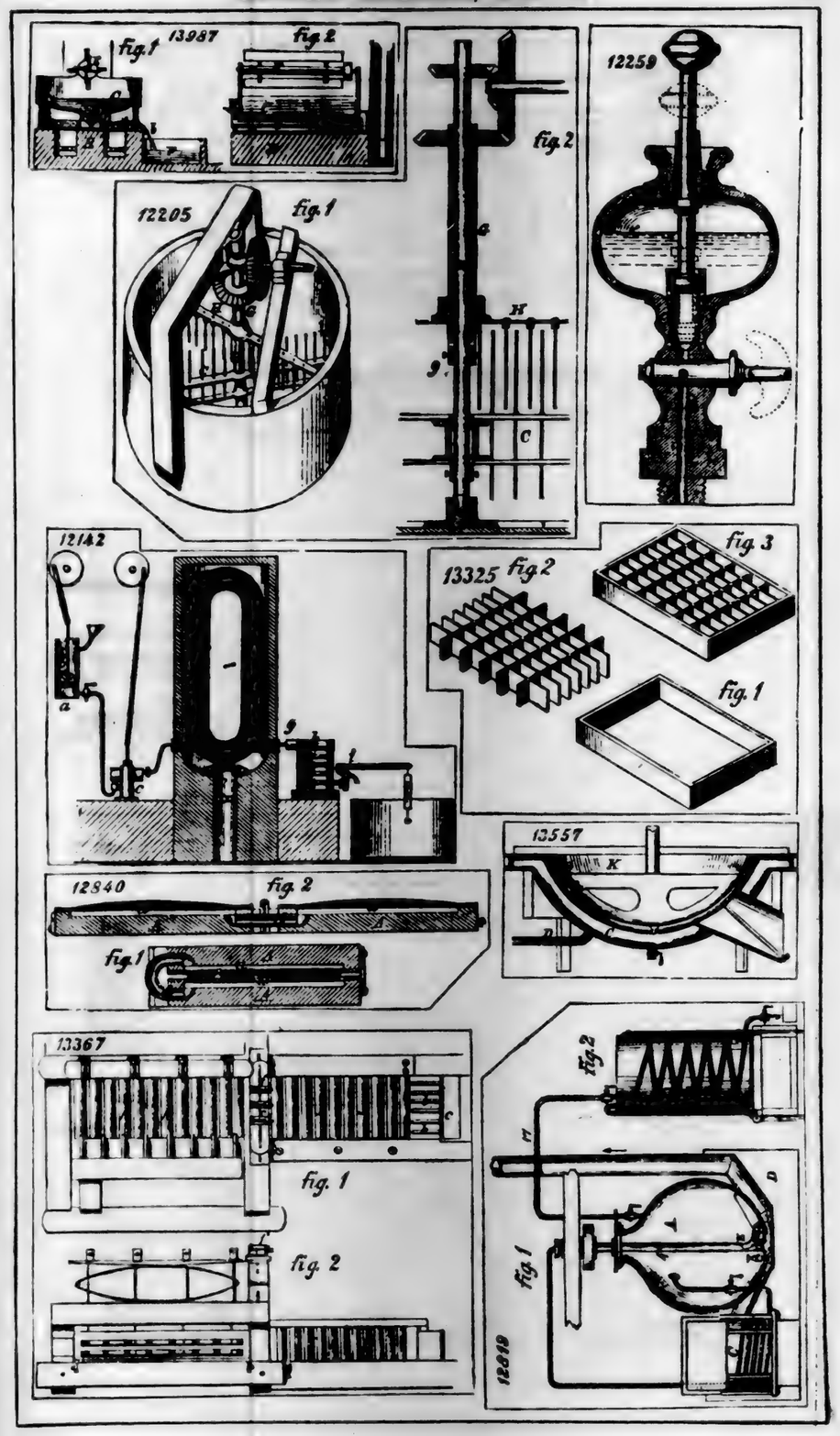
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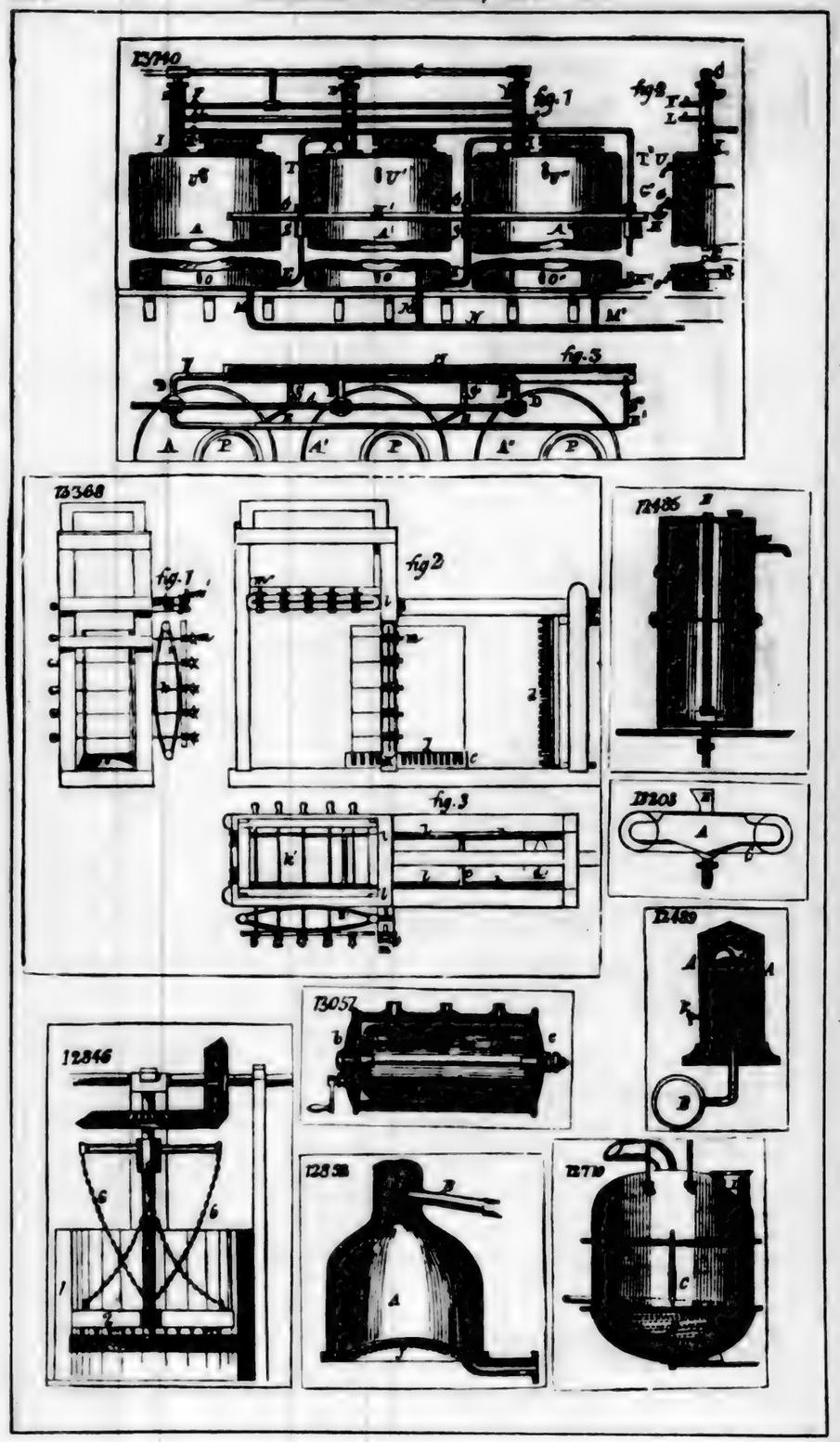


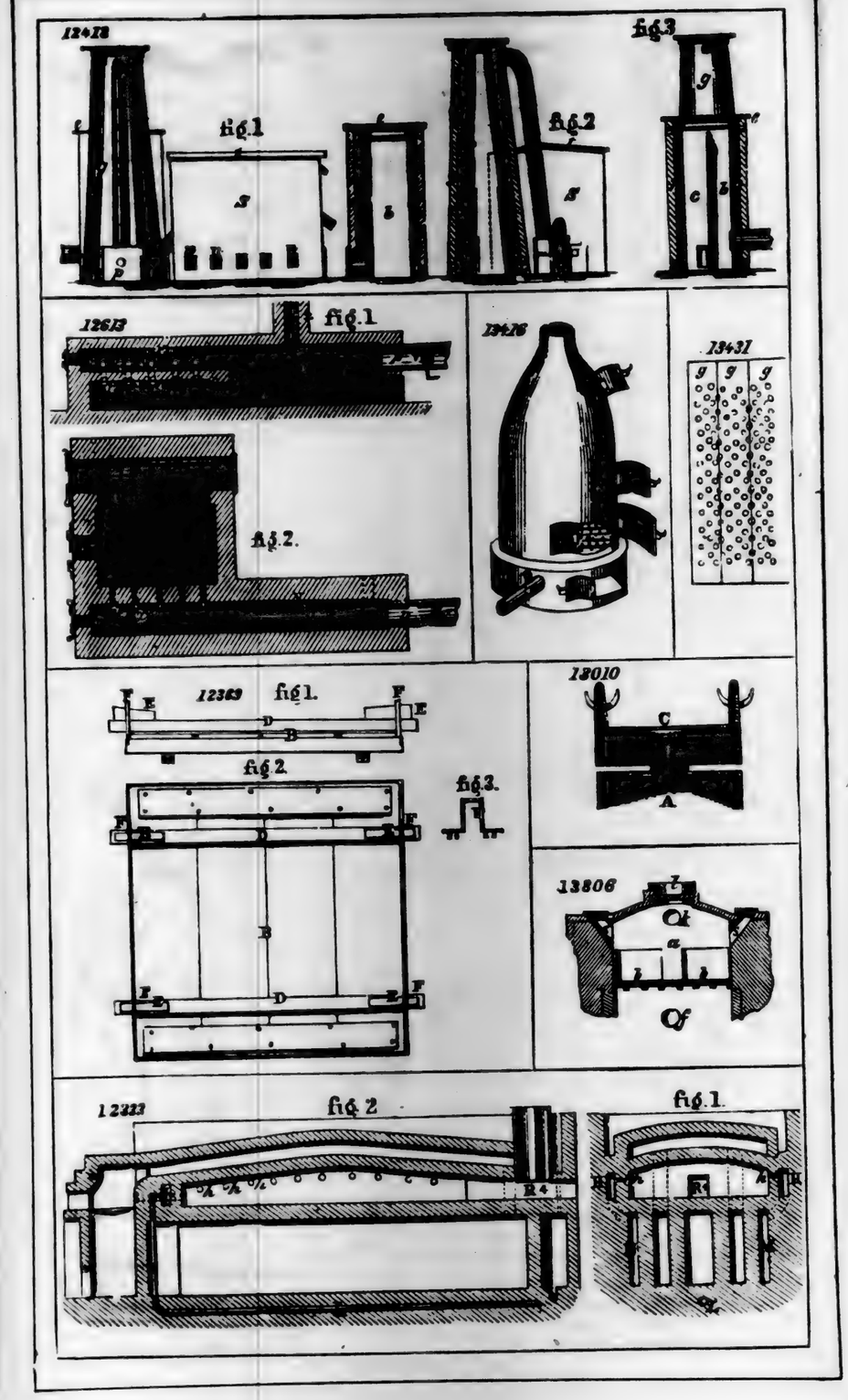
fig 3 fig 4




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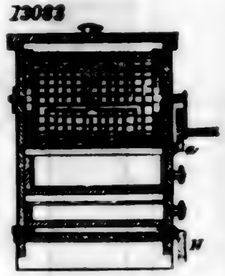

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fig. 2
fig. 3
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fig. 1
fig 2
fig. 3
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fig. 1
fig. 2
fig. 3
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fig 1.
fig. 2.
fig. 3.
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fig. 2
fig. 1.

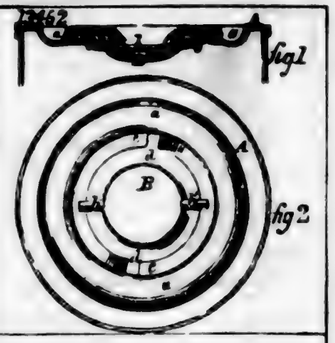
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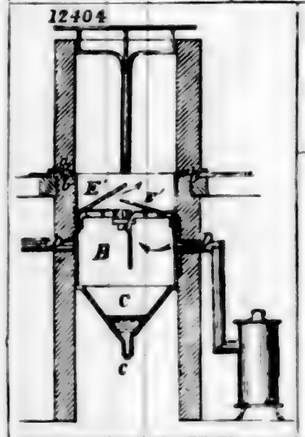
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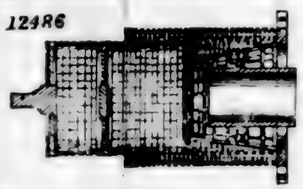
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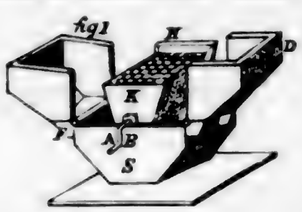


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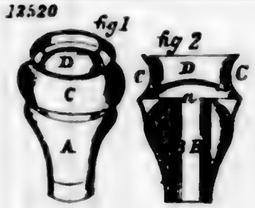




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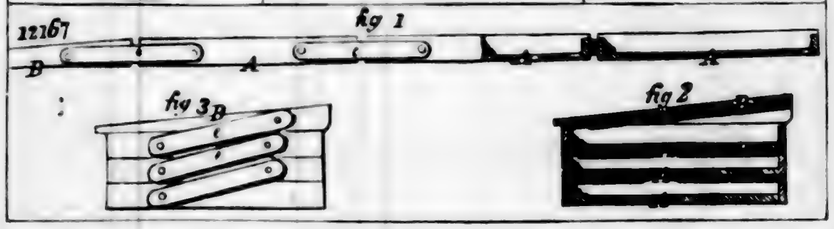
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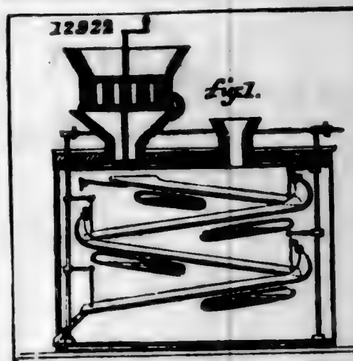
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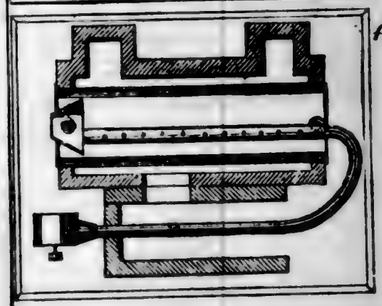
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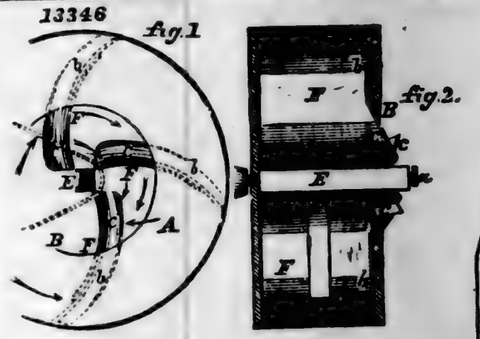
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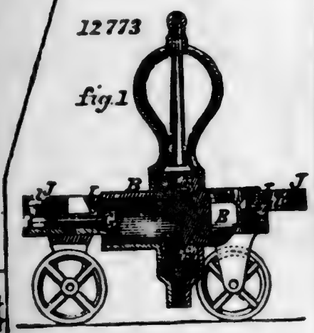
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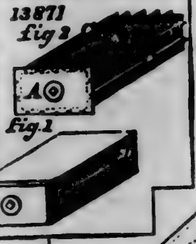
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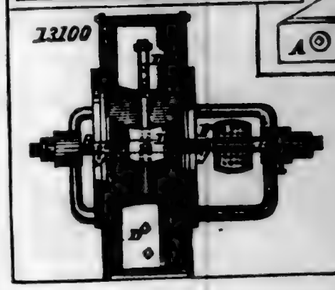
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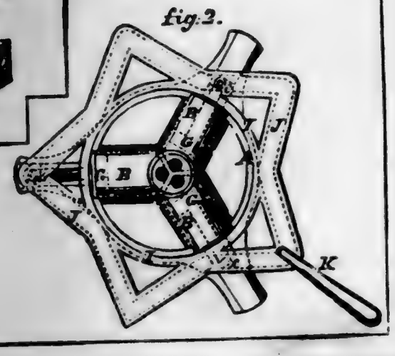


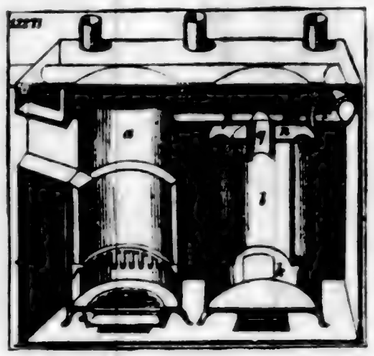
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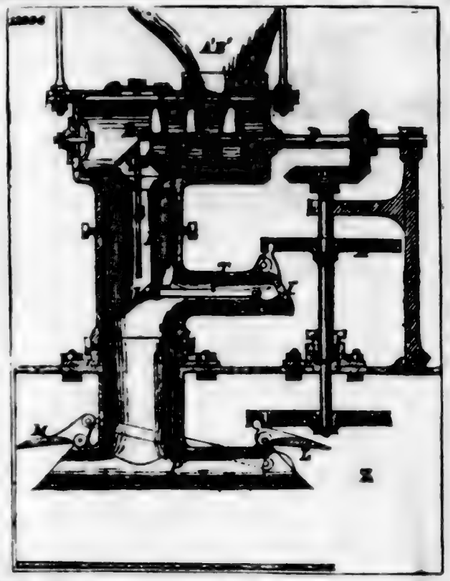


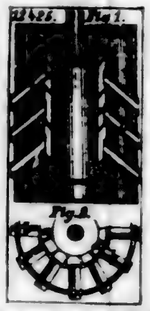
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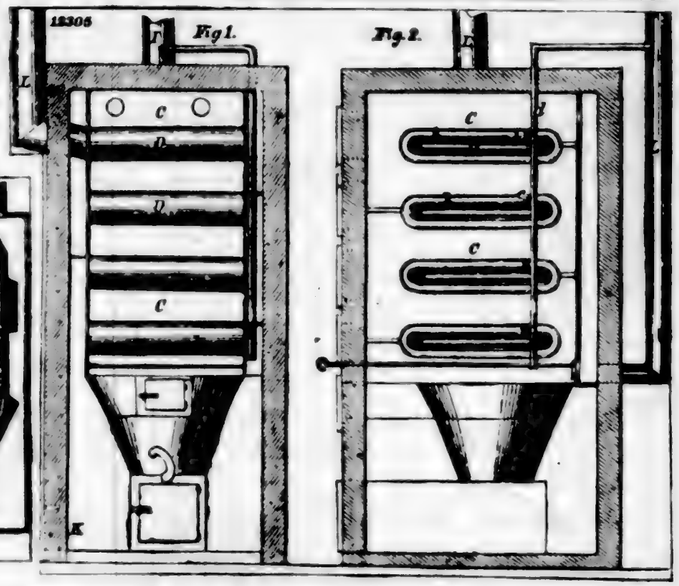


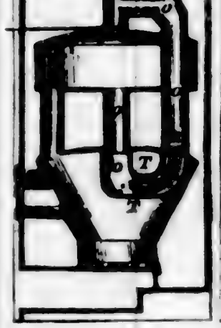


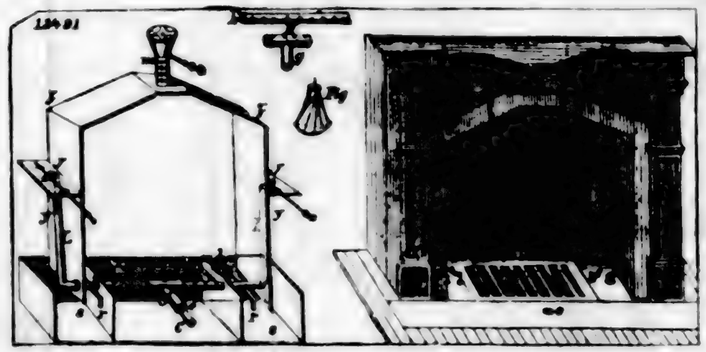


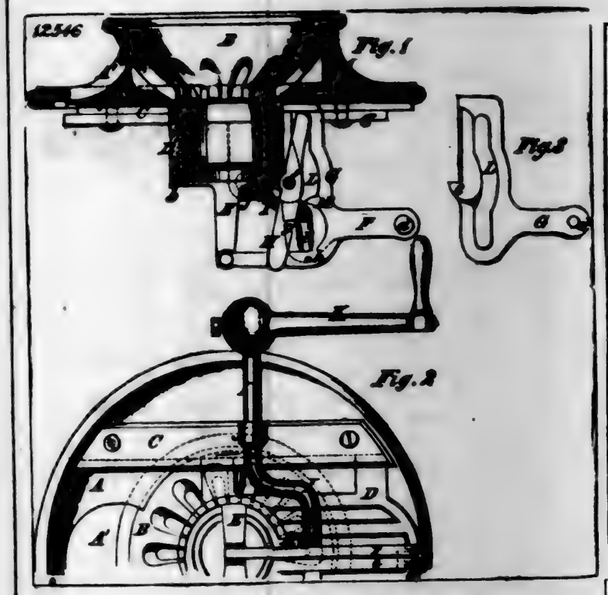




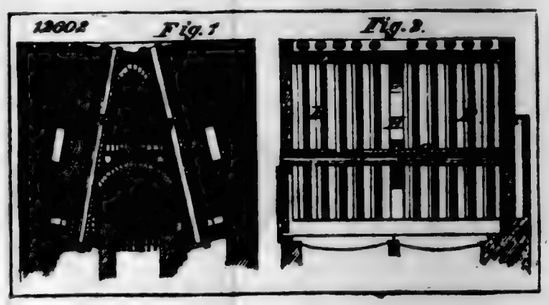


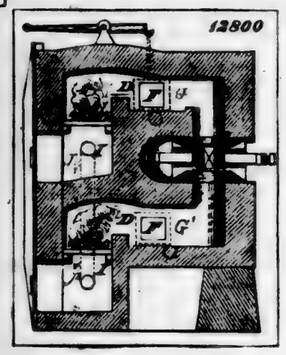


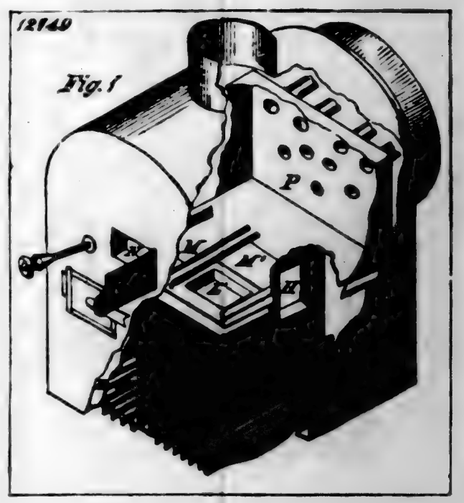


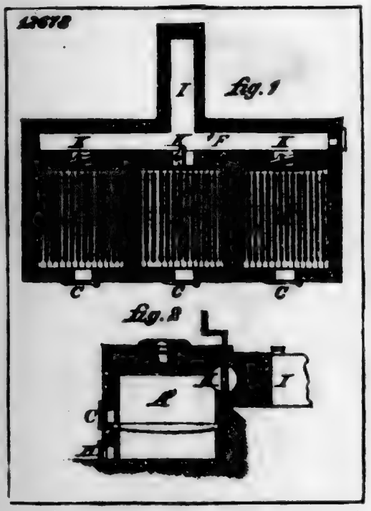












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fig 3.

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13083 fig 1 fig 2 fig 3

13092 fig 1 fig 3 fig 2

13332

13374 fig 1 fig 2

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13432 fig 1 fig 2

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fig. 1

fig. 2

fig. 3

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fig. 1

fig. 2

fig. 3

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fig. 1

fig. 2

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fig. 1

fig. 2

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fig. 1

fig. 2

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fig. 1

fig. 2

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fig. 1

fig. 2

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Fig. 1

Fig. 2

13020

fig. 1

fig. 2

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fig. 1

fig. 2

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13675 E A A B B

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fig.4 fig.1 fig.5

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13725 fig. 1

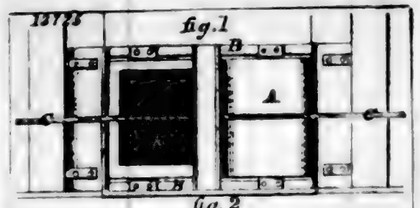
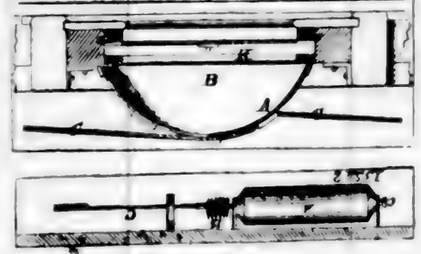
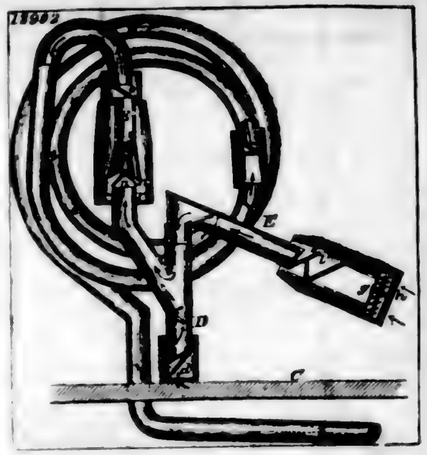


fig. 2



13592



13732 fig. 1

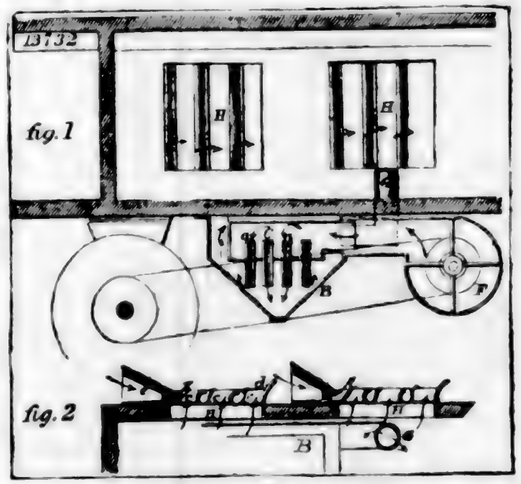


fig. 2

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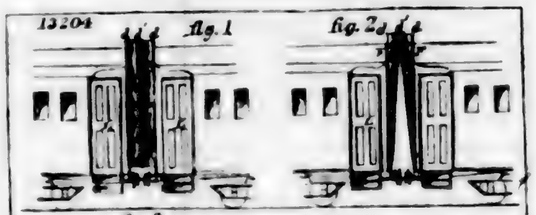
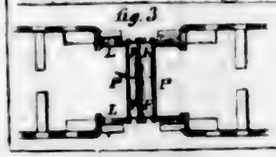


fig. 3



12685 fig 1 fig 2

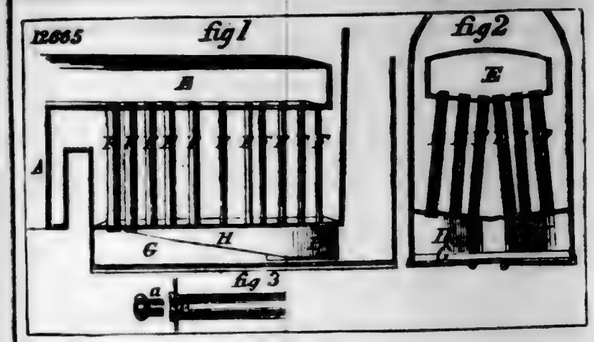
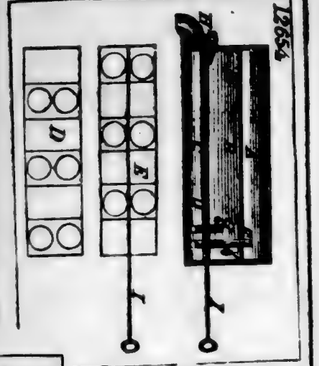


fig 3

12654



12360 fig 1

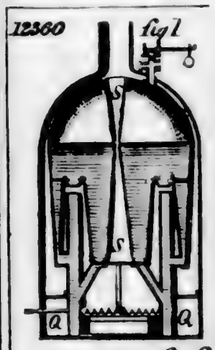
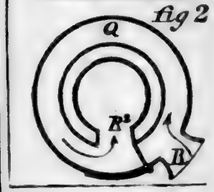
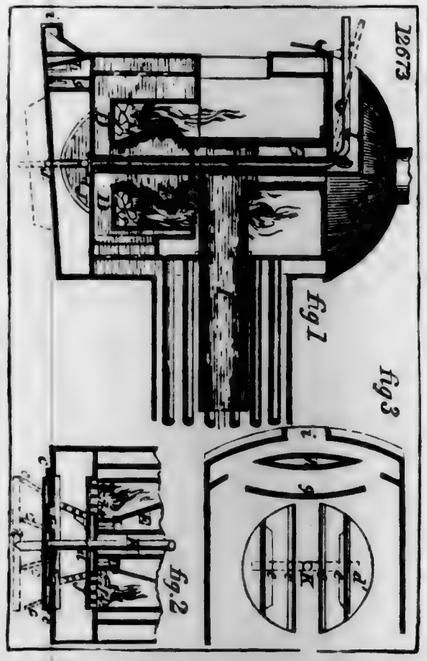


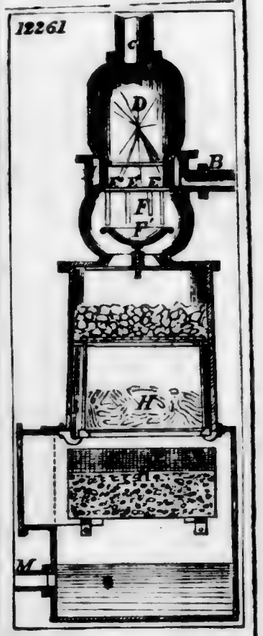
fig 2



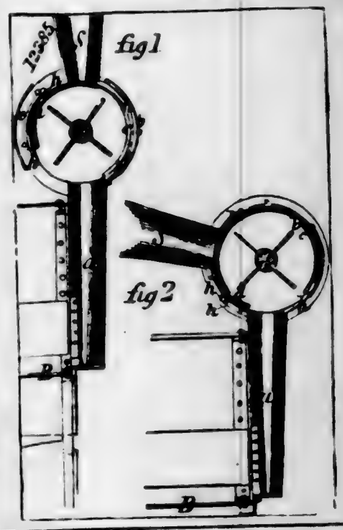
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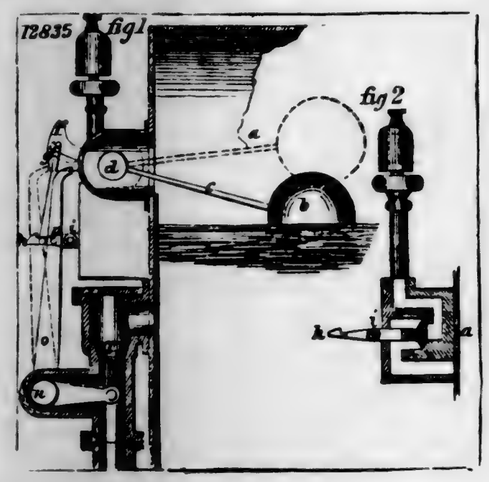
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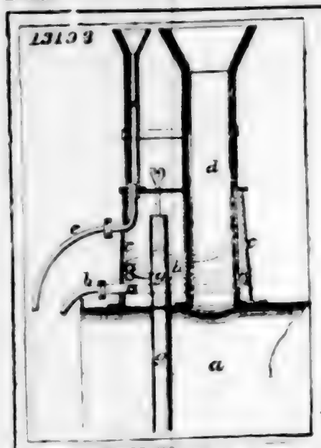
12585 fig 1 fig 2



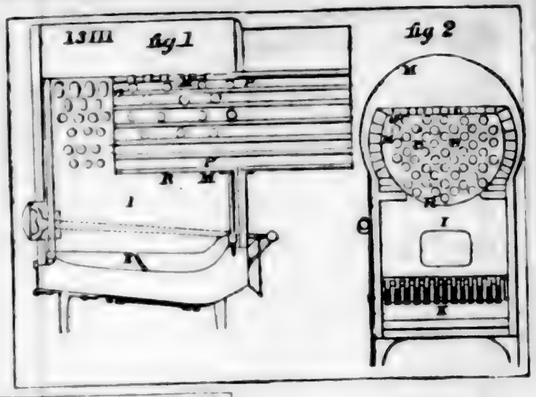
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13133



13111 fig. 1 fig. 2



13168 fig. 1 fig. 2

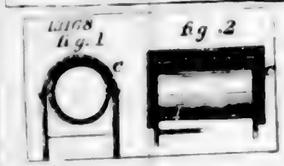
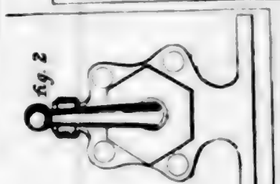
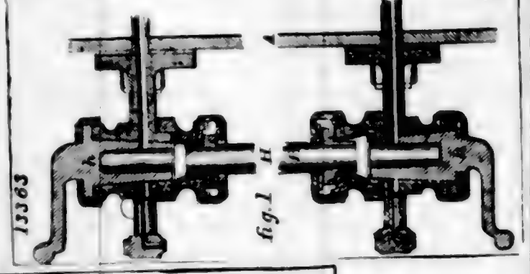


fig. 2





12893 fig. 1

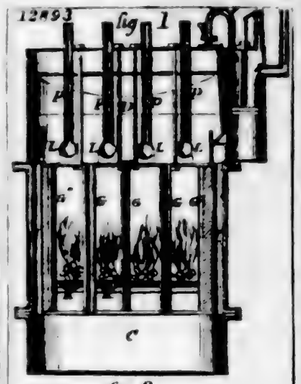
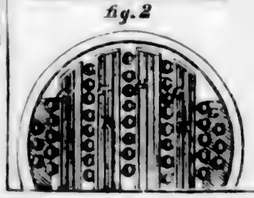


fig. 2



13146 fig. 1

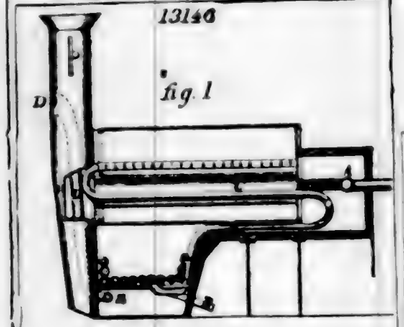
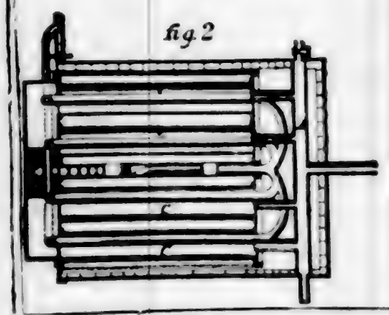


fig. 2



13223 fig. 1

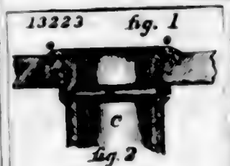
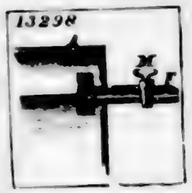


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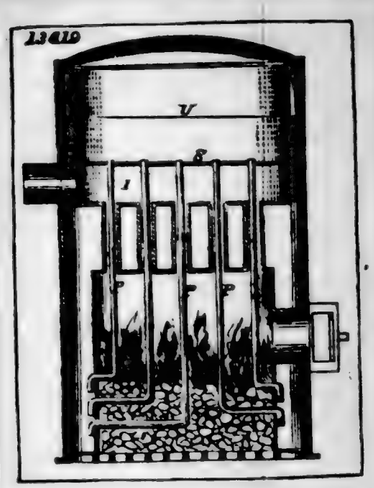
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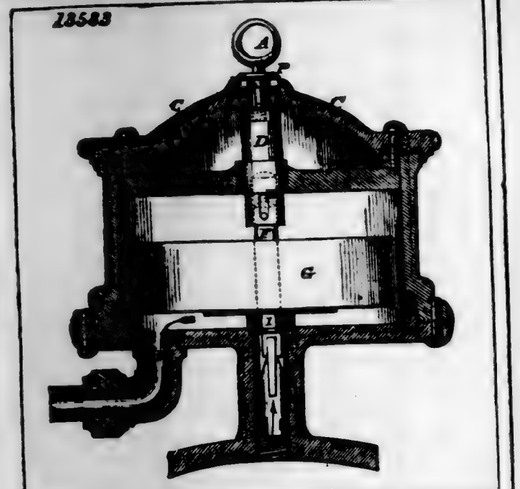
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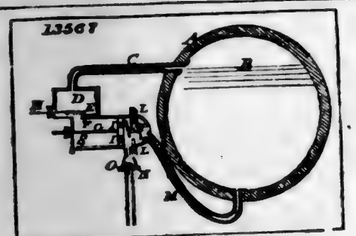
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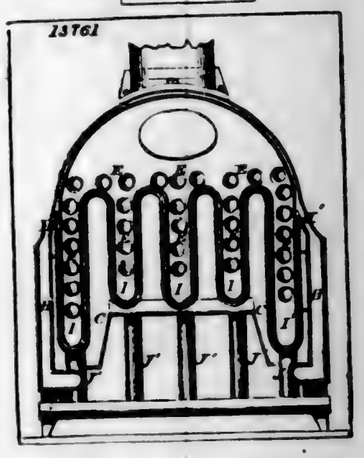
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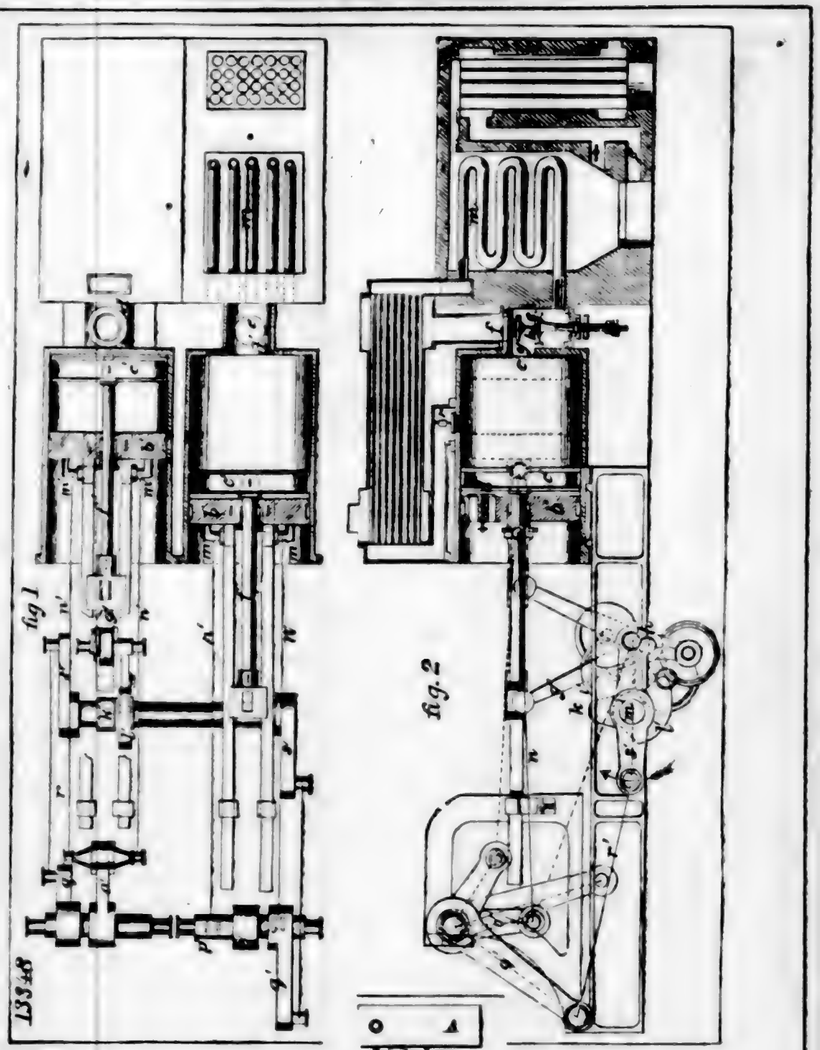


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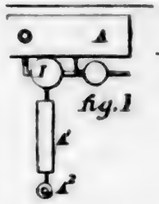


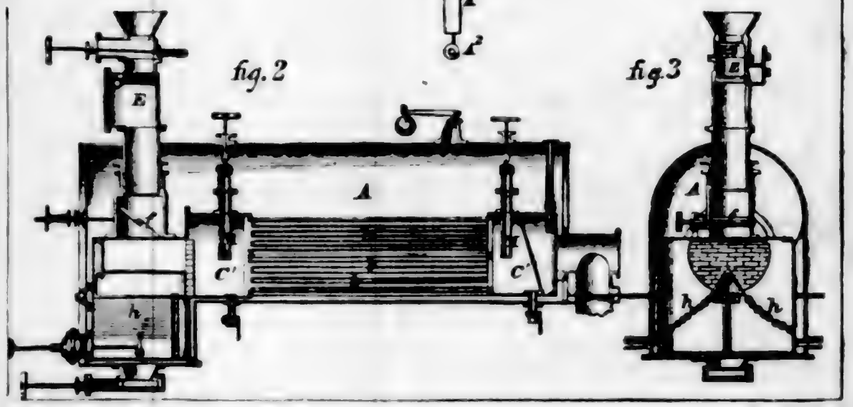
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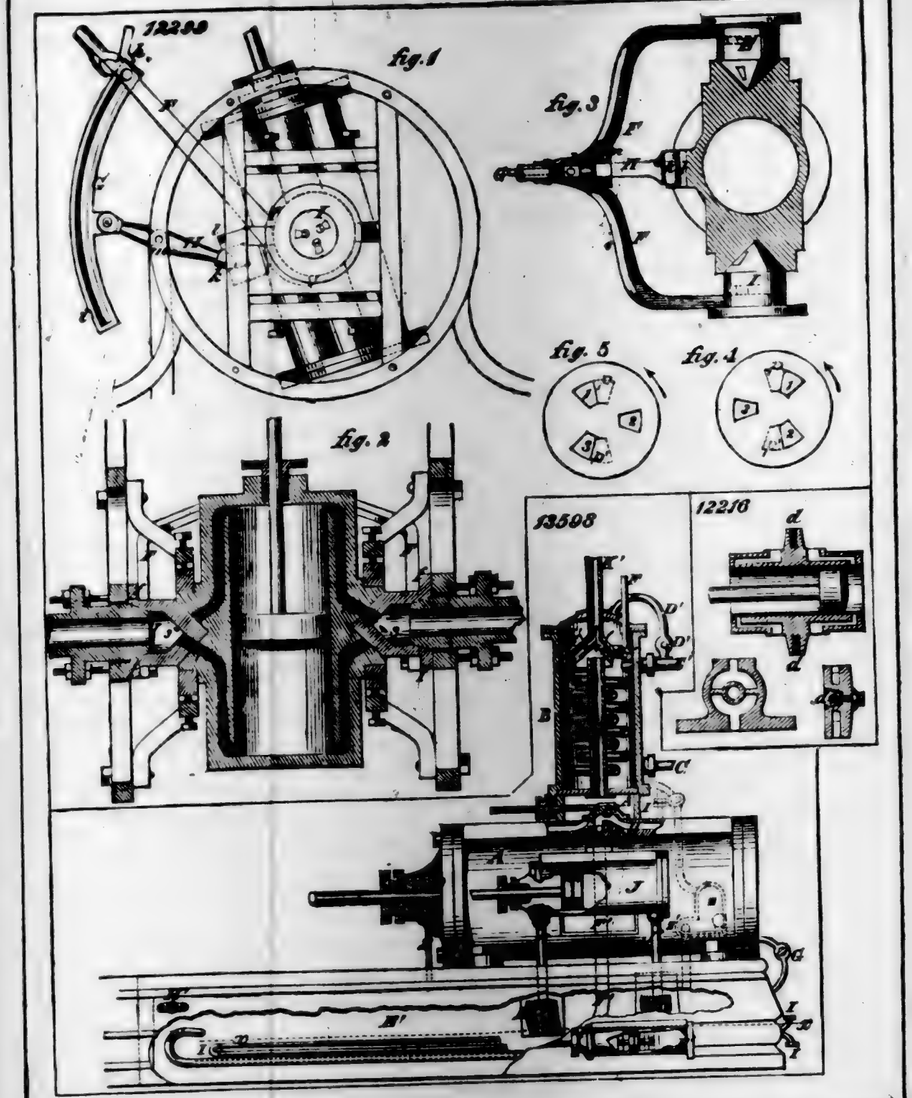

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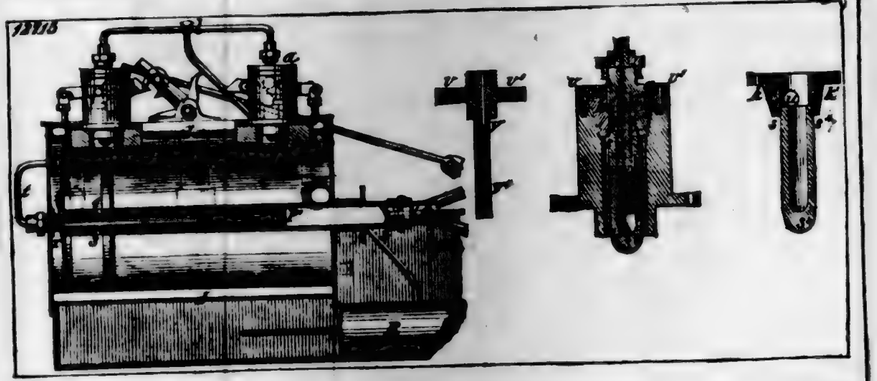

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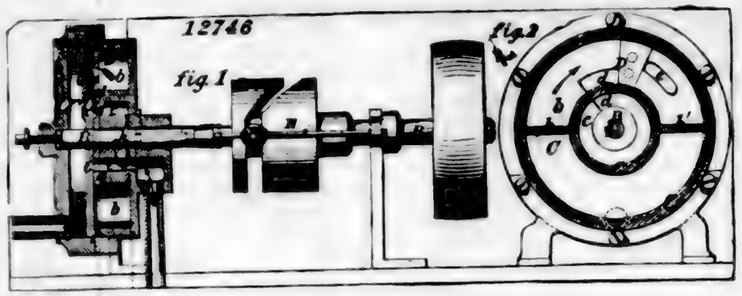

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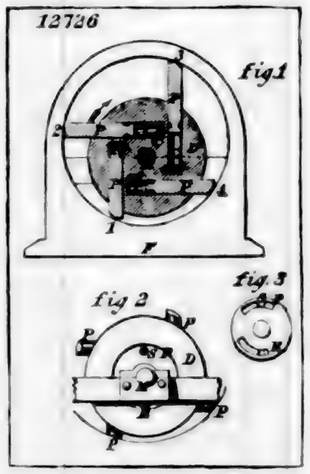

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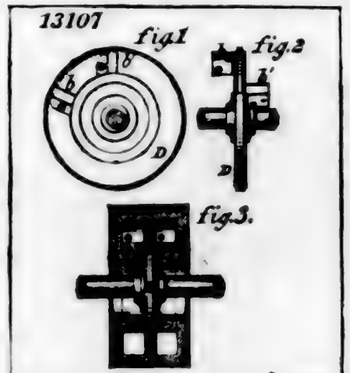
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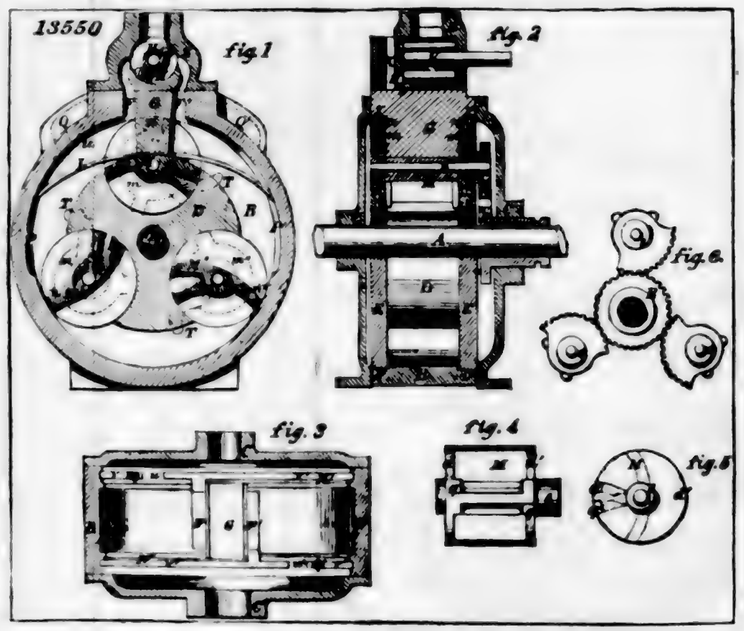
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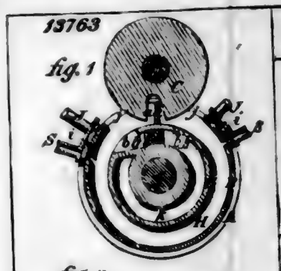
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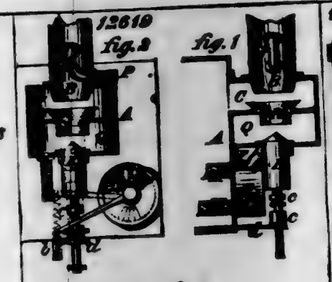
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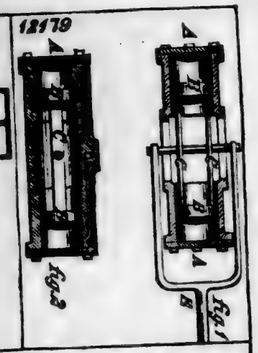
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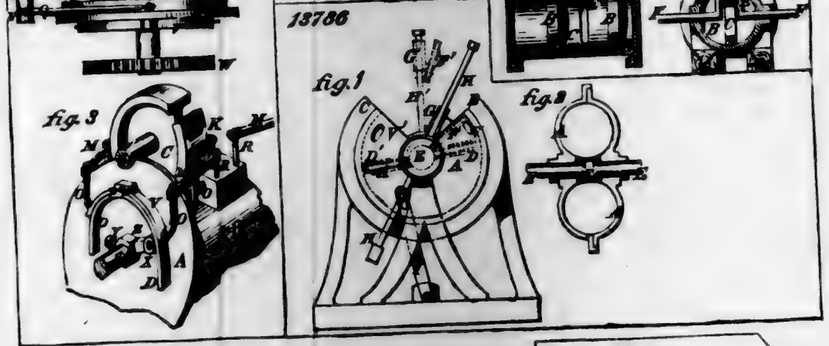
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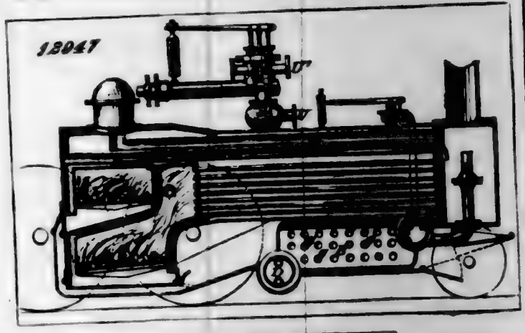
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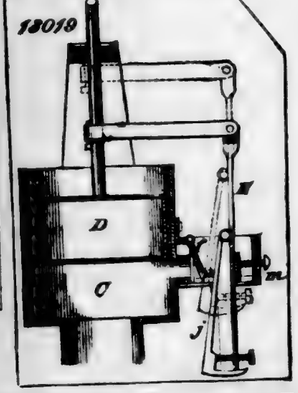
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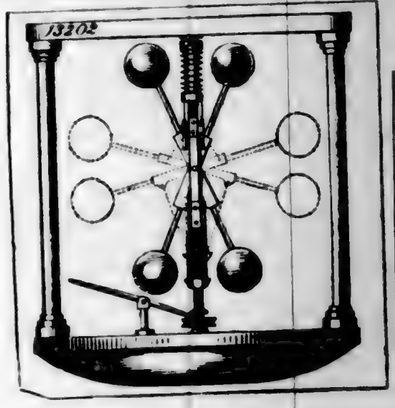
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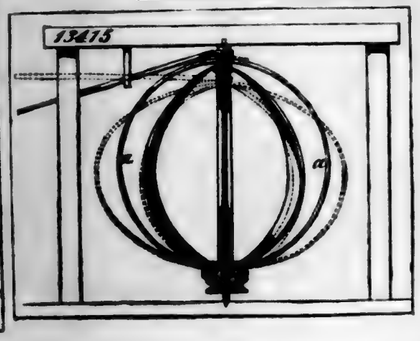
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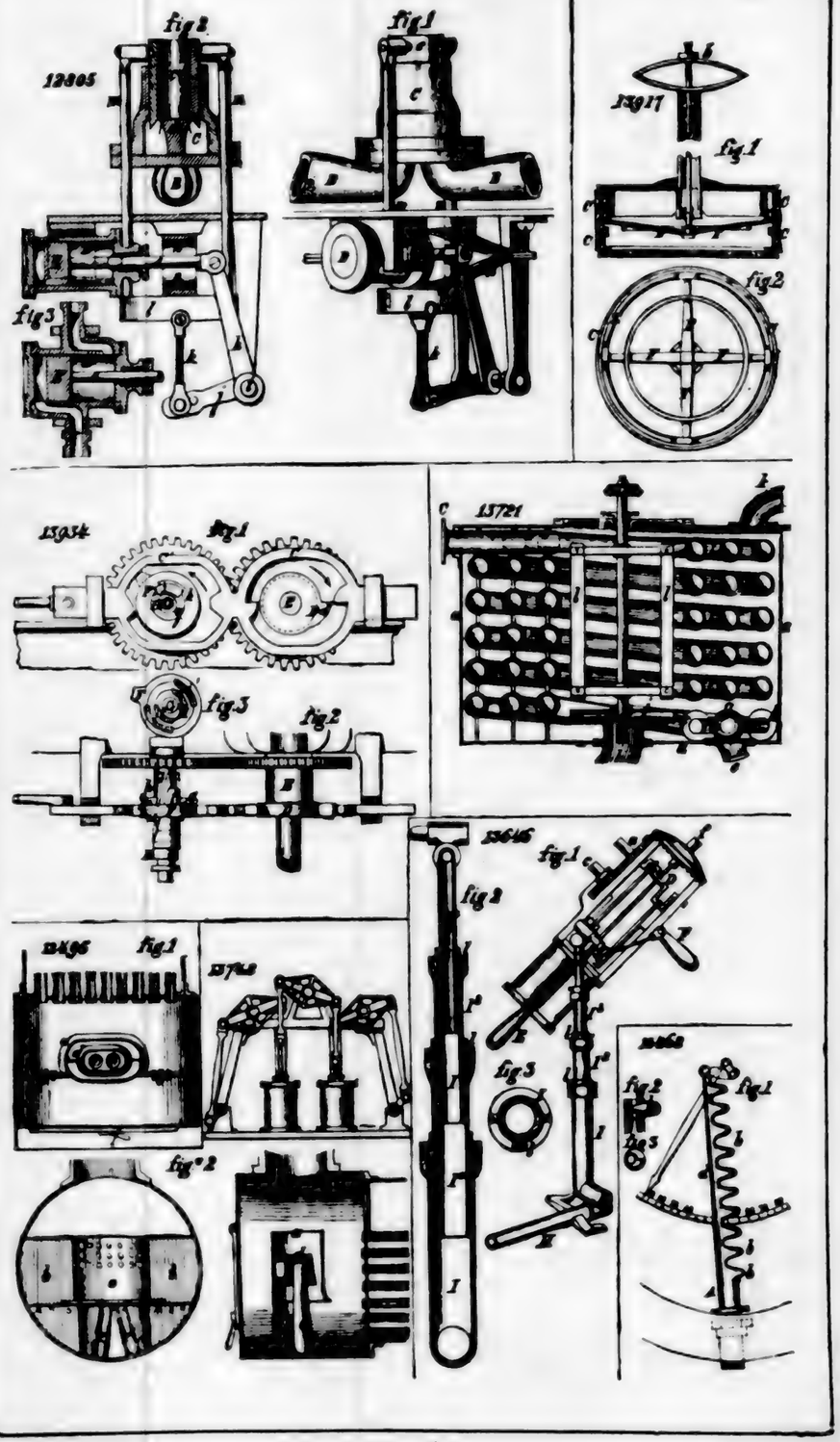


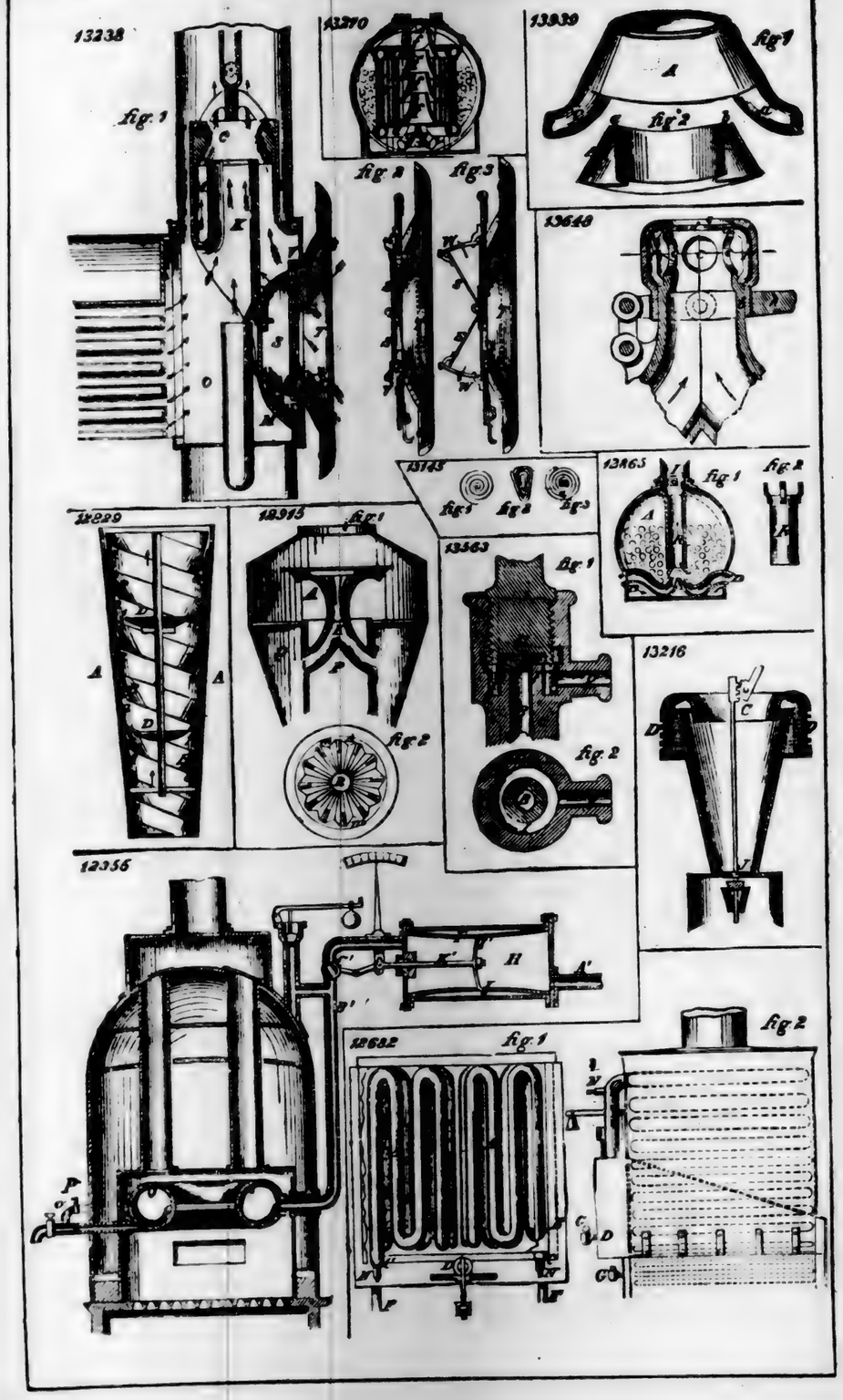
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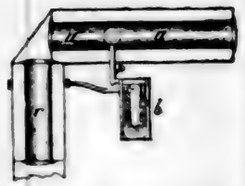
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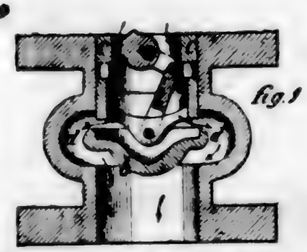
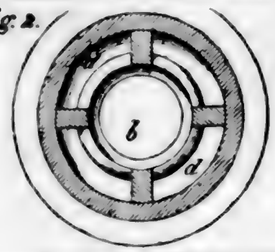


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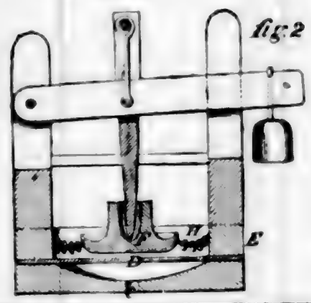


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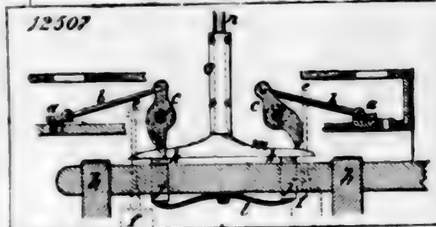


fig. 1

fig. 2



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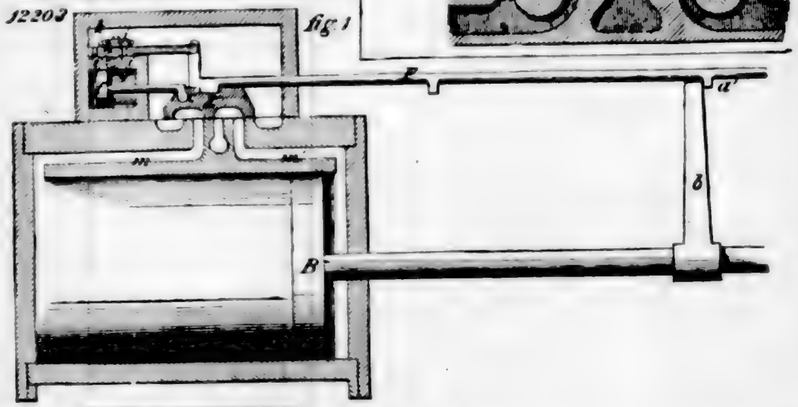
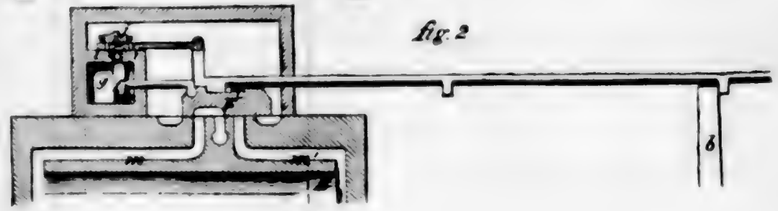


fig. 2



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fig. 1

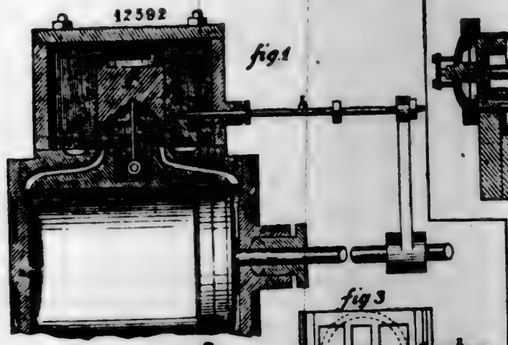


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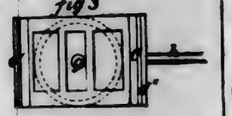
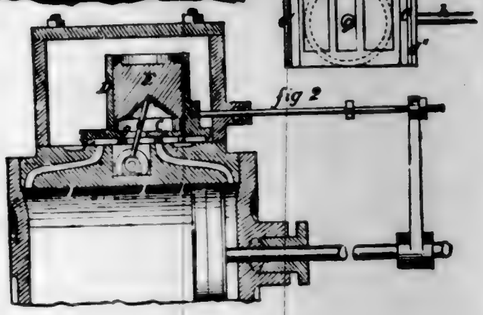


fig. 2



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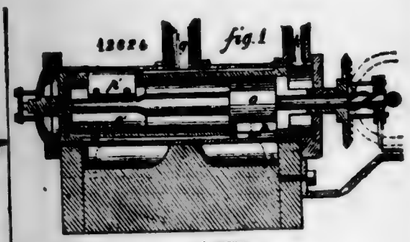


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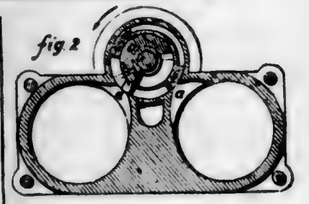


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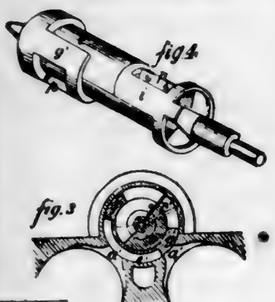
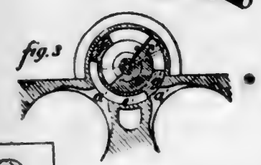


fig. 3



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fig. 1

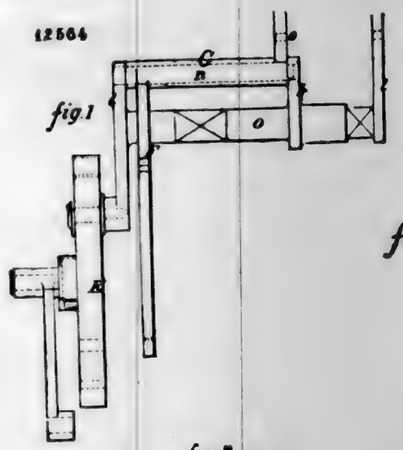


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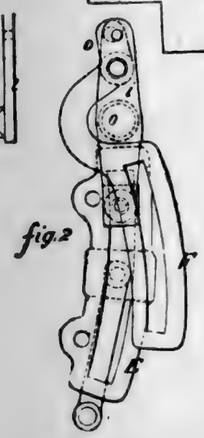


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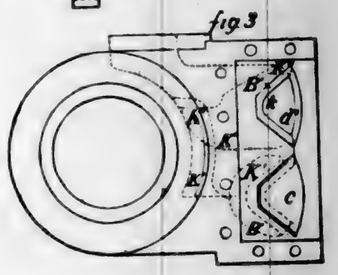
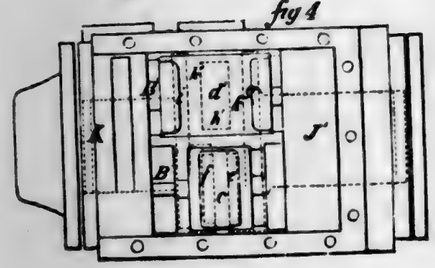


fig. 4



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fig. 2

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fig. 2

fig. 3

fig. 4

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fig. 2

fig. 3

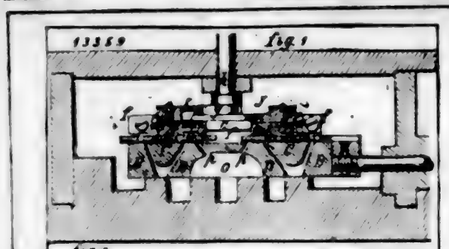
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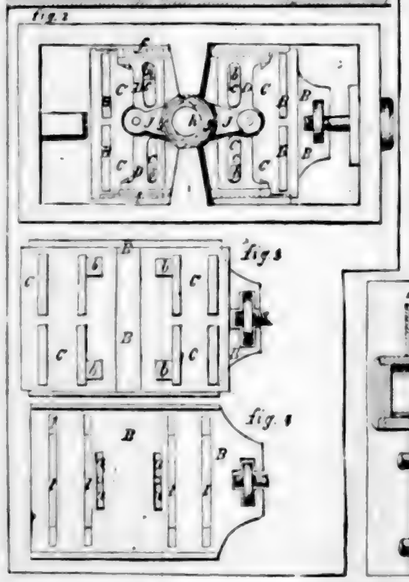
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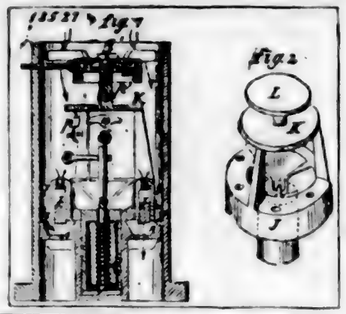
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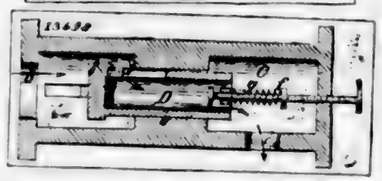
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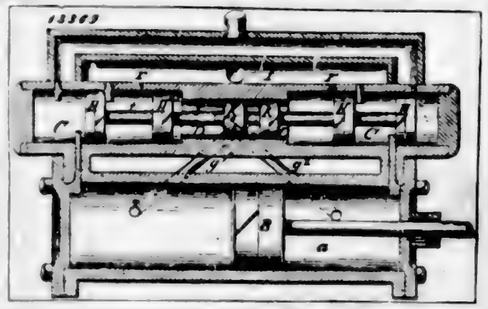
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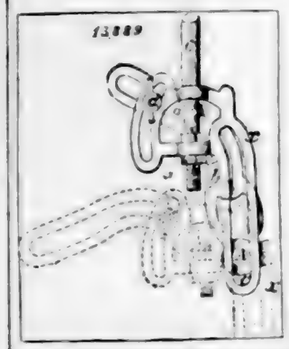

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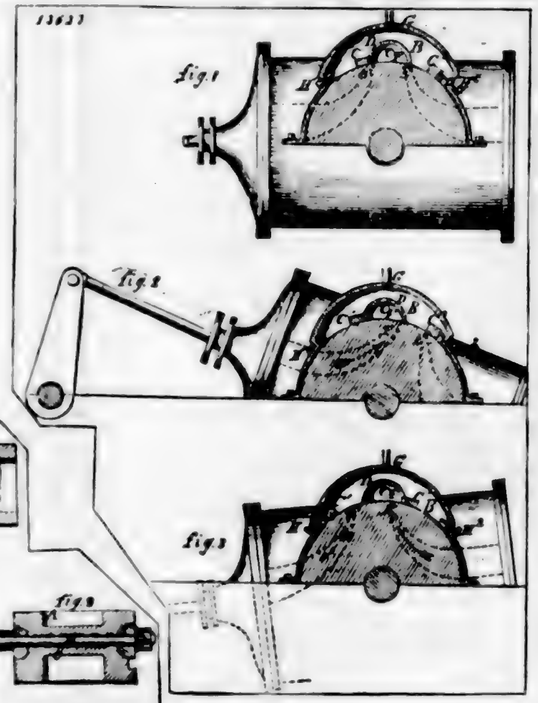

fig. 2
fig. 3
fig. 4

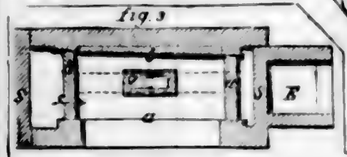

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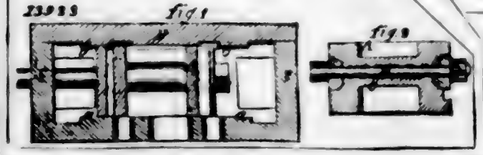

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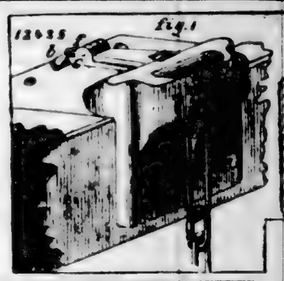

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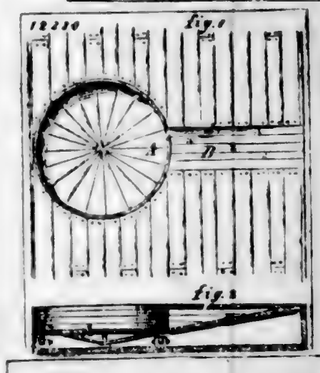

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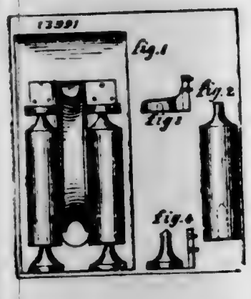

13633
fig. 1
fig. 2
fig. 3

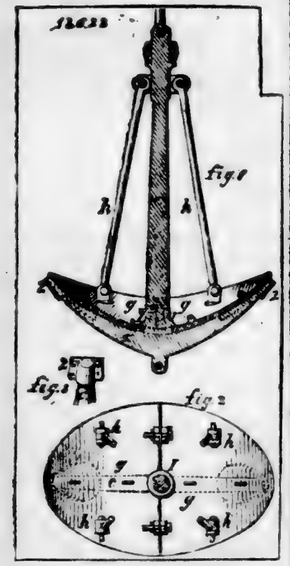

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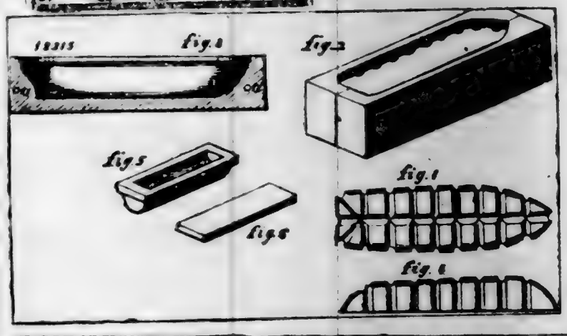

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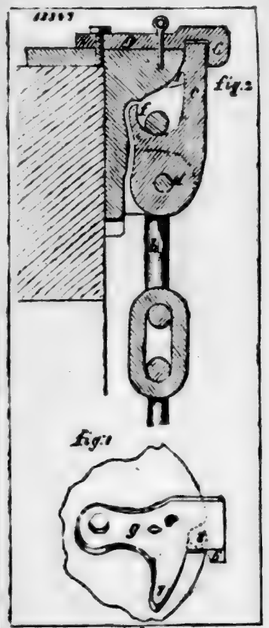

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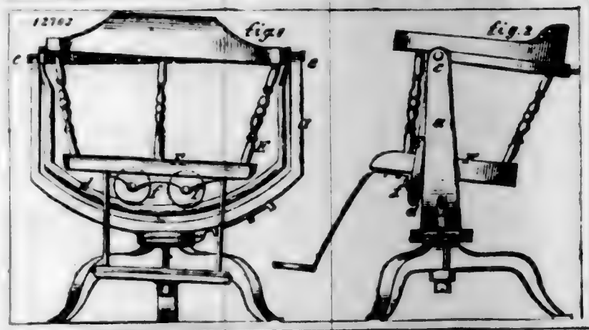

12330
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fig. 2
fig. 3

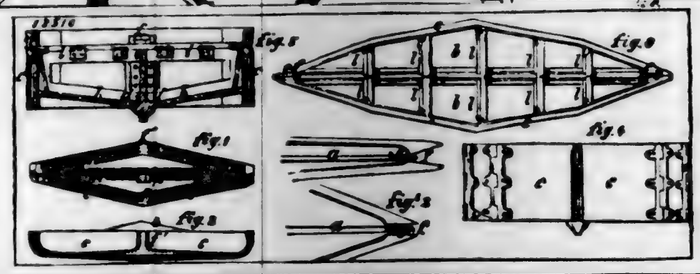

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fig. 1
fig. 2
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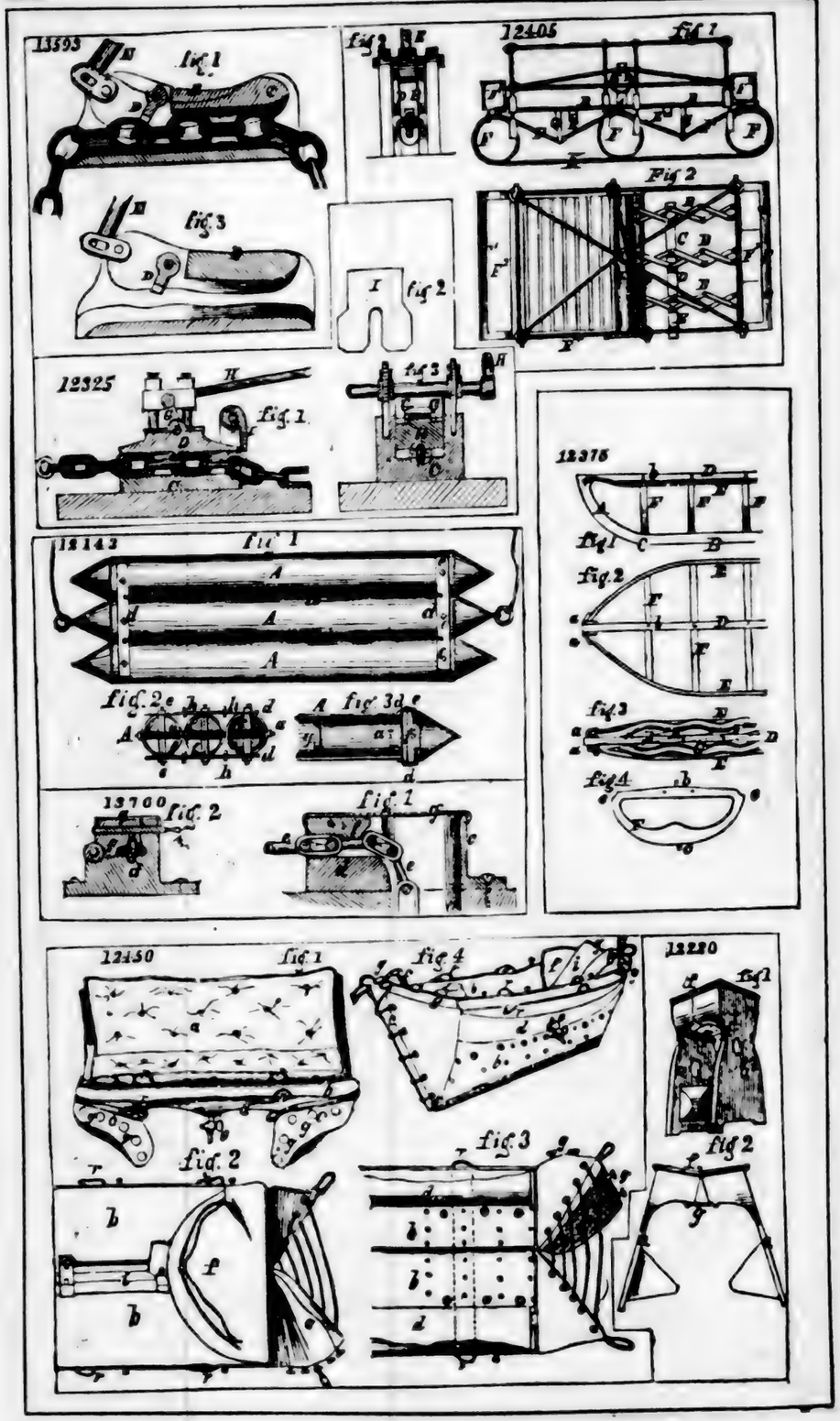

12633
fig. 1
fig. 2
fig. 3

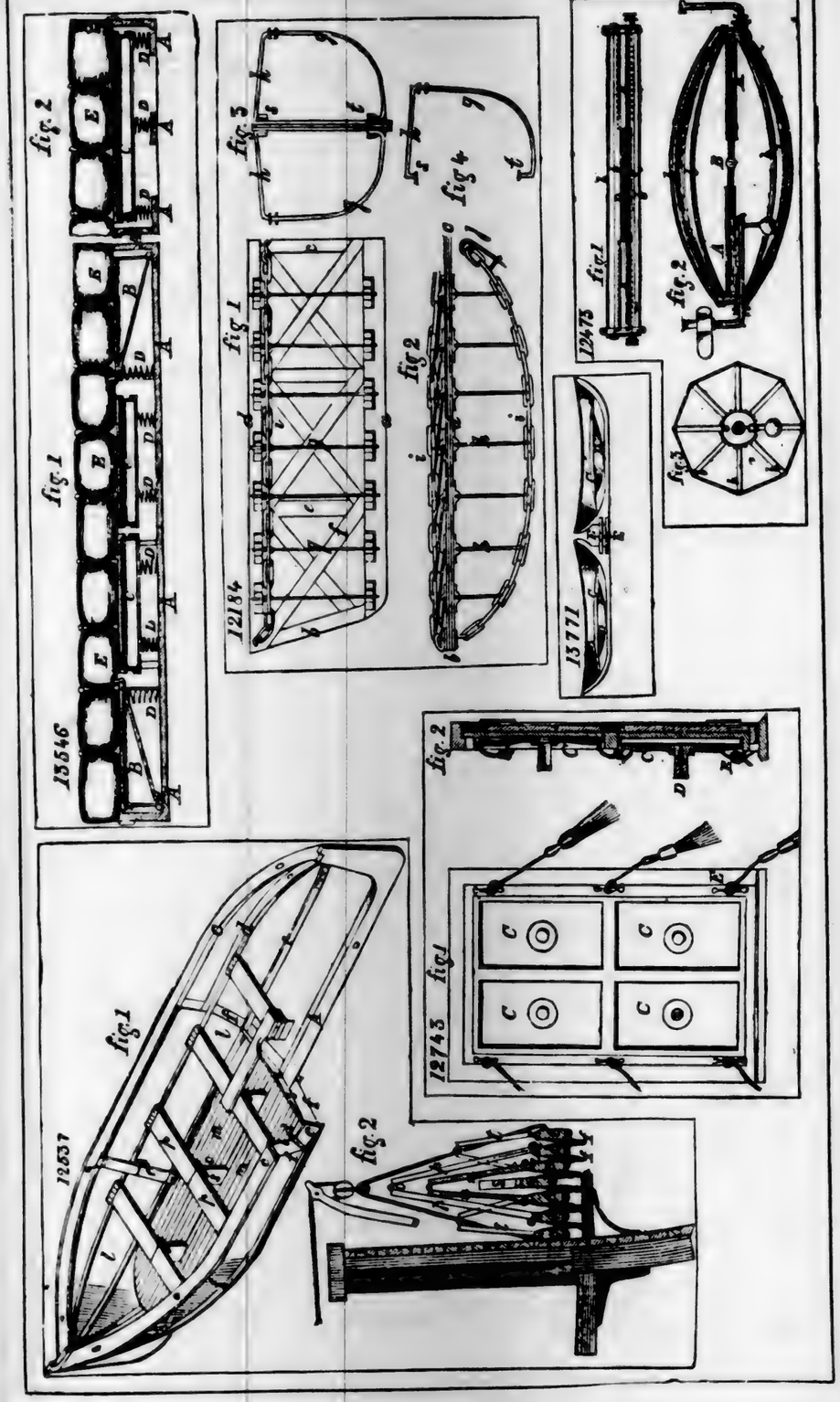

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fig. 3
fig. 4
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fig. 6

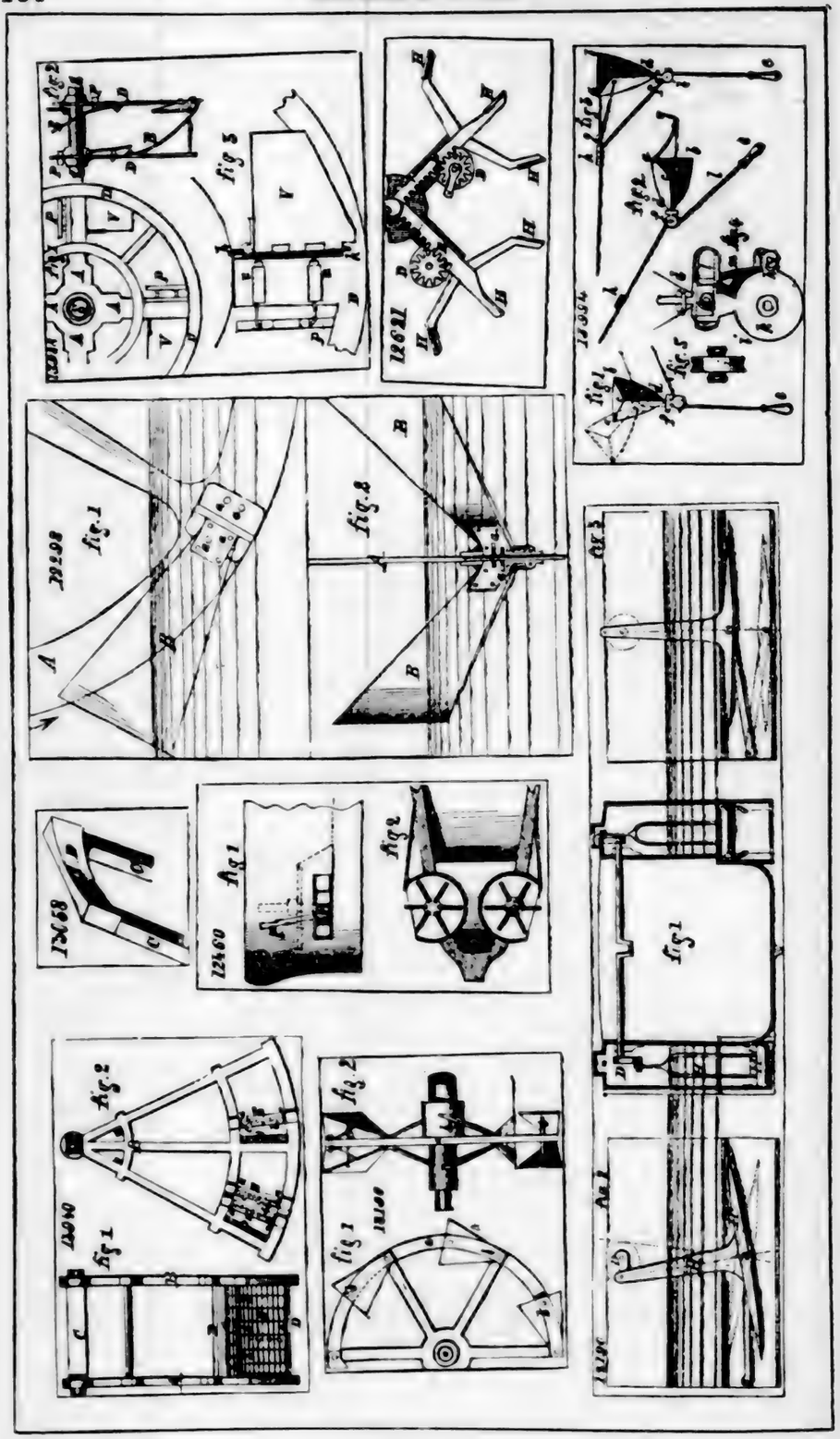

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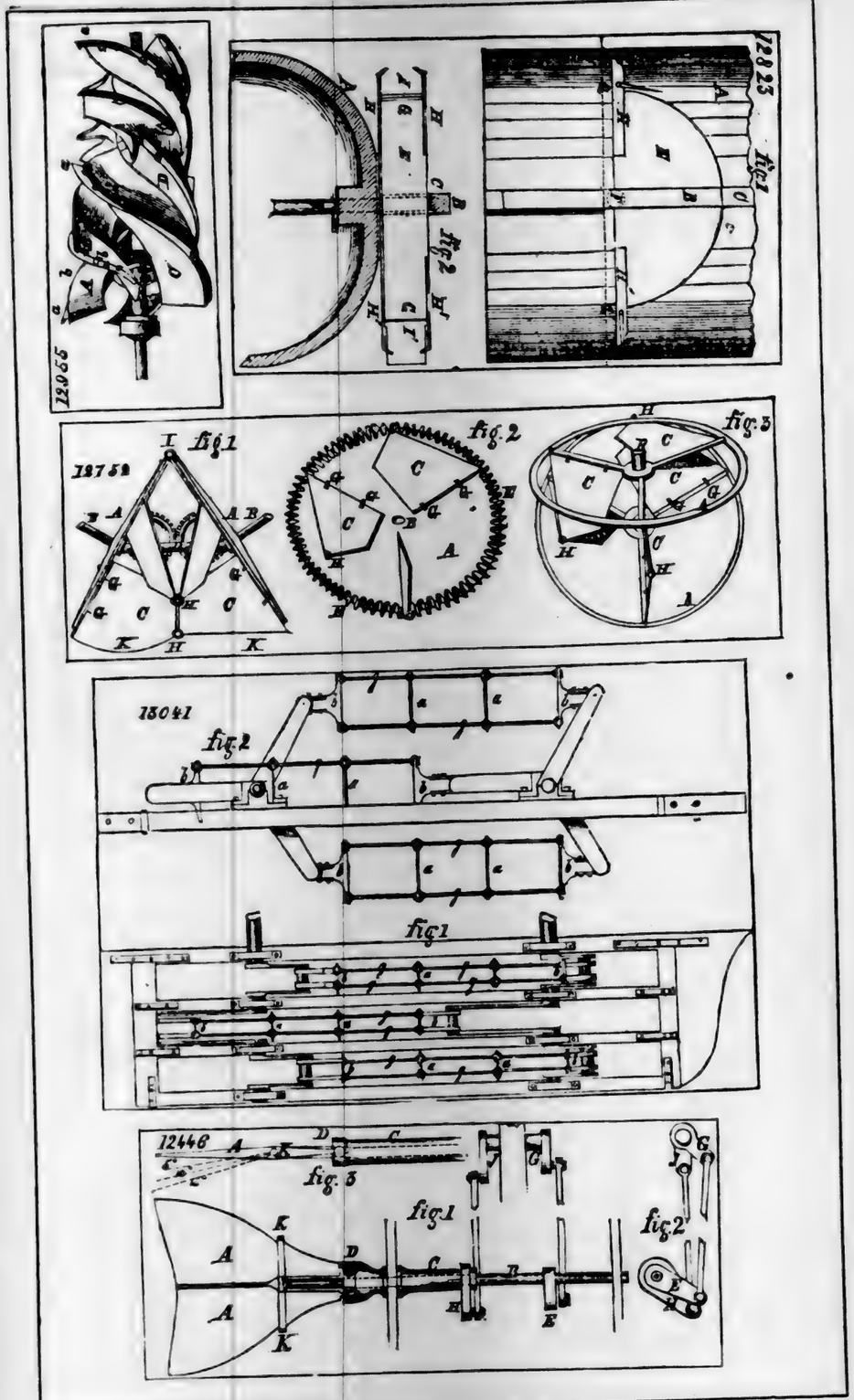

12762
fig. 1
fig. 2


13516
fig. 1
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fig. 6


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Fig 2
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fig. 2

13078 fig. 1

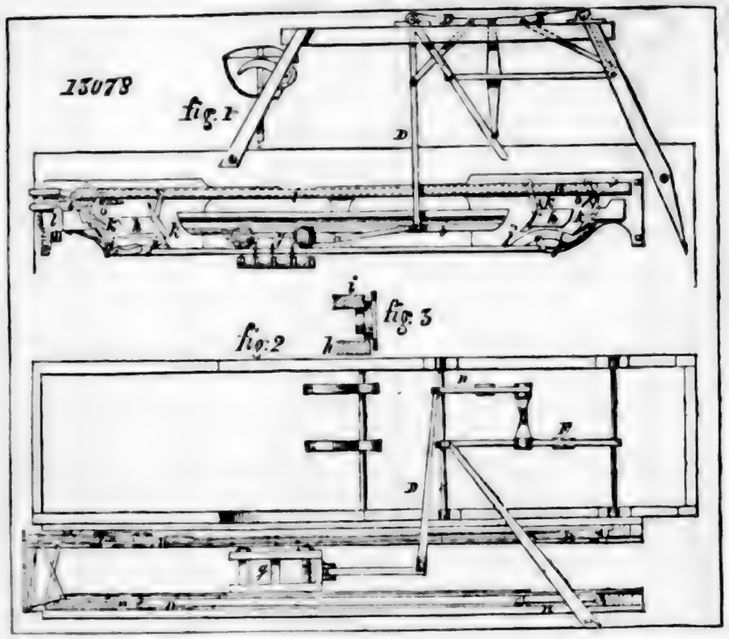


fig. 2 fig. 3

13536 fig. 1 fig. 3

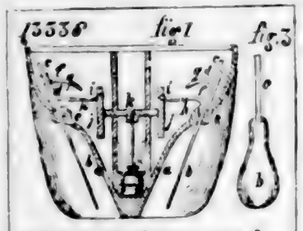
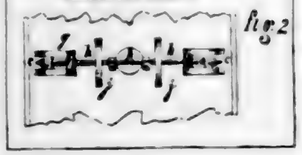
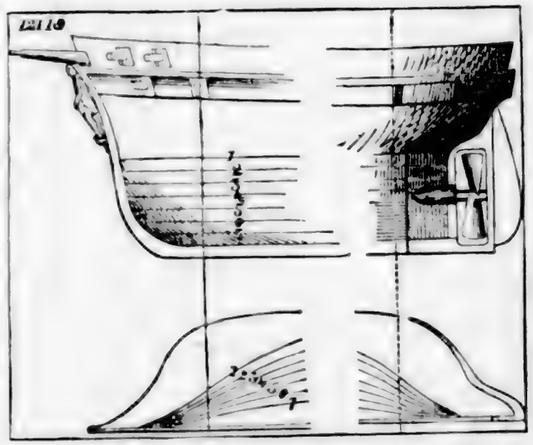


fig. 2



12118



13394 fig. 1

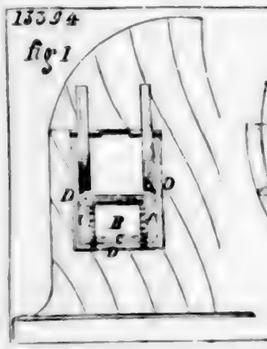
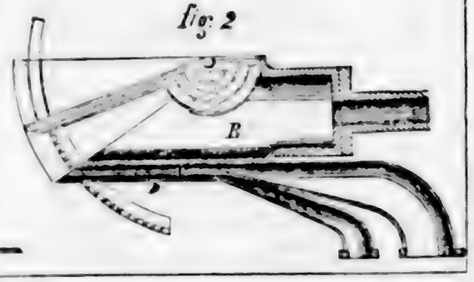


fig. 2



13861 fig. 1

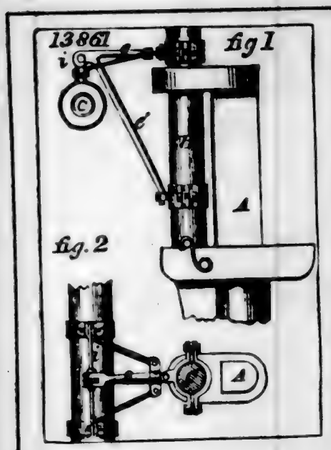
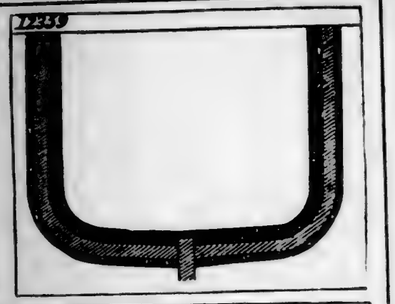


fig. 2

12339



13231



13601 fig. 1

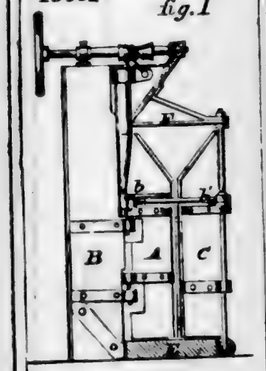
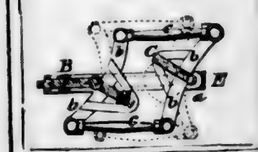
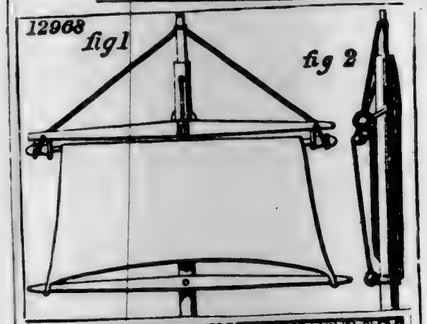


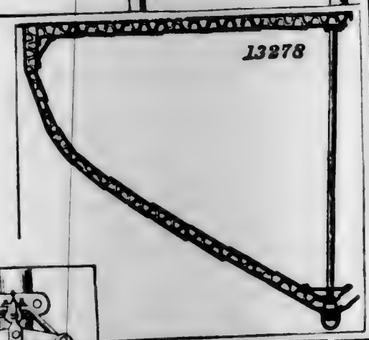
fig. 2



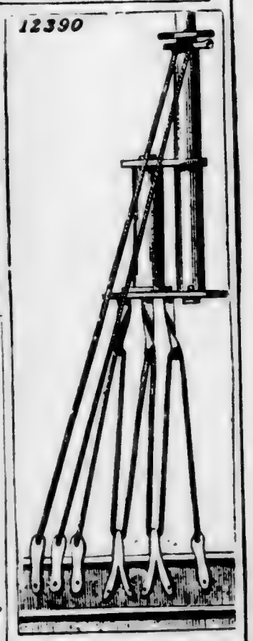
12968 fig 1 fig 2



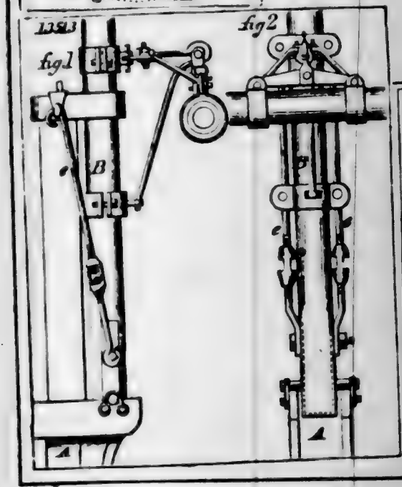
13278



12390



13283 fig 1 fig 2



12620 fig 1

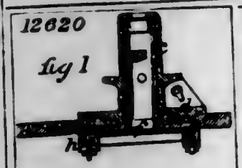
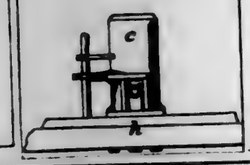
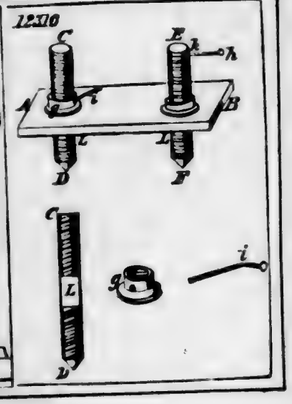
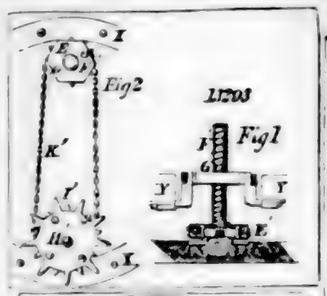


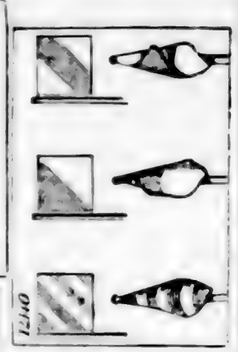
fig. 2

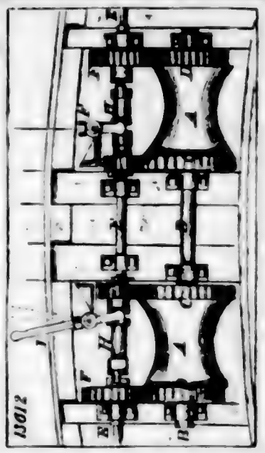


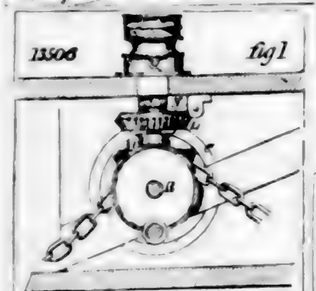
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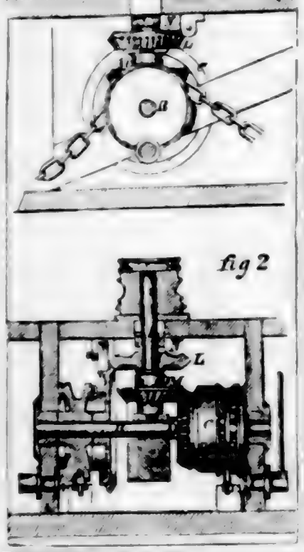


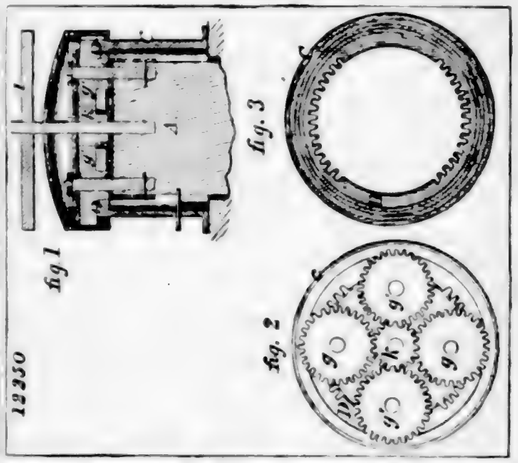

Fig2
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Fig1

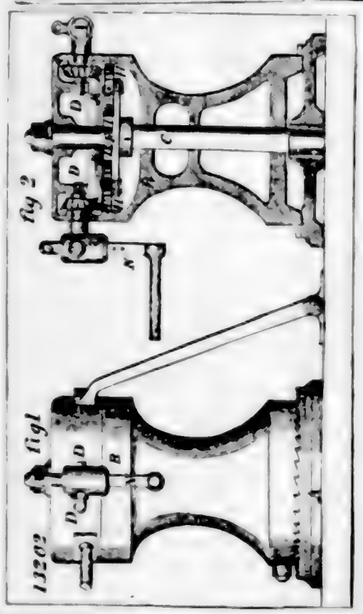


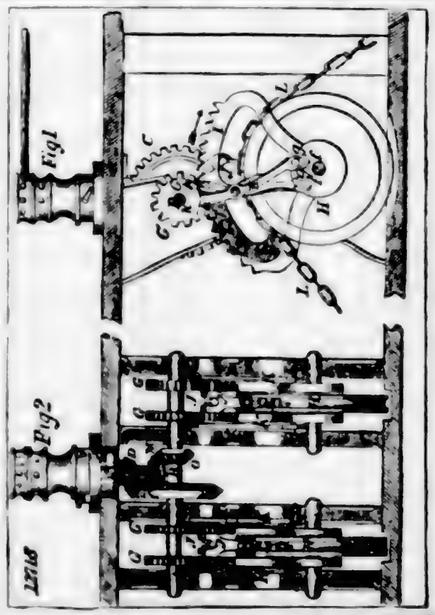

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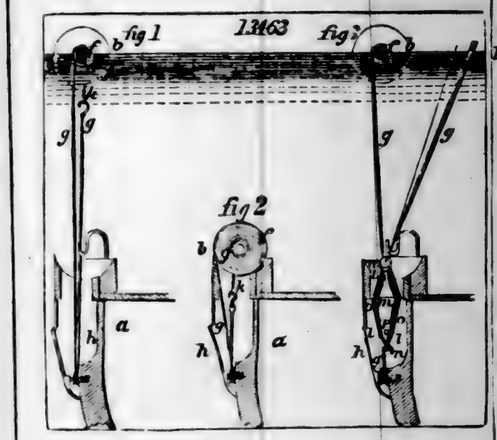

13506
fig1

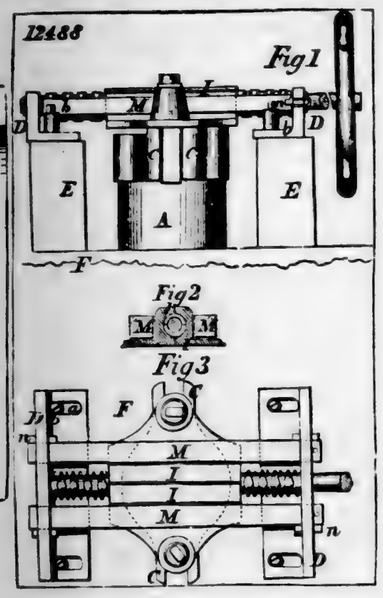

fig 2
12350


fig 3
fig 1
fig. 2


fig 2
fig1
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Fig1
Fig2
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fig 1
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fig 2


12488
Fig1
Fig2
Fig3

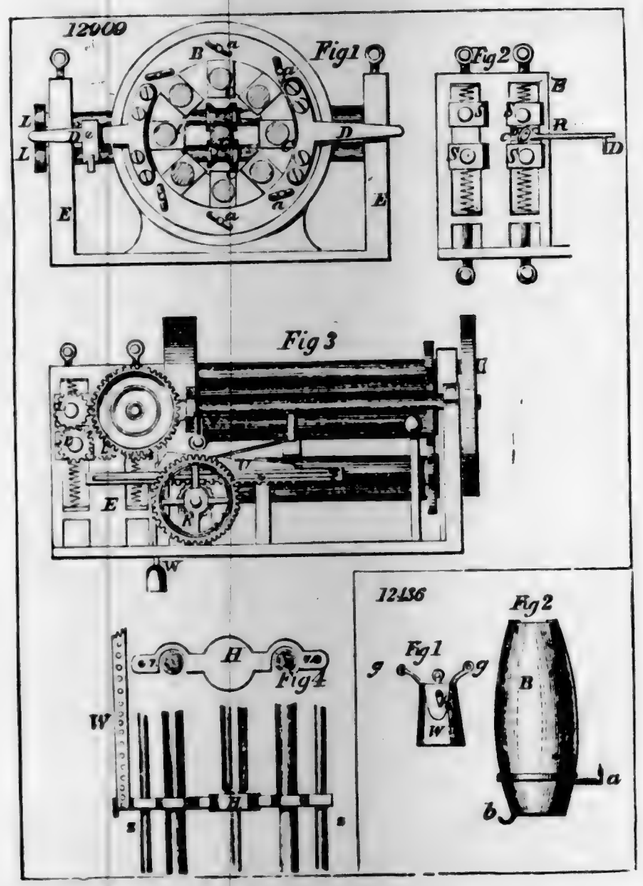

12009
Fig1
Fig2
Fig3

Fig4

12436
Fig1
Fig2

13006

fig 1

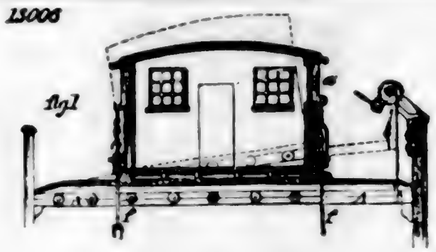
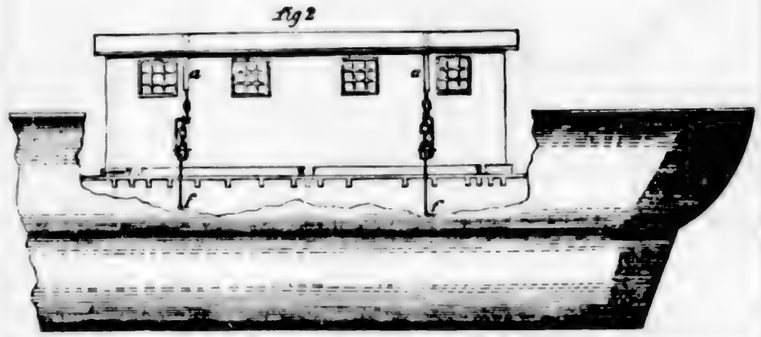
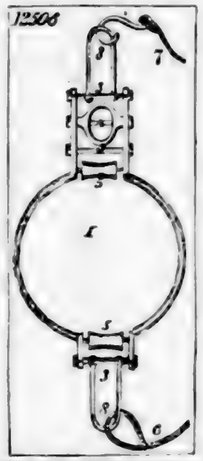


fig 2



12506



13030

fig 1

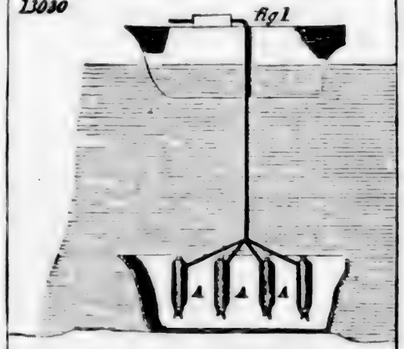


fig 2



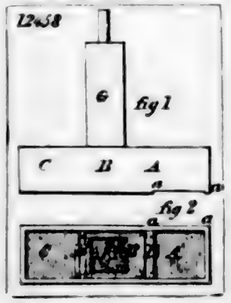
fig 3



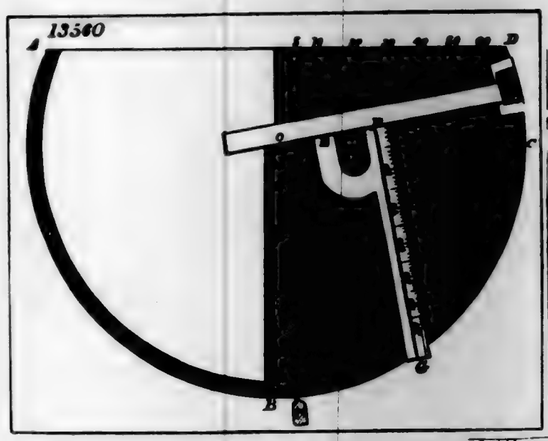
fig 4



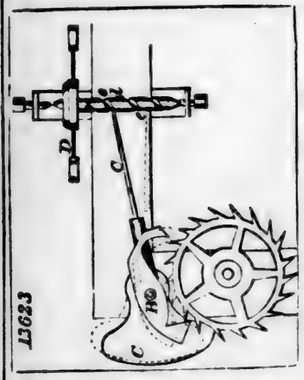
12458



13560



13623



13870 fig 1

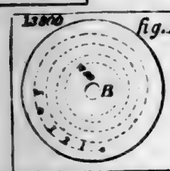
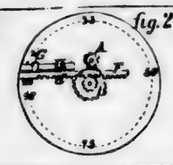
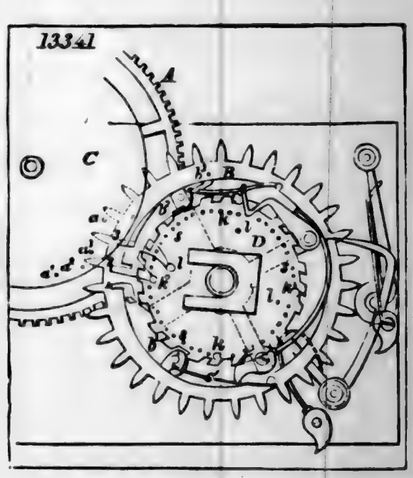


fig 2



13341



13993

fig 1

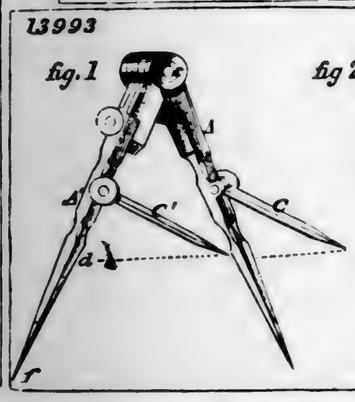


fig 2



12855

fig 1

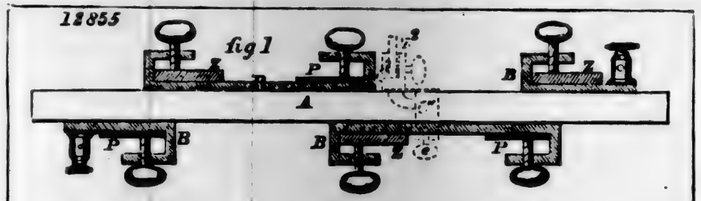


fig 2



fig 3



13534 fig. 1 fig. 3

13481

13603

fig. 4

12196 fig. 1 E fig. 2 E

fig. 2

13162 fig. 1 fig. 2 fig. 3

13615 fig. 1 fig. 2

12384 fig. 1

fig. 3 E fig. 2

13833 fig. 1 fig. 2

12920 fig 1 fig 2 fig 3

13589 fig 1 fig 2 fig 3

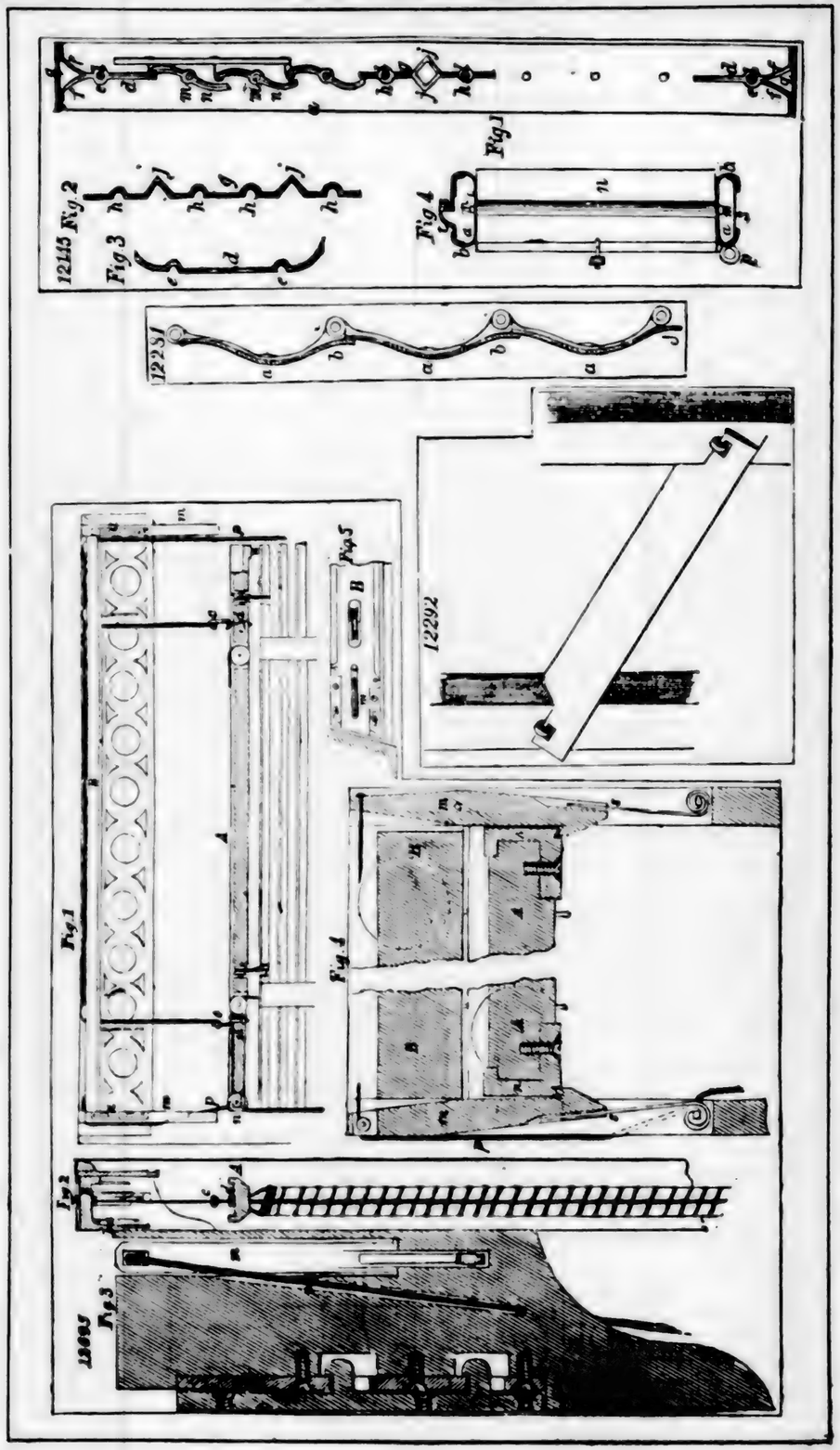
13977 fig 1 fig 2

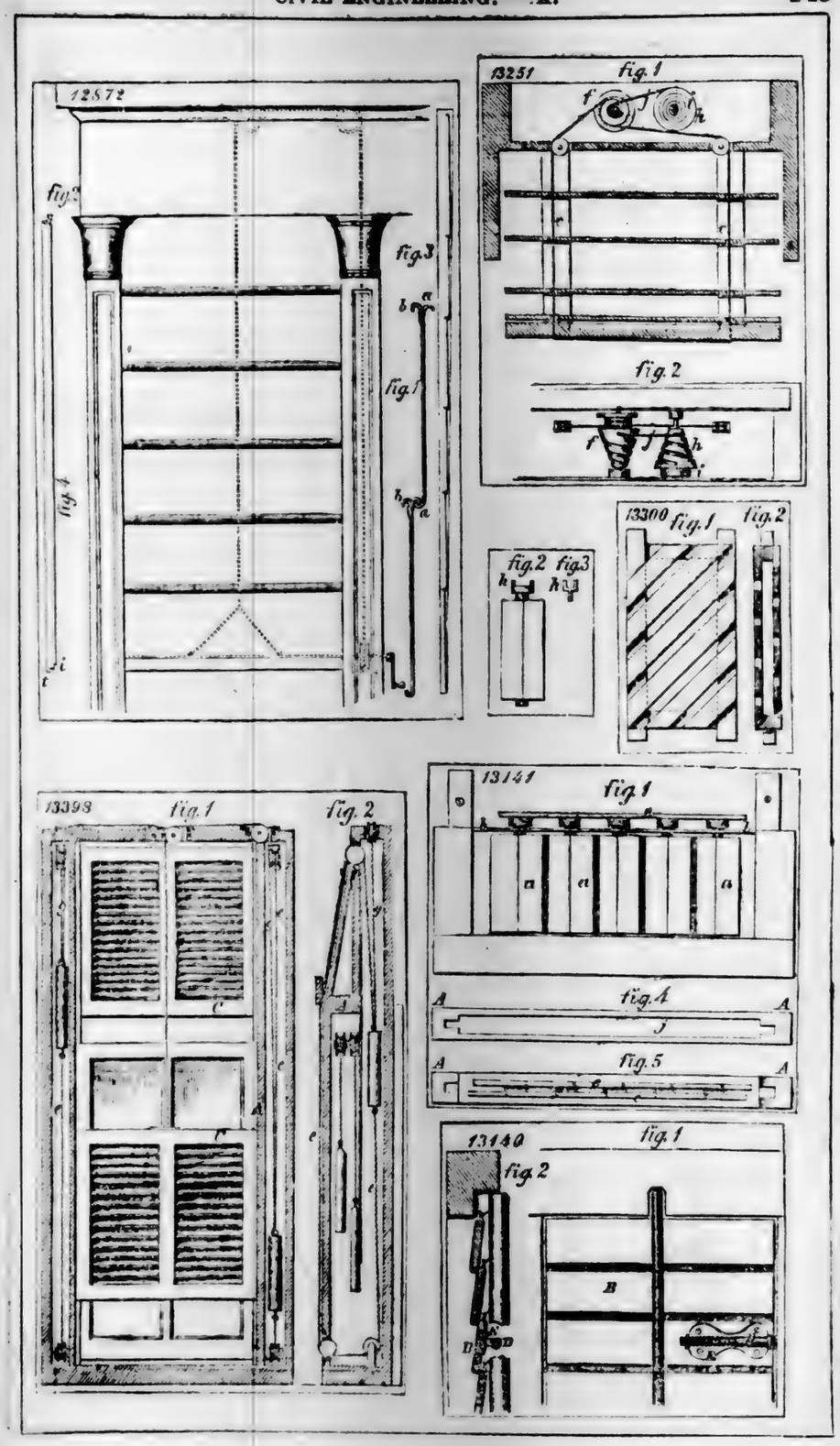
13519 fig. 1 fig. 2

13665 fig 1 fig 2

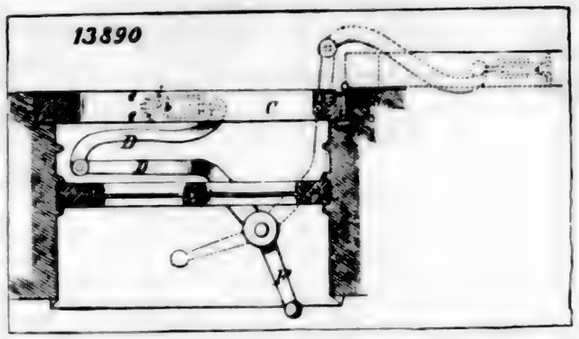
13655

12129 fig 1 fig 2 fig 3


12145 Fig 2
Fig 3
Fig 1
Fig 4
12251
12292
Fig 5
Fig 1
Fig 4
Fig 2
Fig 3
13865


12572
fig 2
fig 3
fig 1
fig 4
13251 fig 1
fig 2
13300 fig 1
fig 2
fig 2 fig 3
13393 fig 1
fig 2
13141 fig 1
fig 4
fig 5
13140 fig 1
fig 2

13890



12303

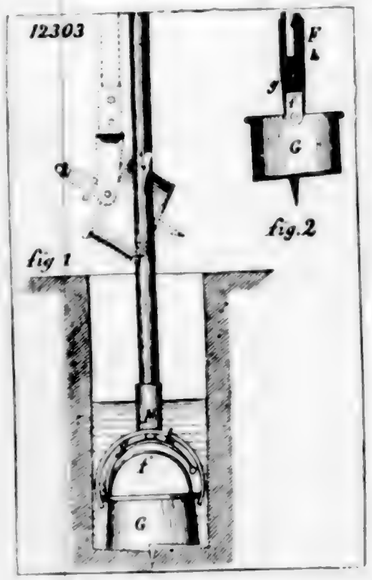


fig 1

fig.2

13980 fig.1 fig.2

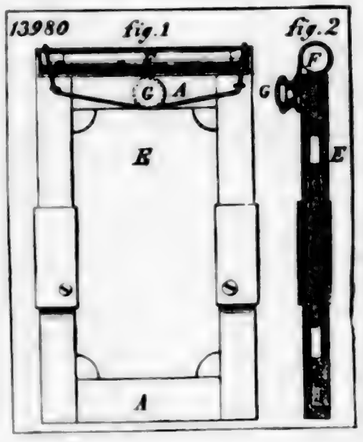


fig 3

fig 4

13500

fig.1

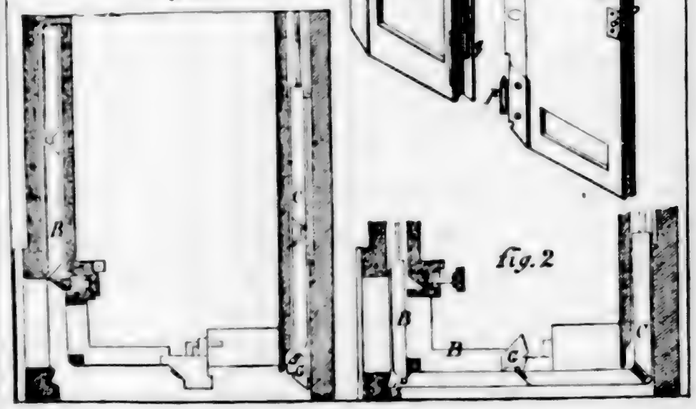


fig.2

12668

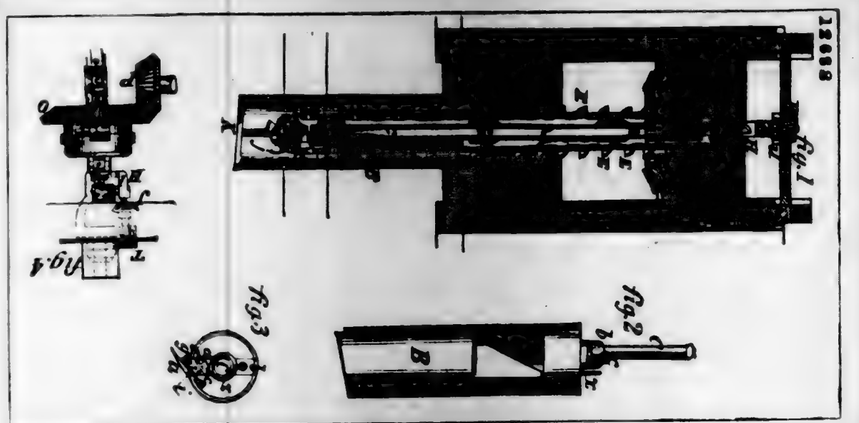


fig.1

fig.2

fig.3

fig.4

12663

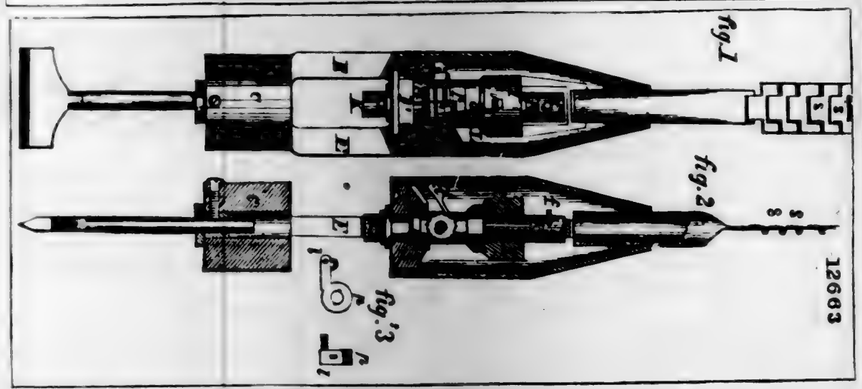


fig.1

fig.2

fig.3

12708

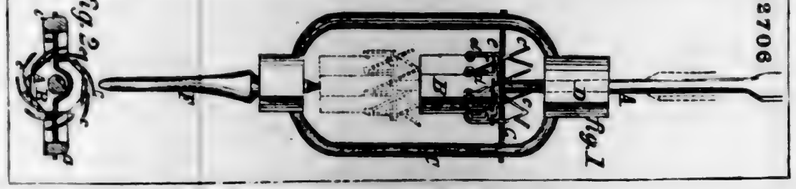


Fig.2

Fig.1

12328

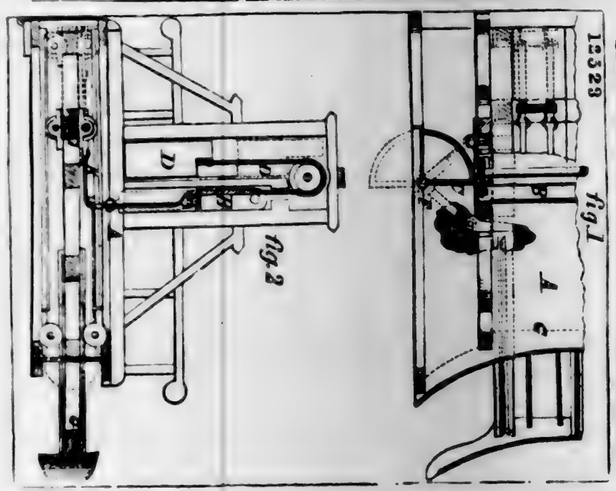
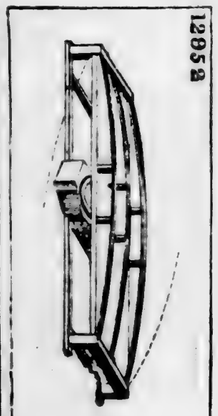


fig.2

fig.1

12852



13258

fig. 2

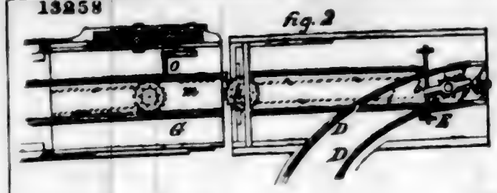


fig. 1

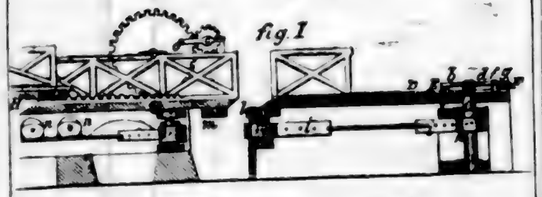


fig. 3

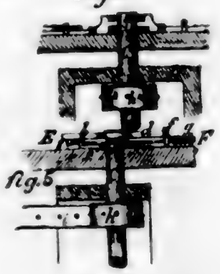


fig. 4

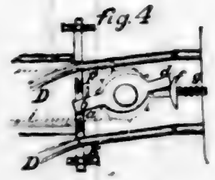
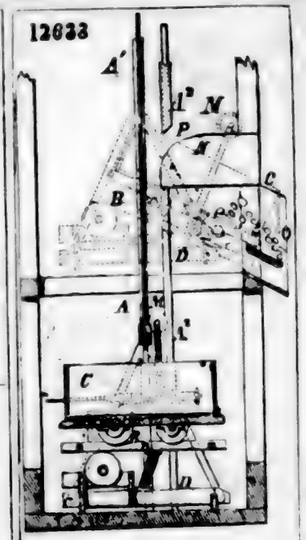


fig. 5

12633



13379 fig 1

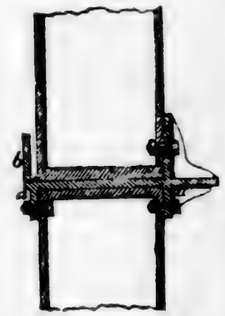
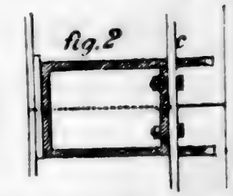


fig. 2



13461 fig. 1

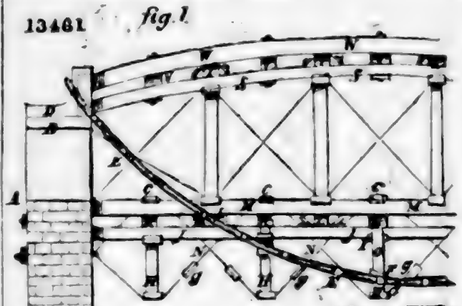


fig. 2



12642



12131

fig. 1

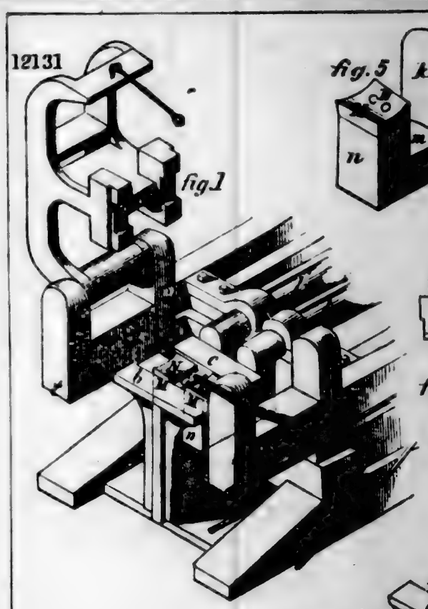


fig. 5

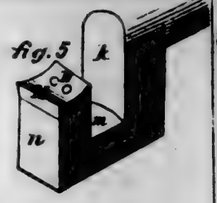


fig. 6



fig 7



fig. 2

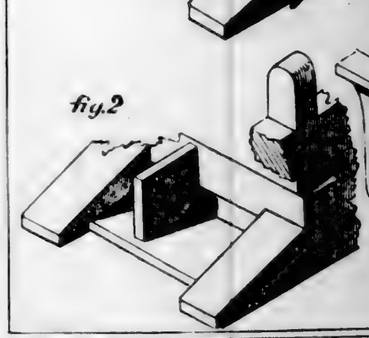


fig. 3



fig. 4



13313

fig. 1

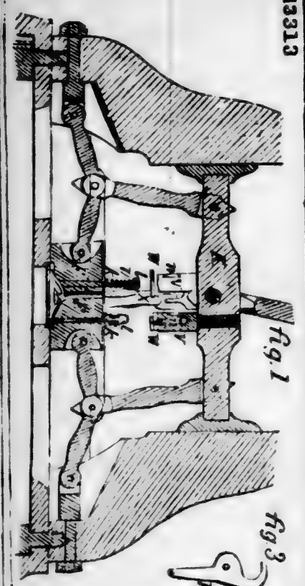
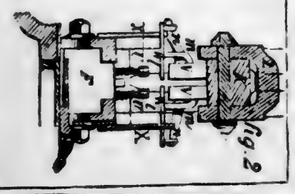
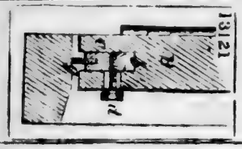


fig. 2



13121



12388

fig. 1

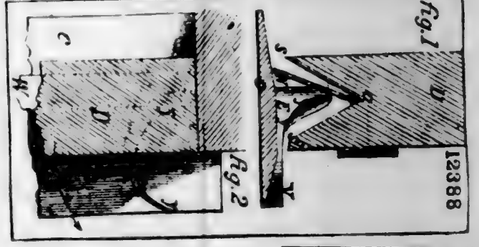


fig. 2

12623

fig. 2

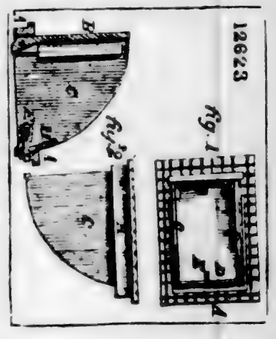


fig. 1

13090



12637

fig. 1

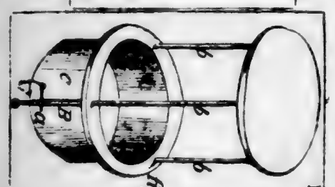
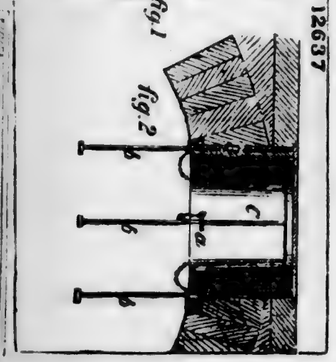


fig. 2



13279
fig 1

fig 2

fig 3

fig 5

fig 4

fig 6

13301
See Rgd 3.445 on page 151

fig 1

fig 2

Rgd 13501 see Rgd 98

fig 5a

fig 5b

fig 5c

fig 3

fig 4

13527

12514

12651

fig 2

fig 5

12730

fig 2

fig 1

12321

12921

12919

fig 1

fig 2

fig 3

15282

13680

fig. 1

fig. 2

13914

fig 1

fig 2

12930

12701

fig. 1.

fig. 2.

13100

fig 1

fig 2

13844

fig 1

fig 2

fig 3

fig 3

12790

fig 1

12652

fig 1

fig 2

13424

Fig. 1.

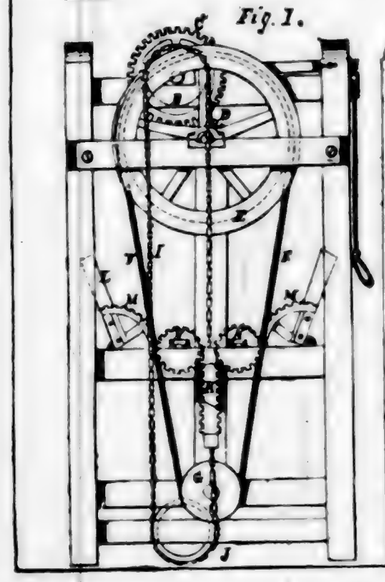
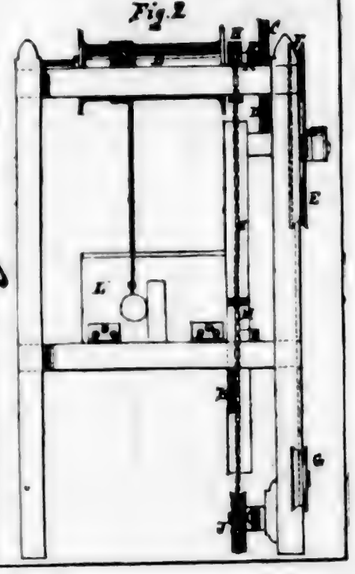


Fig. 2



13673

Fig. 1

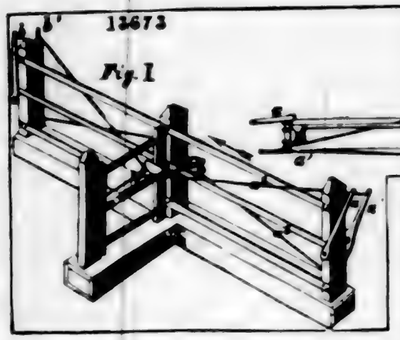
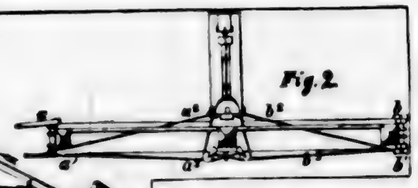
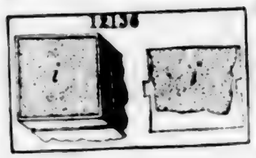


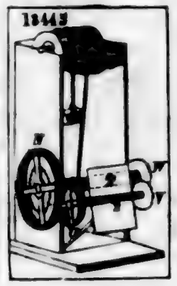
Fig. 2.



12136



13443



13658

Fig. 1.

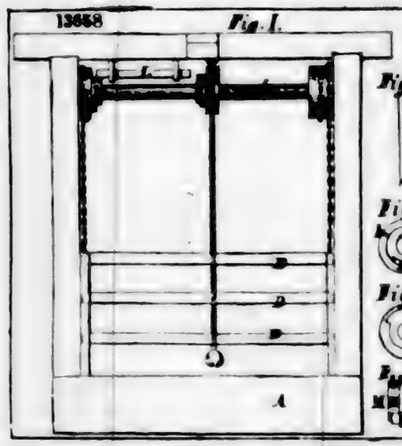


Fig. 2.

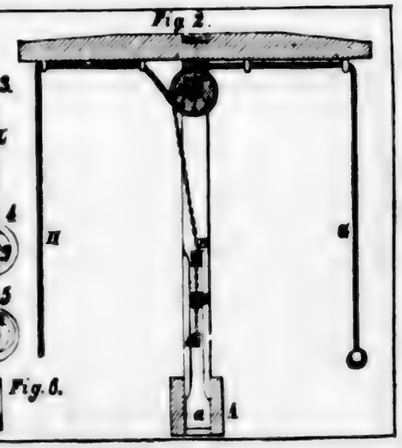


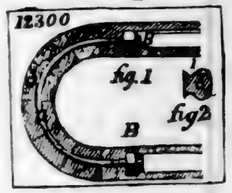
Fig. 3.

Fig. 4

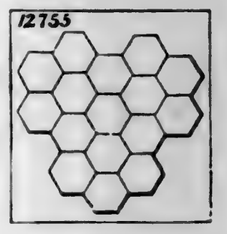
Fig. 5

Fig. 6.

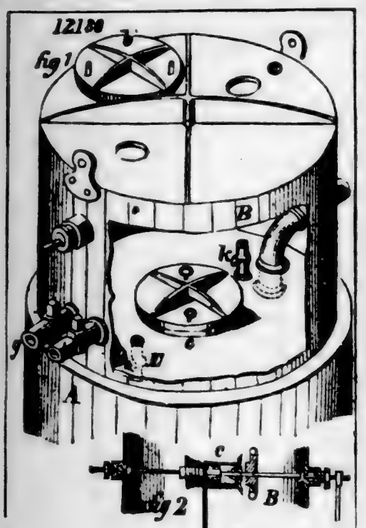
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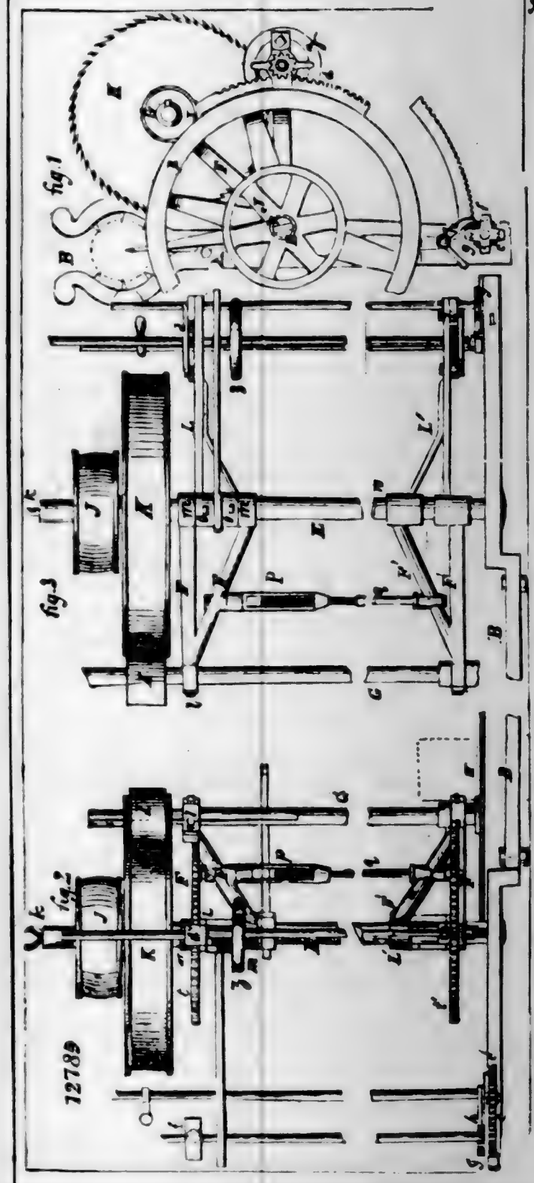


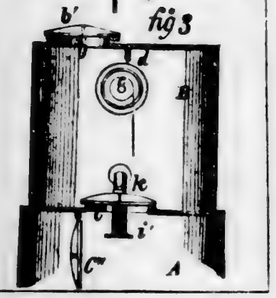
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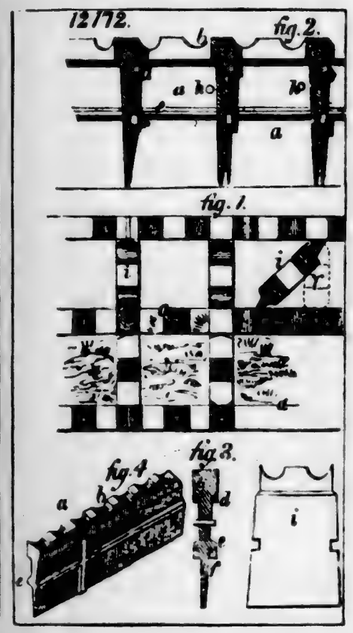
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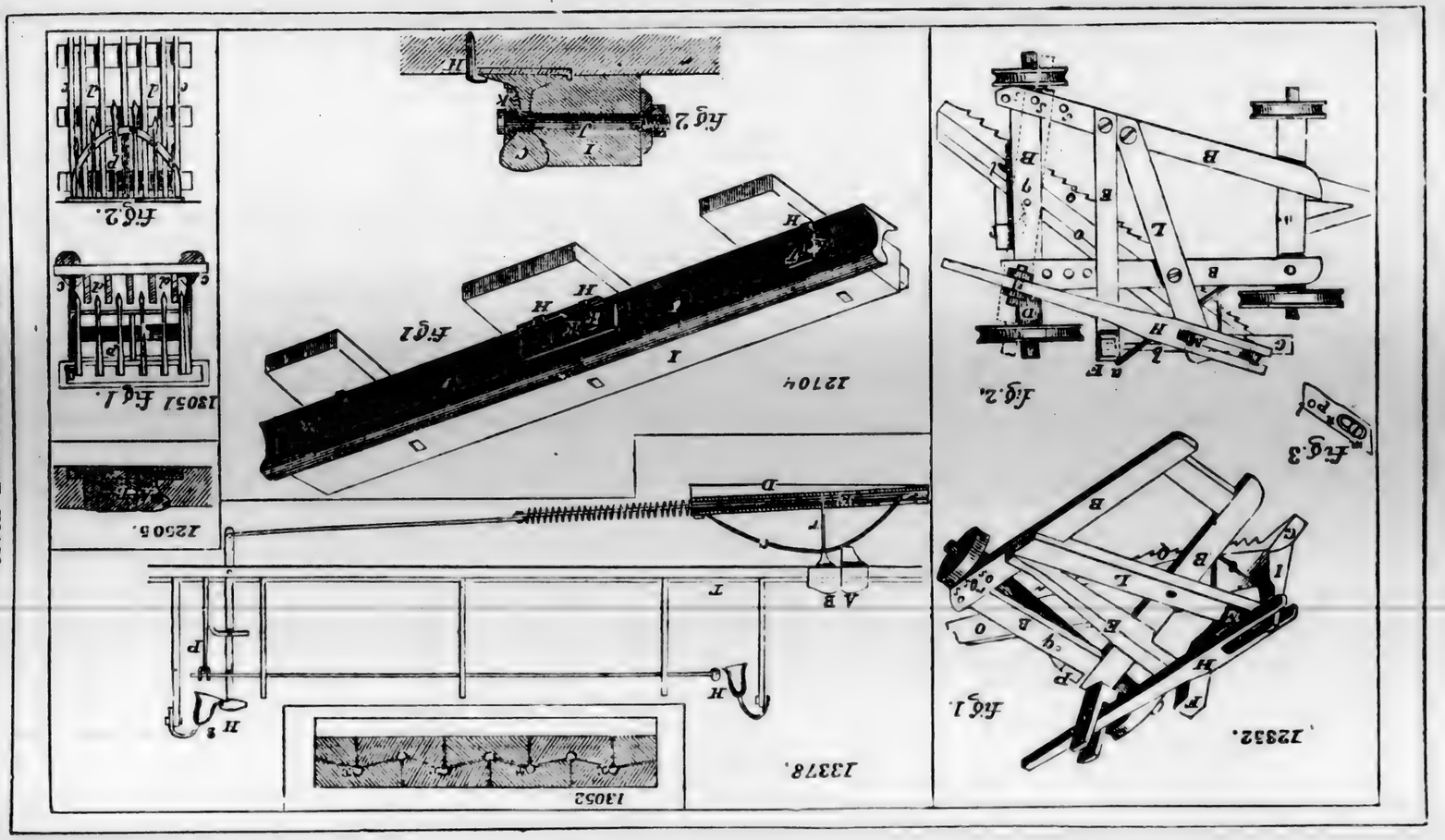


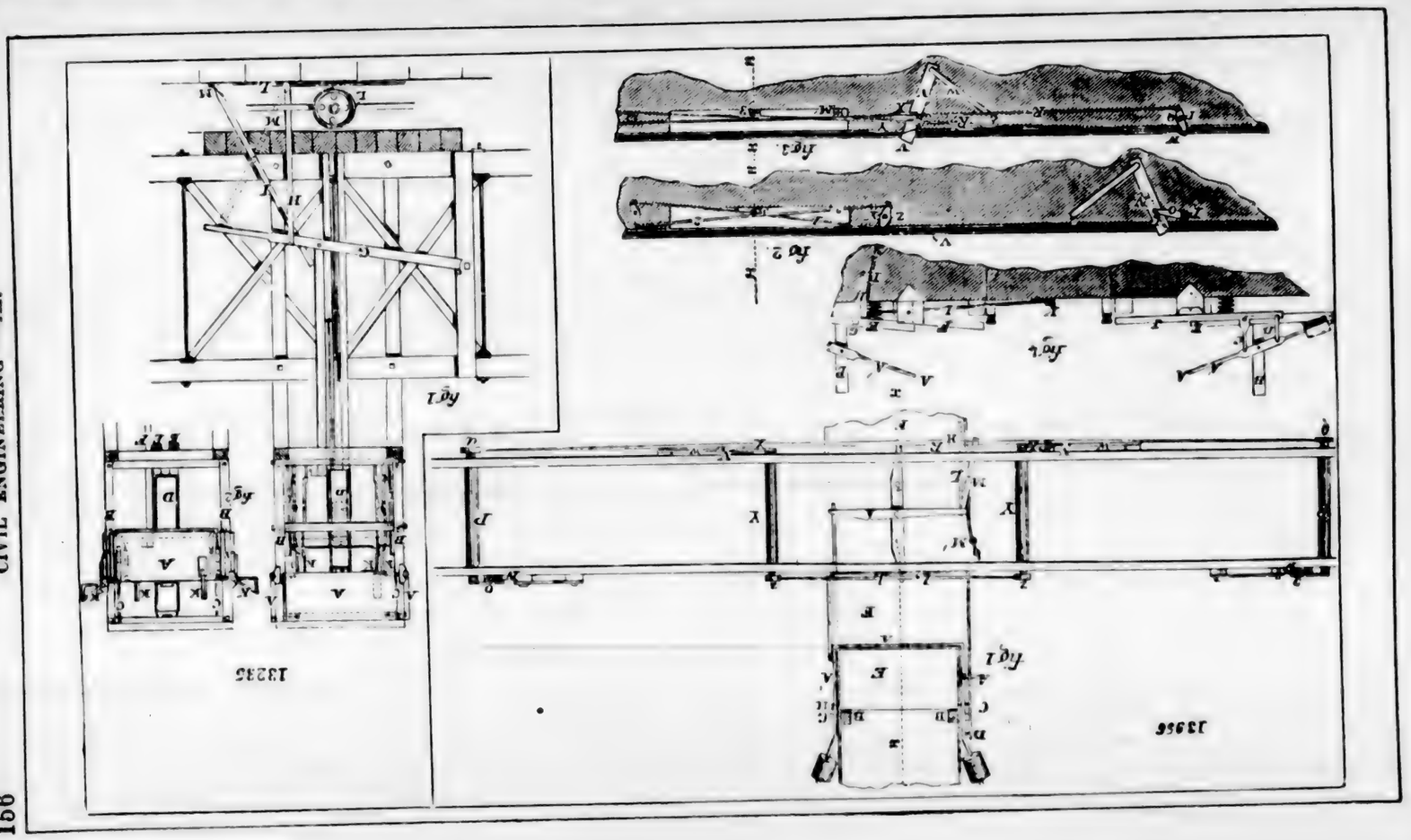




12172.







12906

Fig.1

Fig.2

Fig.3

13031

Fig.1

12716

Fig.1

Fig.2

Fig.4

Fig.3

Fig.3

12954

Fig.2

Fig.3

Fig.1

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Fig.3

Fig.1

Fig.2

13032 Fig.1

Fig.2

13034 Fig.1

Fig.2.

13435 Fig.1

Fig.2

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Fig.1

Fig.2

13863

13764

Fig.1.

Fig.2

12994 Fig. 1 Fig. 3

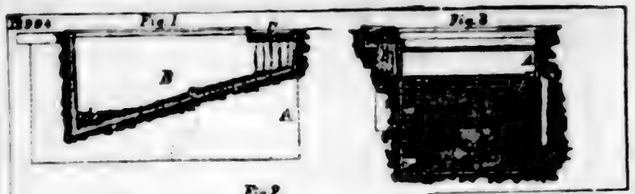
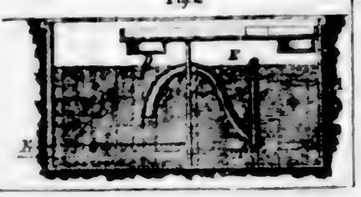
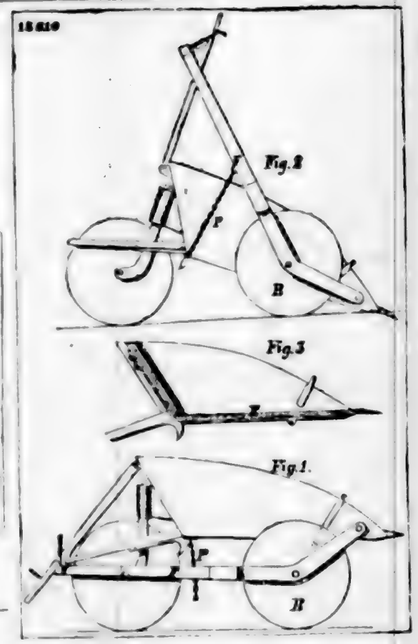


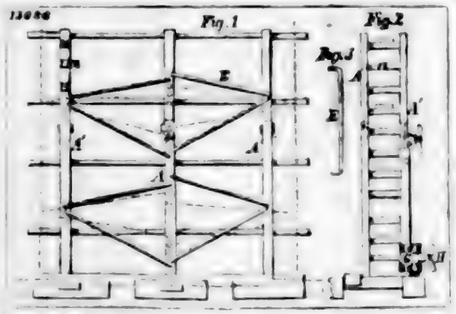
Fig. 2



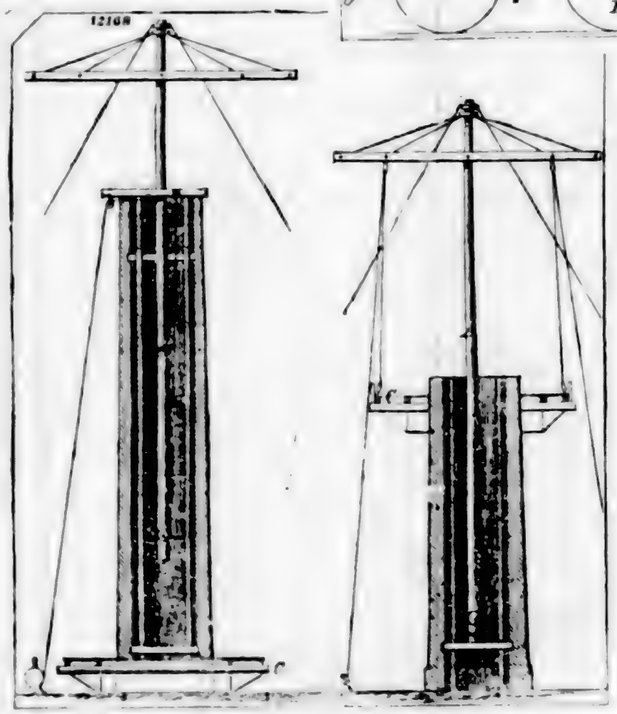
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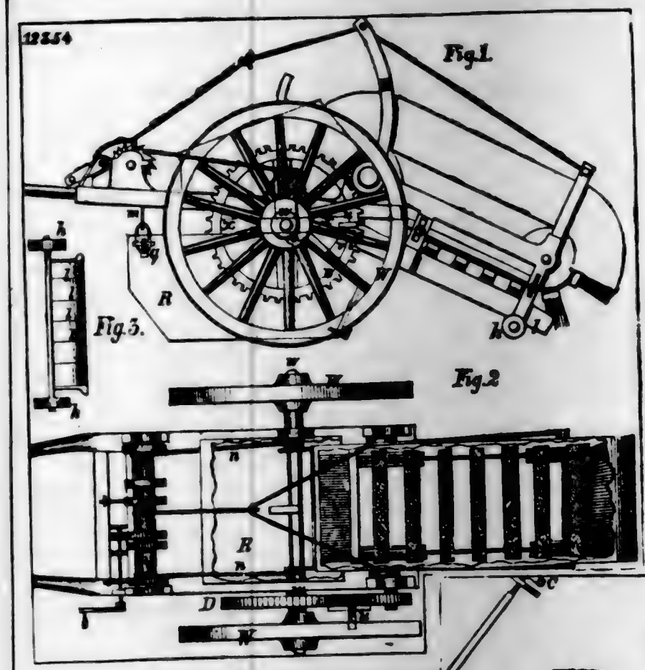
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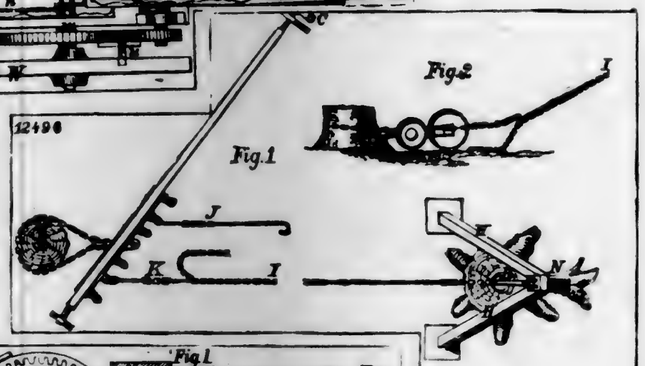
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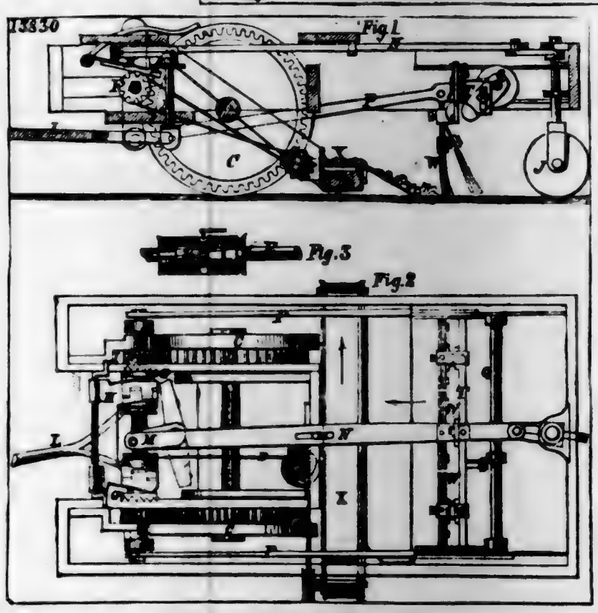
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12496



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12281

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

13059

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fig. 1

fig. 2

fig. 3

fig. 4

13352

12676

fig. 1

fig. 2

fig. 3

13513

fig. 1

fig. 2

13114

13088

12186

Fig. 1

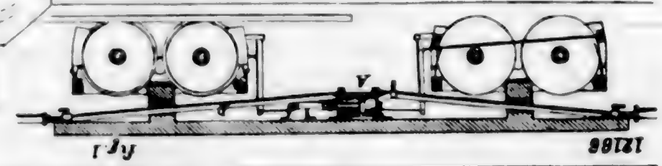
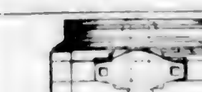


Fig. 2



Fig. 3



12263

Fig. 1

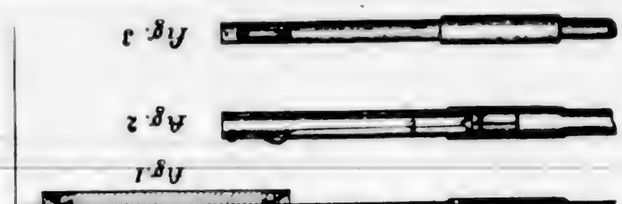


Fig. 2



Fig. 3



12552

Fig. 1

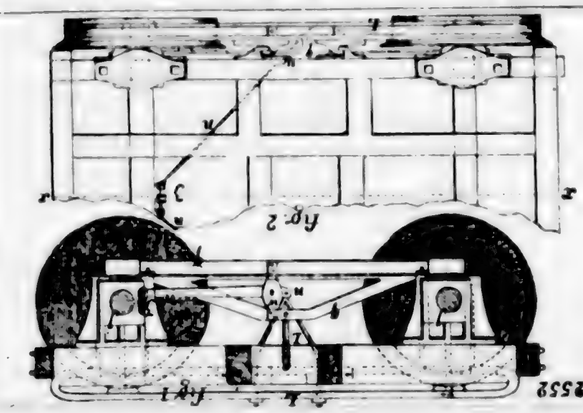


Fig. 2

12238

Fig. 1

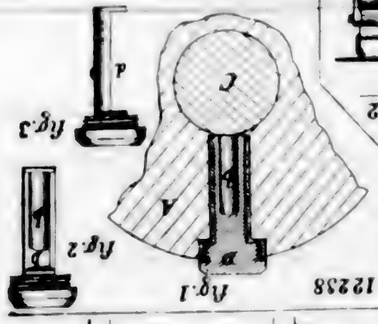


Fig. 2

Fig. 3

12345

Fig. 1

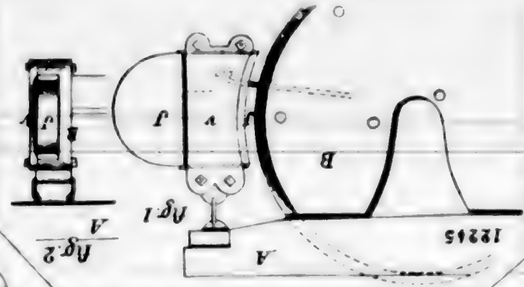


Fig. 2

12347

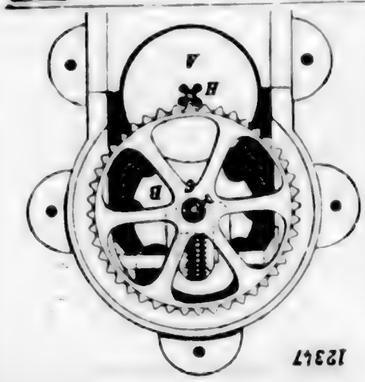


Fig. 1



Fig. 2

13027

13139.

Fig. 1.

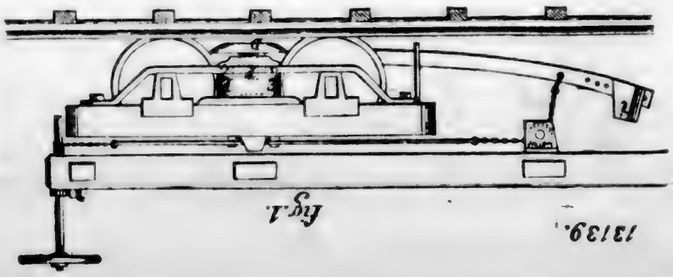


Fig. 2



Fig. 3



13038

Fig. 1

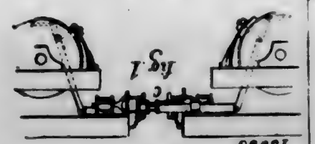
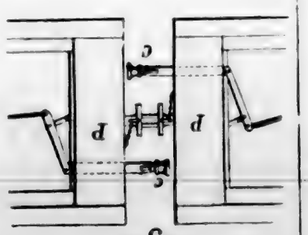


Fig. 2



12685

Fig. 1

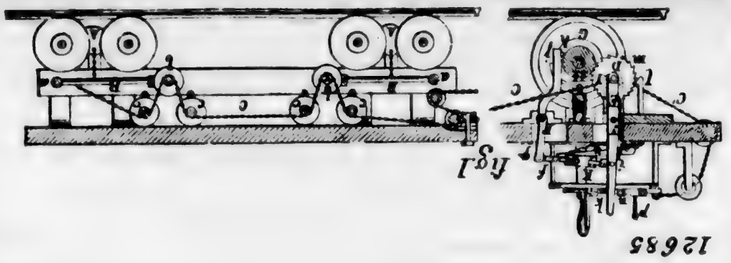


Fig. 2

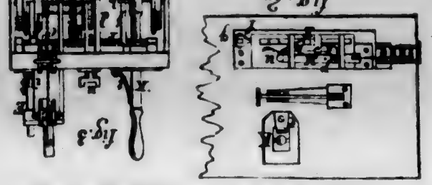
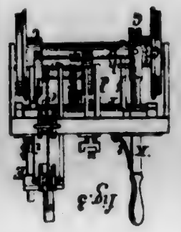


Fig. 3



13108

Fig. 1.

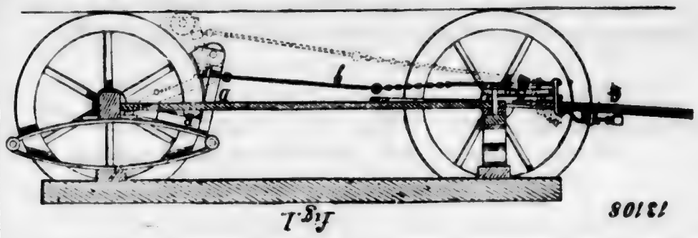
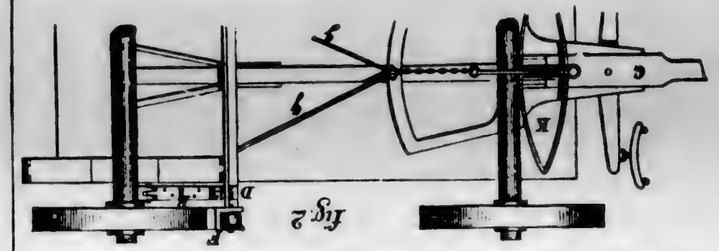


Fig. 2



13440

fig.1

fig.2

fig.3

fig.4

12490

fig.4

fig.5

13078

fig.1

fig.2

fig.3

fig.1

fig.2

13666

fig.1

fig.2

fig.3

13274

fig.1

fig.2

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fig.1

fig.2

13869

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fig.1

fig.2

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fig.3

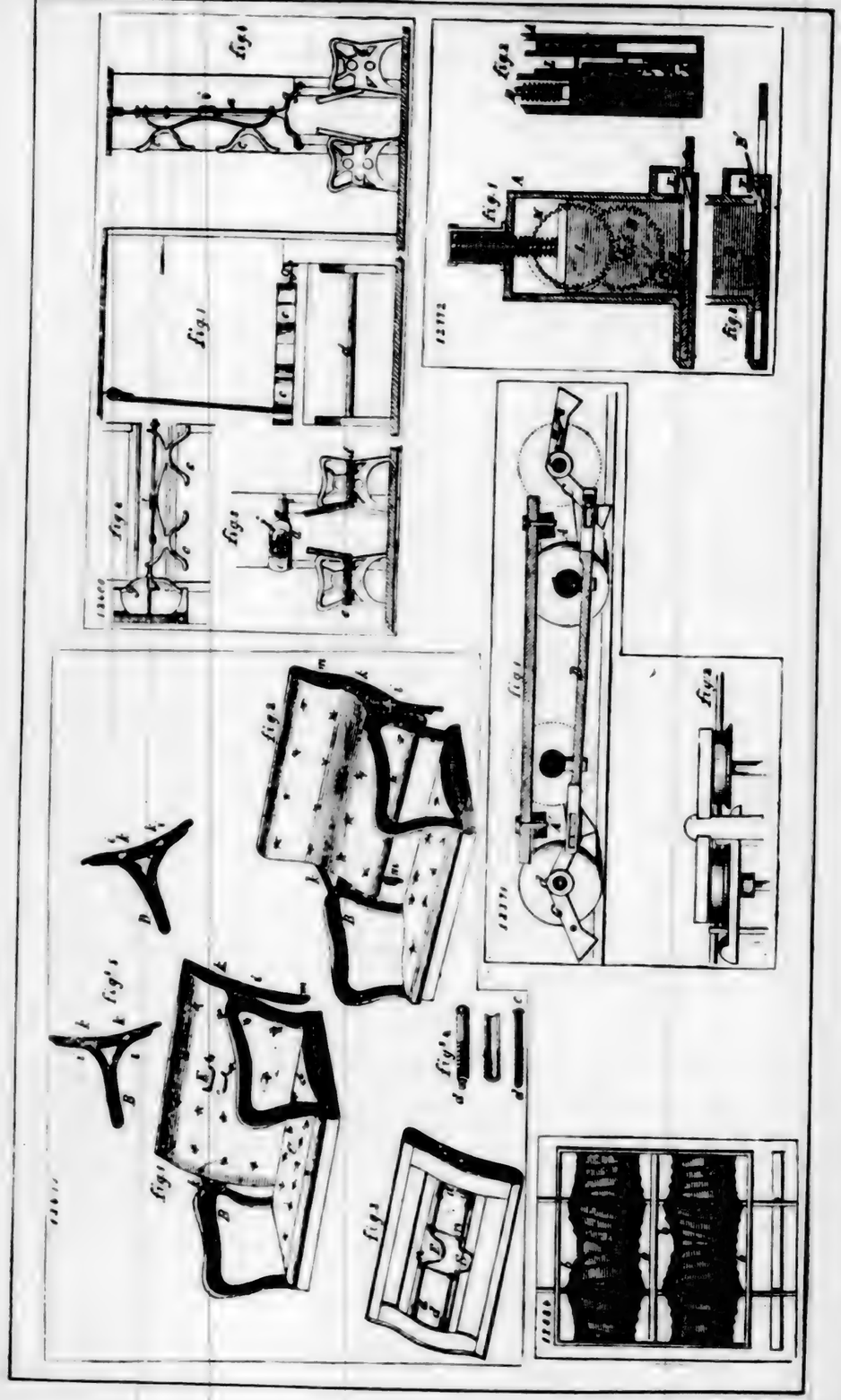
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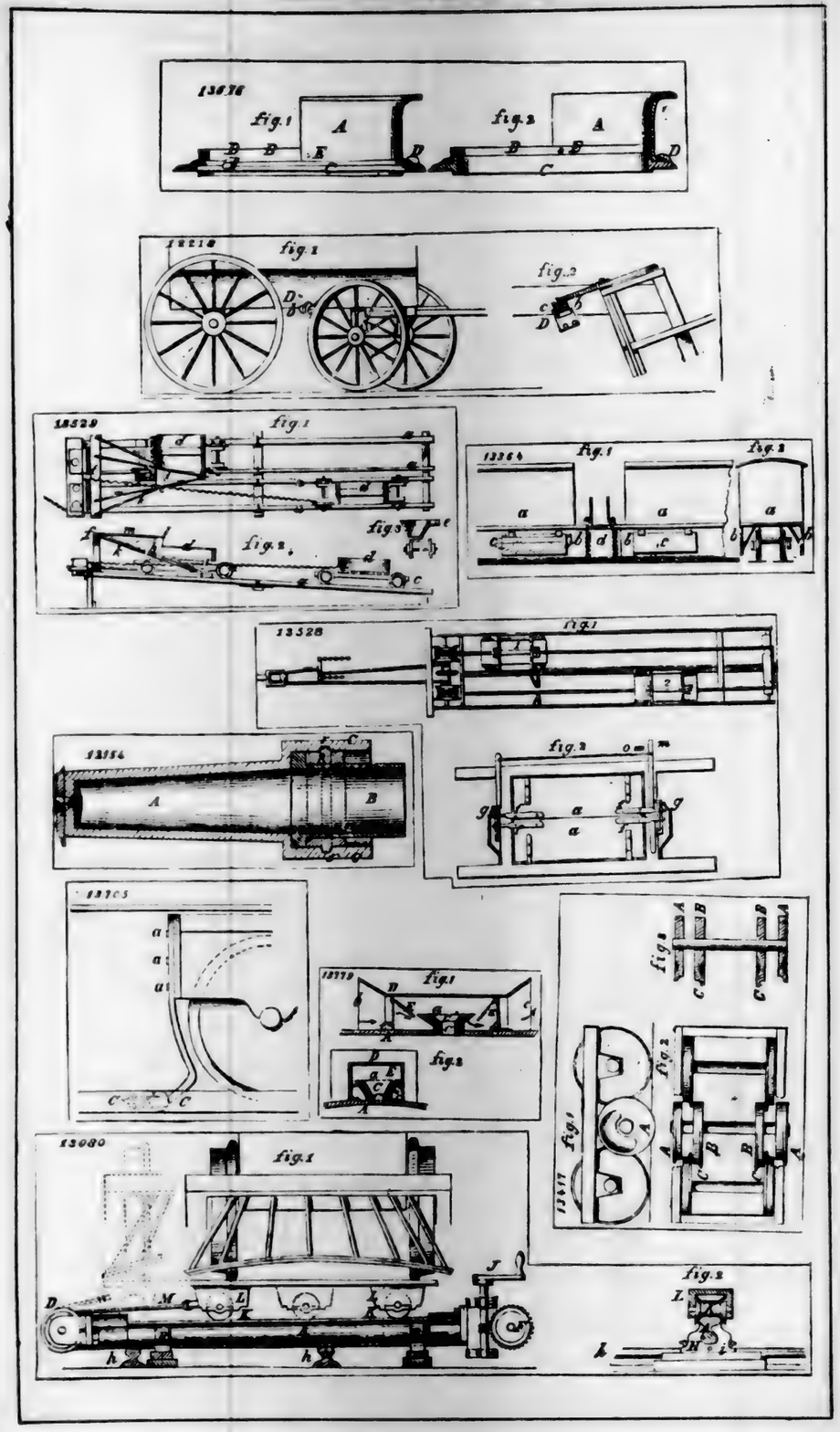
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fig.1

fig.2

fig.3





12751 fig.1

12273

12378

12380 fig.1 fig.2

12360 fig.1 fig.2

12330 fig.1 fig.2 fig.3

fig.2

fig.1

13171.

13417

fig.2

fig.1

13090

fig.3 fig.1 fig.2

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13604 fig.1 fig.2

13078

13621 fig. 1

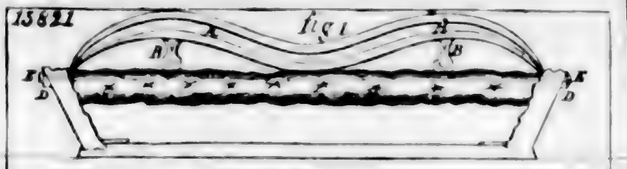
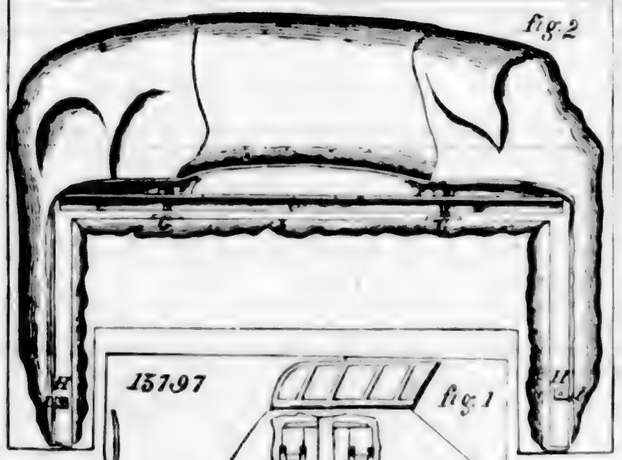
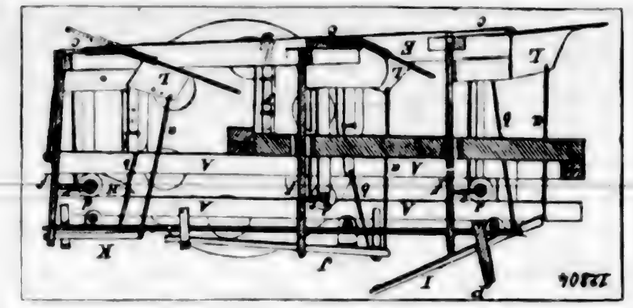


fig. 2

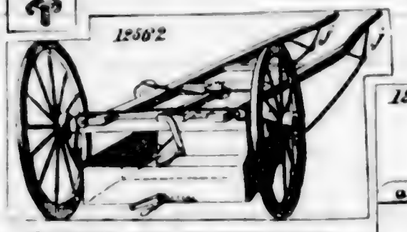


12455





12502



15797 fig. 1

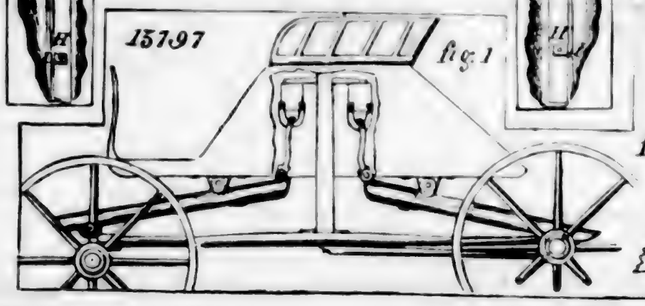
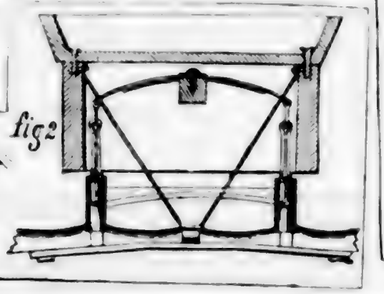


fig. 2



12504 fig. 1

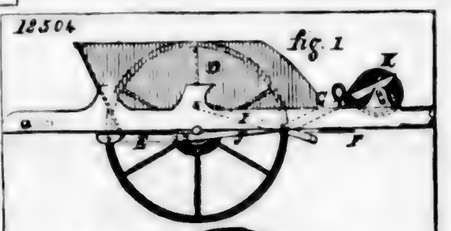
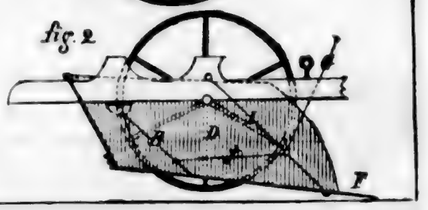


fig. 2



12871 fig. 1

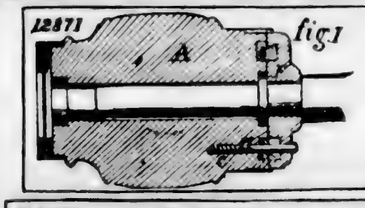


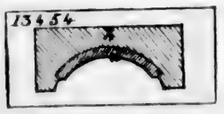
fig. 2



fig. 3



13454



12946 fig. 1

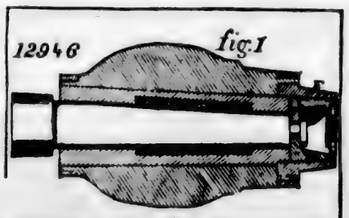
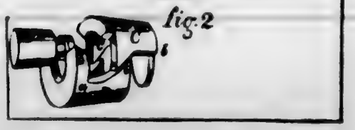


fig. 2



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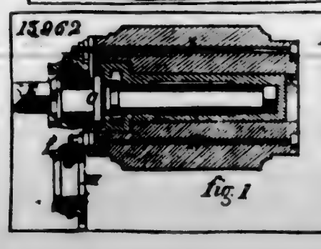


fig. 2



12591 fig. 1

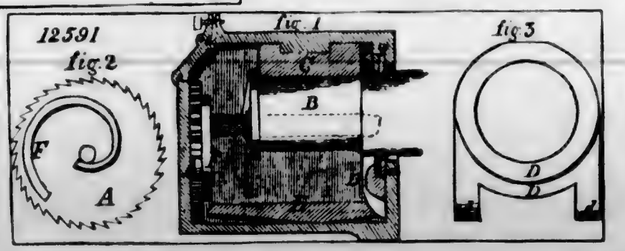


fig. 2

fig. 3

13919 fig. 2.



fig 1

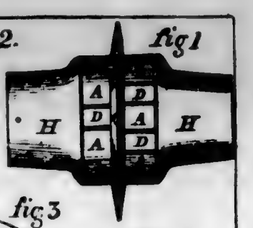


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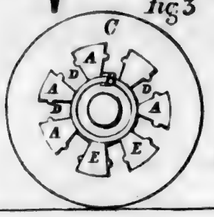
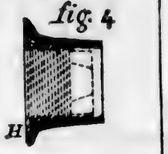
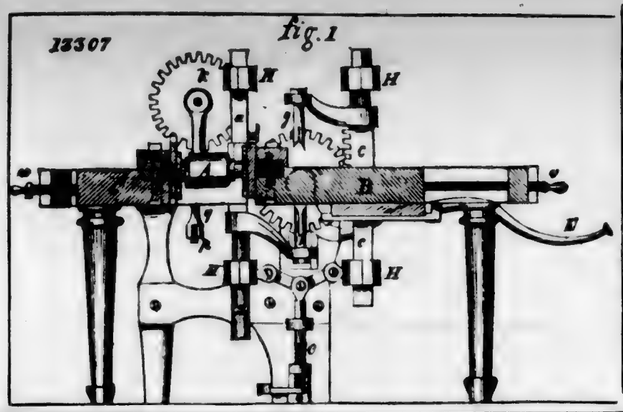


fig. 4



12307 fig. 1



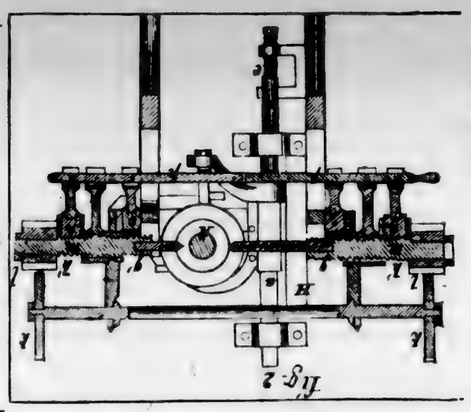


Fig. 2

12513 fig. 1

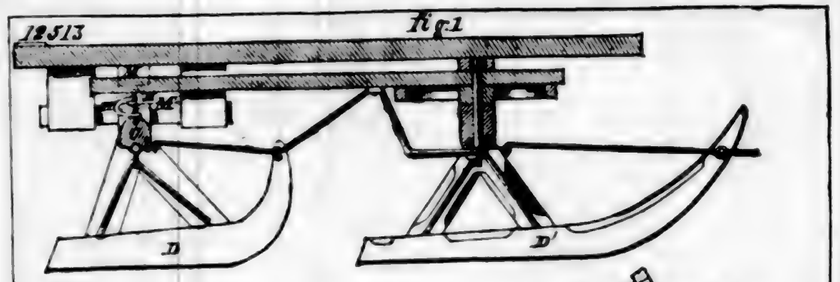
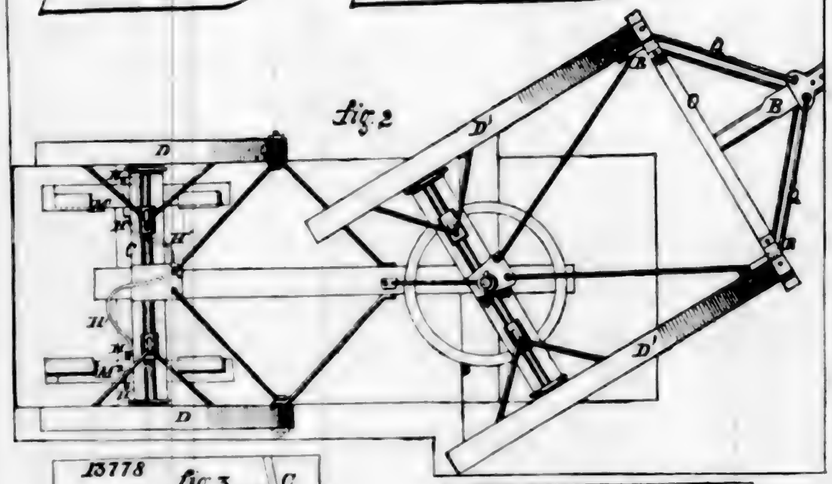


fig. 2



13778 fig. 3

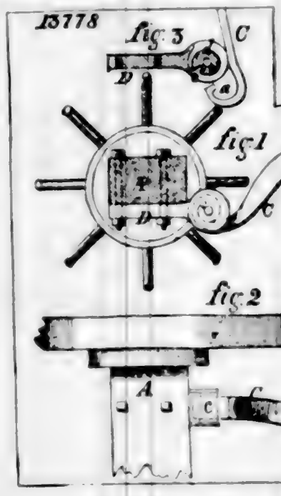
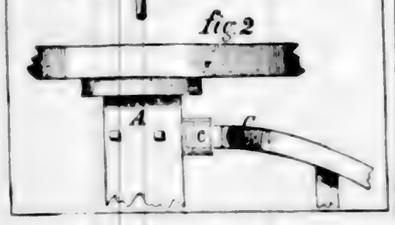


fig. 1

fig. 2



13804 fig. 3

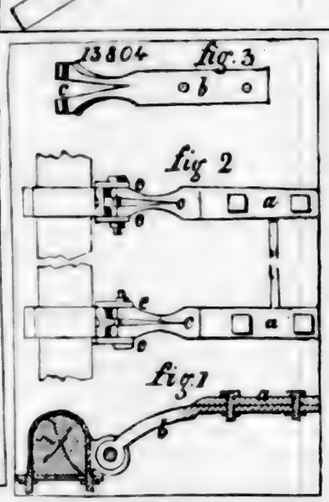
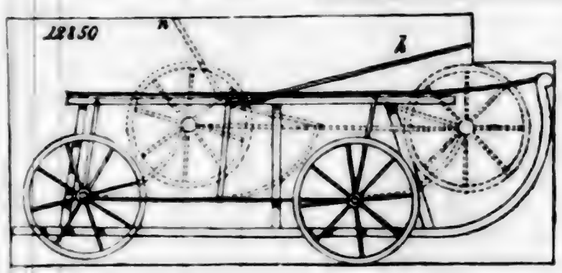


fig. 2

fig. 1

12150



12415 fig. 1

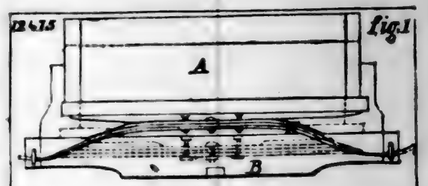
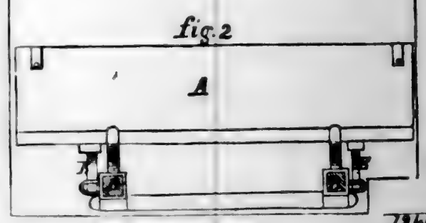


fig. 2



12890 fig. 1

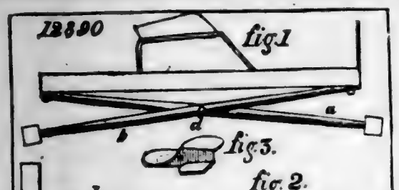
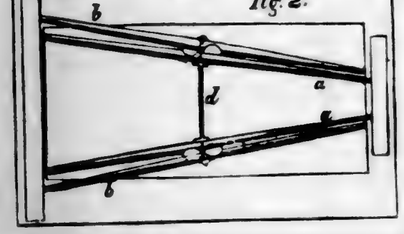


fig. 3.

fig. 2.



12406 fig. 1

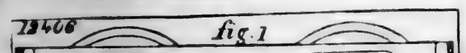
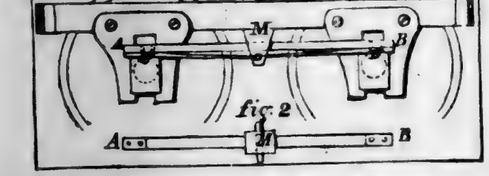


fig. 2



12849 fig. 1



fig. 2



12910 fig. 1

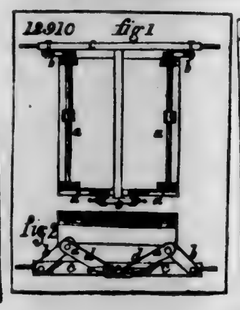
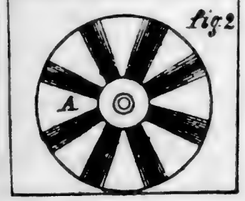


fig. 2

15552 fig. 1



fig. 2



15905 fig. 1

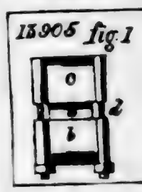


fig. 2



12704

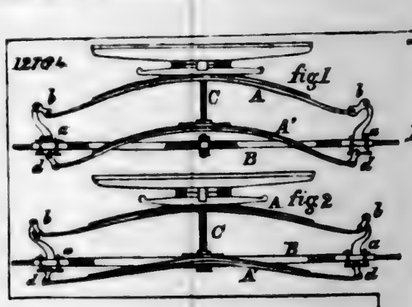
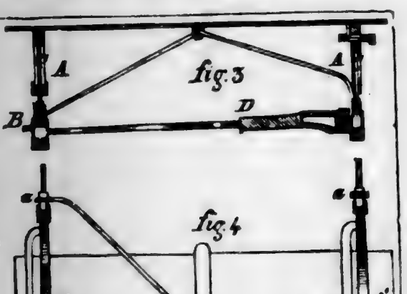


fig. 1

fig. 2

fig. 3



15248

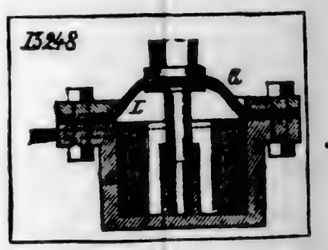
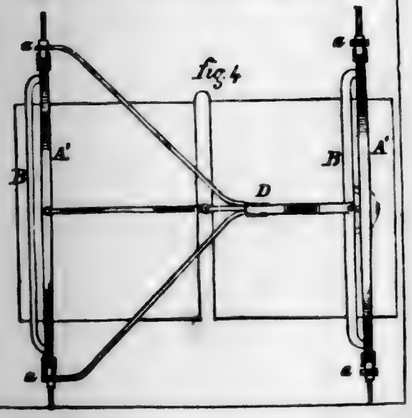


fig. 4



13103 fig. 1. fig. 2

12231 fig. 1 fig. 2.

12858. fig. 2. fig. 1.

13509 fig. 1 fig. 2.

13323

13176

12512 fig. 2 fig. 1

12317 fig. 1 fig. 3

12897 fig. 1 fig. 3

13012 fig. 1 fig. 2

13872 fig. 1 fig. 3

fig. 2

13585

12976.

fig. 1

fig. 2

fig. 3

13144

fig. 1

fig. 3

fig. 2

fig. 4

fig. 5

fig. 6

fig. 7

13412

fig. 2

fig. 1

13413

fig. 1

fig. 2

12911

fig. 2

fig. 1

12297

fig. 1

fig. 2

fig. 2

12743

fig. 3.

fig. 1.

12384.

12441

12165.

12198.

fig. 1.

fig. 2.

12437

12913

fig. 1

13036

fig. 1

fig. 3

12918 Fig. 1

Fig 2

Fig 3

Fig 4

12950 Fig 2

12936 Fig 4 Fig 1 Fig 2 Fig 3

13047 Fig 1 Fig 2 Fig 3

12686

13017 Fig 1

13026

13836 Fig 1 Fig 3 Fig 4 Fig 2

13076

13628 Fig 1 Fig 2

13077

13027

13024

13054

13070 Fig 1 Fig 2

12937 Fig 1 Fig 3 Fig 4

12232 Fig 1 Fig 3

12937 fig1 fig3 fig4 fig2 fig6 fig5

12626 Fig1 Fig2

13319 Fig1 Fig2

12421

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12232 D Fig 1 Fig 2

12208 Fig1 Fig2

13303

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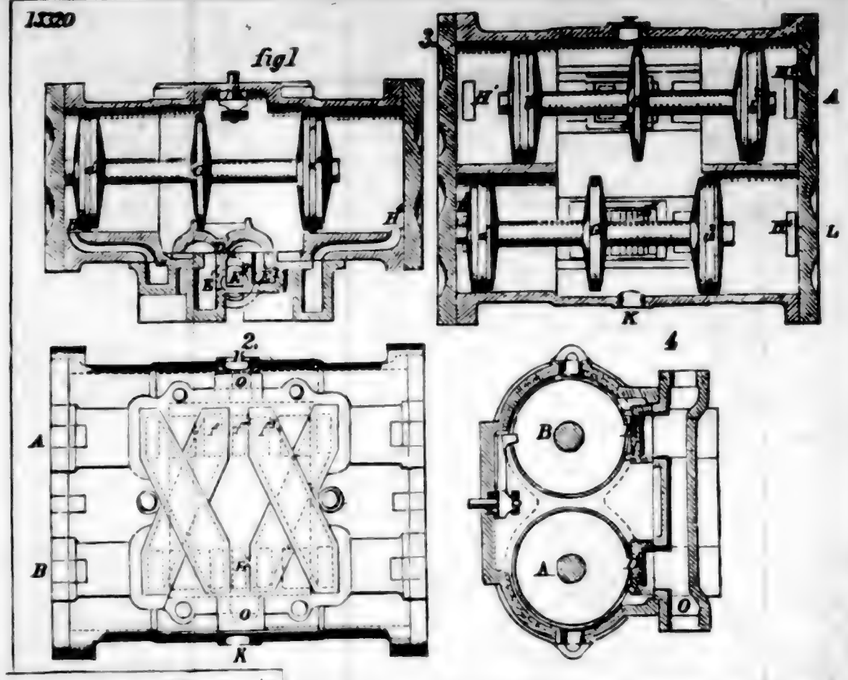
12227 Fig1 Fig2

13320

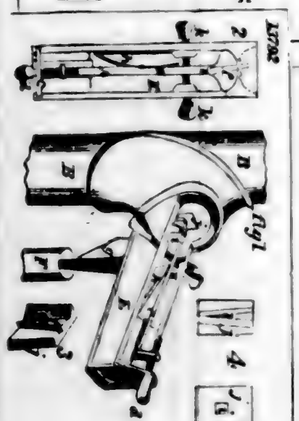
12413 fig 1 fig 2

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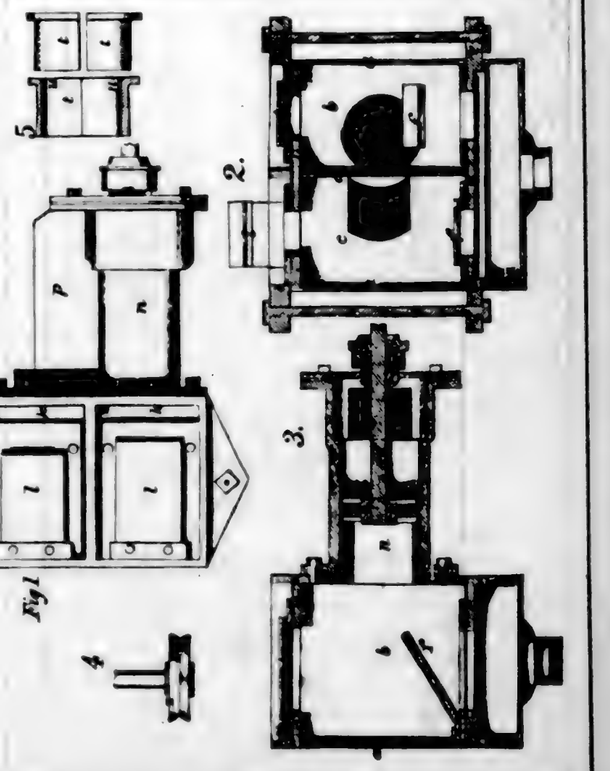
fig1



12326



12190



12413

fig.3

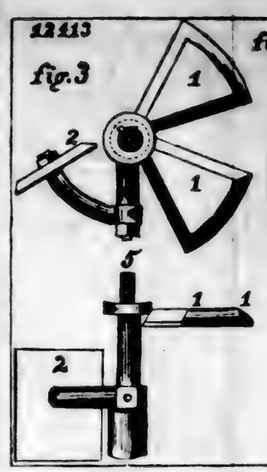


fig.1

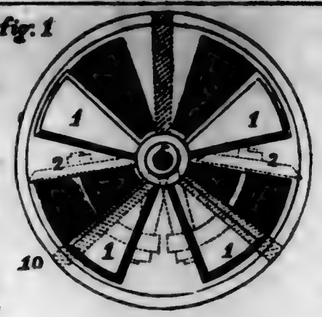
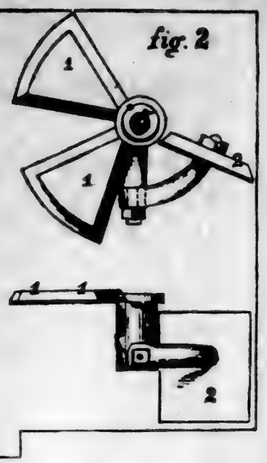
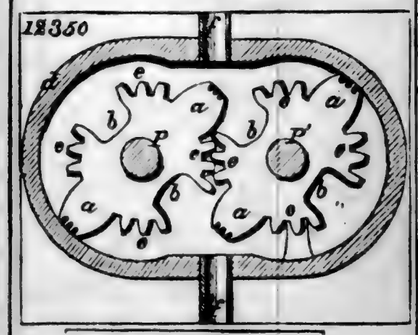


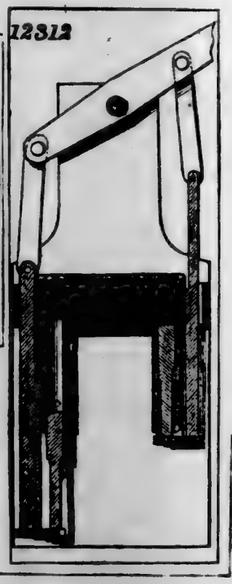
fig.2



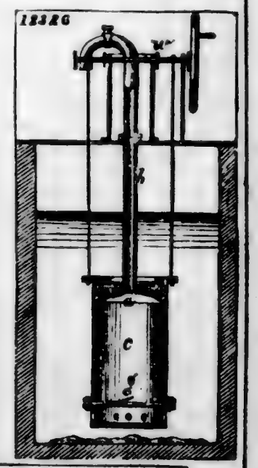
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12312



12326



12342

fig1

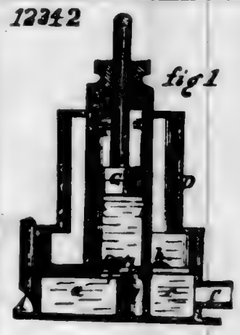


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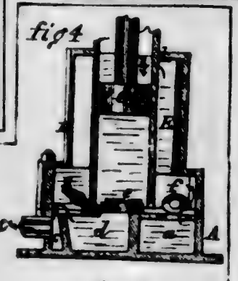


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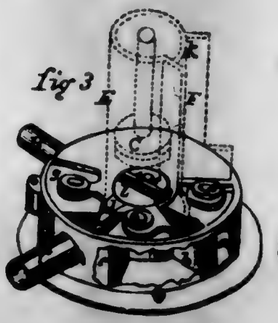


fig2



fig5



12317

12544

fig 1

fig 2

12517

12544 fig.1 fig.2 fig.3

12542 fig.2 fig.1

12566

12601 fig.1 fig.2

12617

13579 Fig.3 Fig.4 Fig.2 Fig.1

12631 fig.1 fig.2

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fig.3 fig.2 fig.4

13153 fig.2

12645 fig.1

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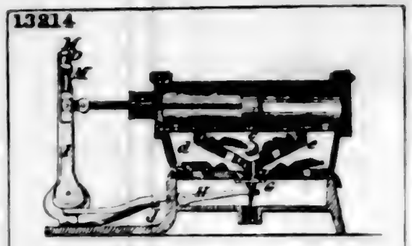
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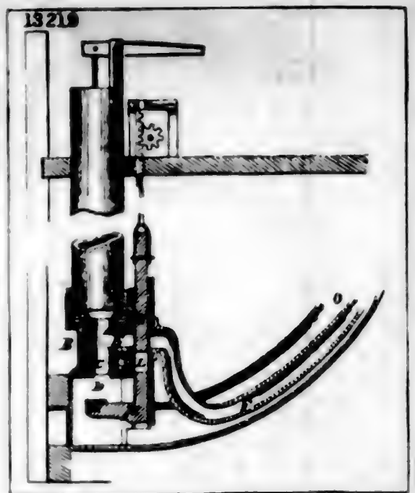
fig.2

fig.1

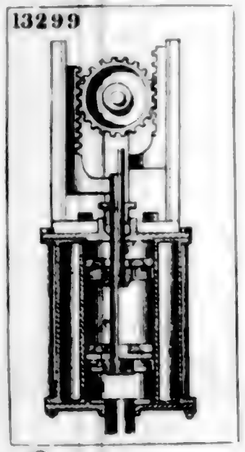
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13215



13299



13273 *fig.1*

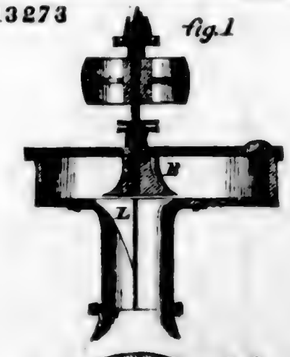
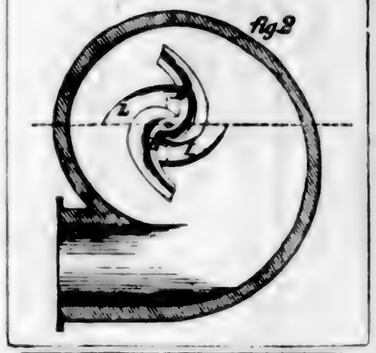
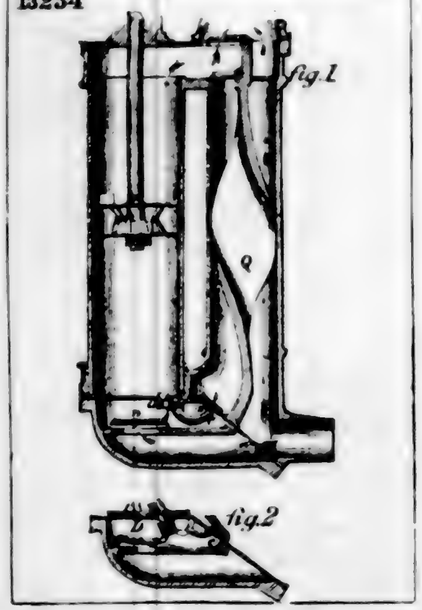


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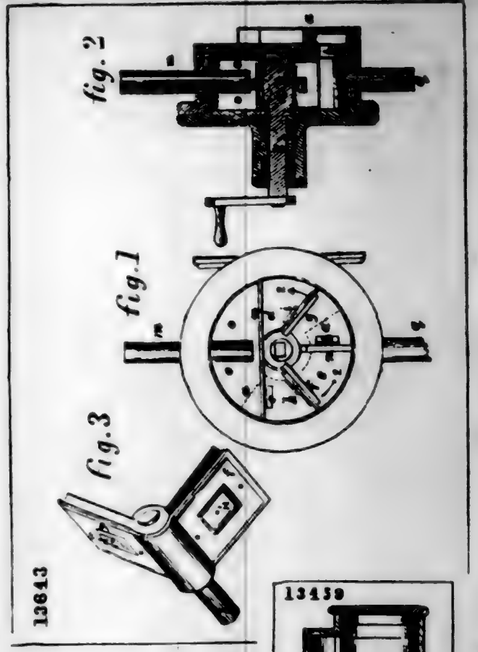


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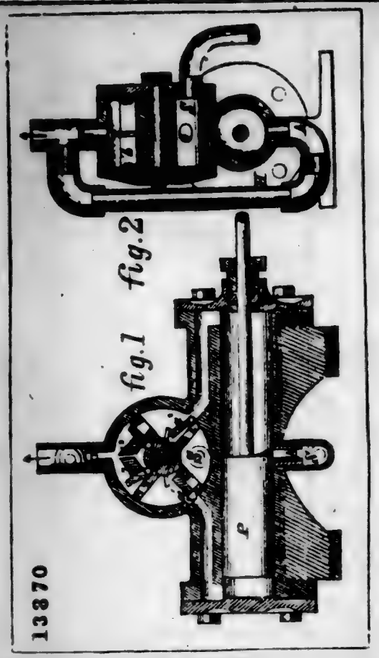
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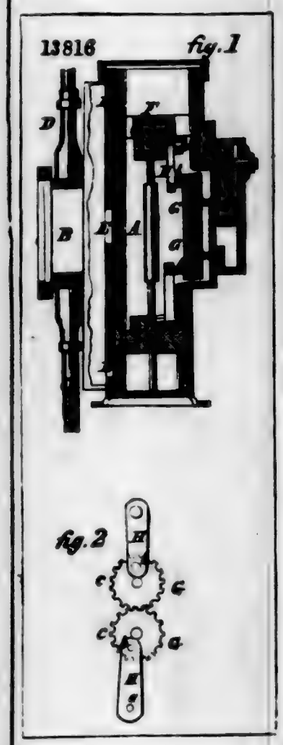


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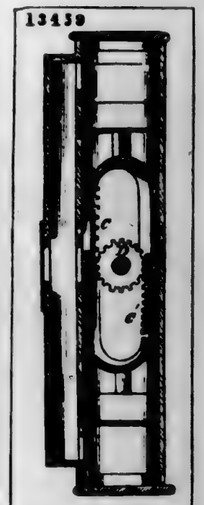
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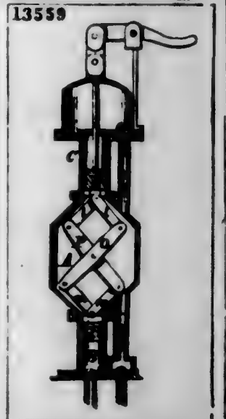
13816 *fig.1*



13439



13559



13881 *fig.1*

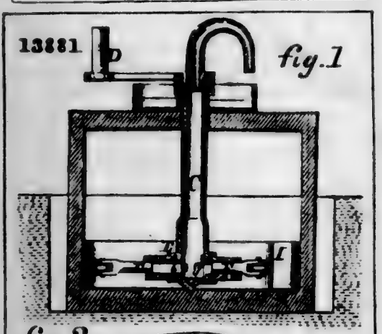
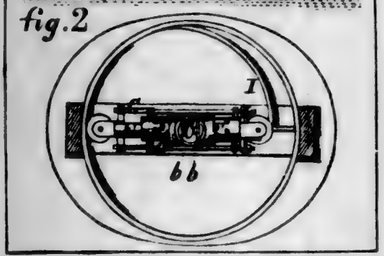
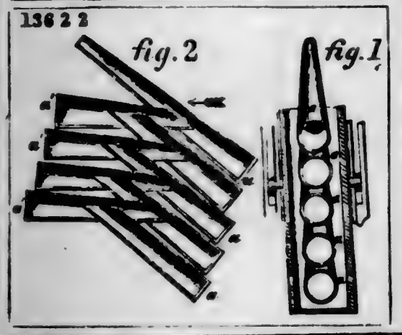


fig.2



13622



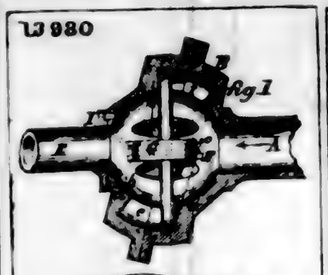
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13567 *fig.1*

12420

fig.1 12770 *fig.2*

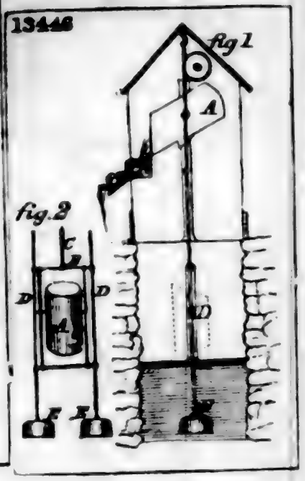
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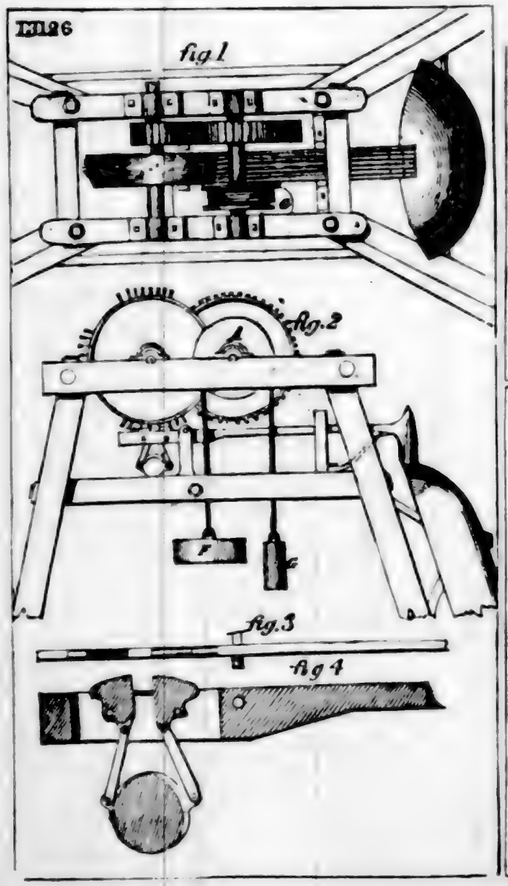
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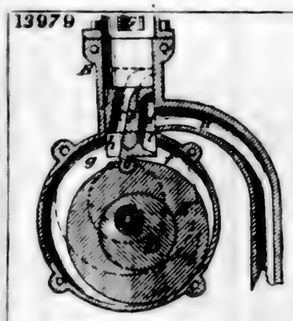
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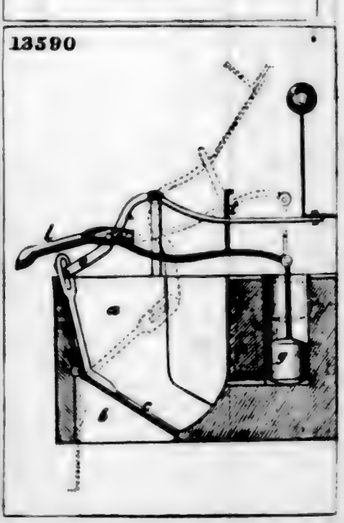
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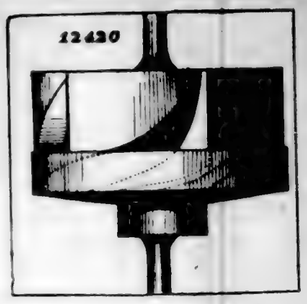
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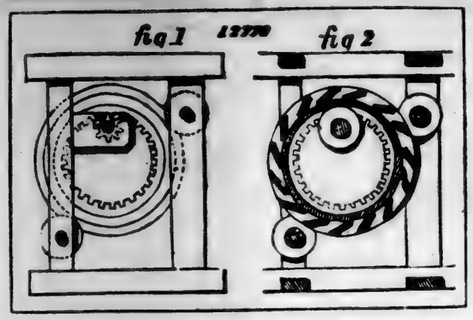
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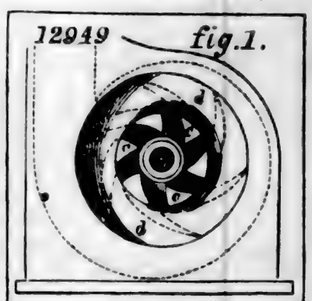
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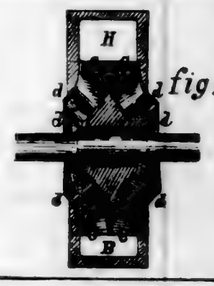


12770 fig.1 fig.2

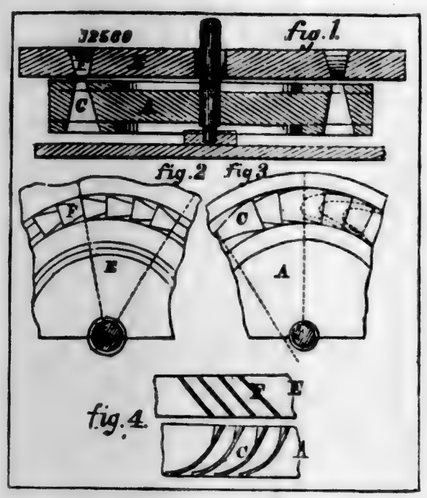


12949 fig.1.

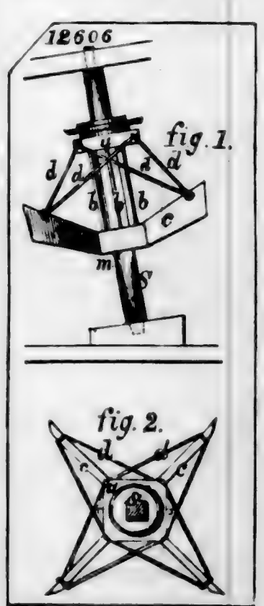




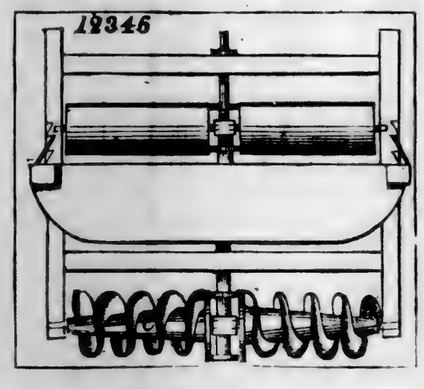
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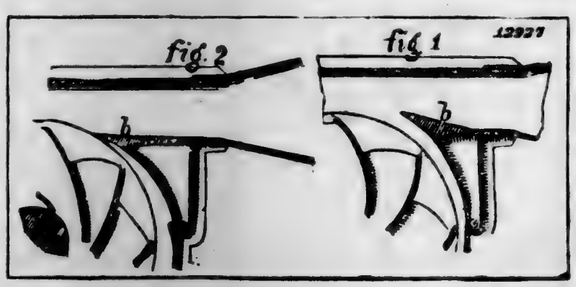


12606



12346





12206

13172 P fig. 1 K fig 2 K A A

13267 fig. 2 fig. 1

13366 fig 1 fig 2 x x fig 3

13280 fig 1 B A B A E D C L L L L L L C L L M fig 2 A A

13458

12206 Fig. 1 P P P N Fig. 3 N Fig. 2

18067

13685 Fig. 1 d d g Fig. 2 Fig. 3

13918 Fig 1 H H Fig 2

13705 fig 1 fig 2 D D

fig 8

13895 Fig. 1 Fig. 2 Fig. 3

13247

13268

13247

fig. 1

fig. 2

13283

fig. 1

fig. 3

fig. 2

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13969

fig. 2

fig. 1

fig. 3

fig. 1

fig. 2

12930

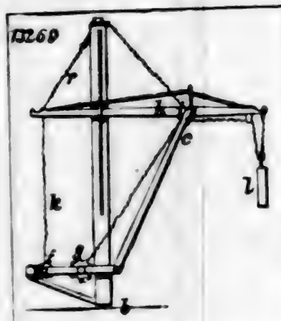
fig. 1

fig. 2

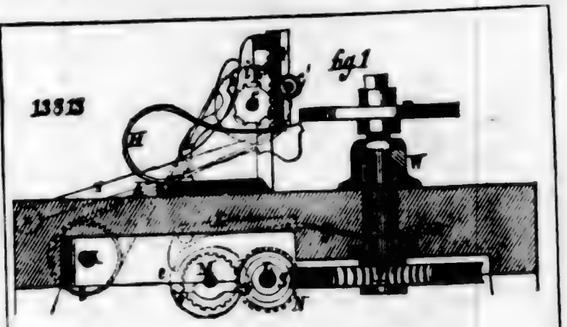
fig. 3

13976

12269



13313 fig.1



12280

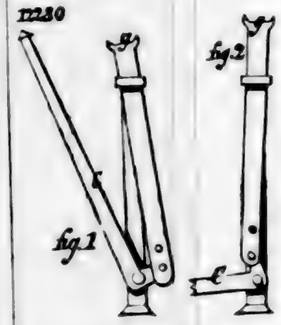


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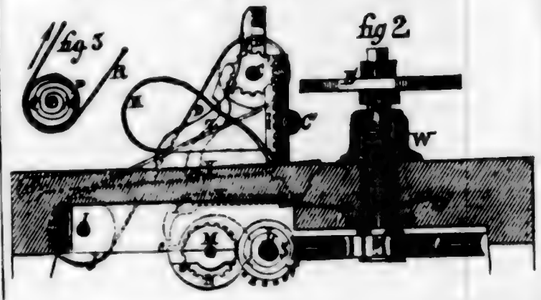
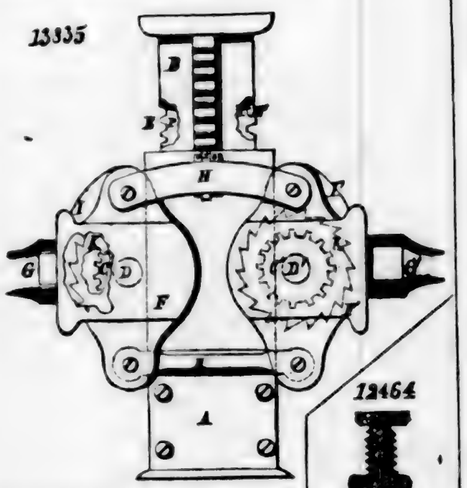


fig.2

13335



13783 fig.1

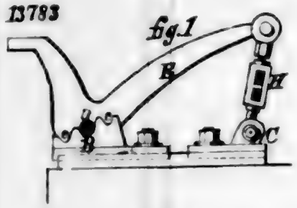
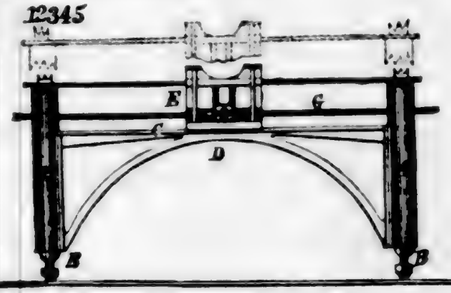


fig.2



12345



12464



12803 fig.1

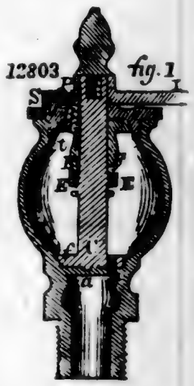


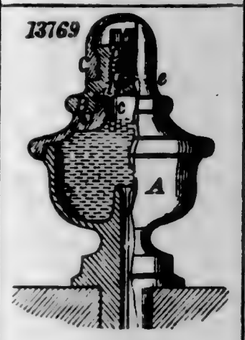
fig.2



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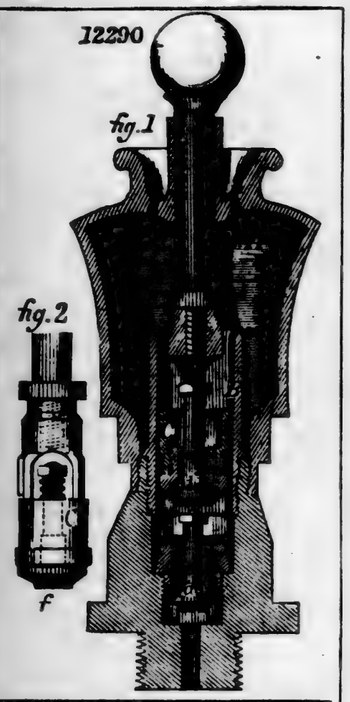


13769



12290 fig.1

fig.2



13397 fig.2

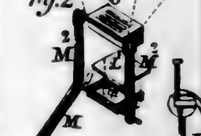
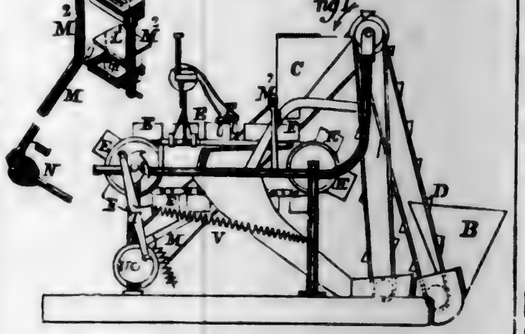


fig.1



12615 fig.1

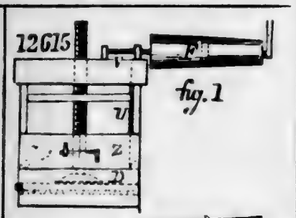
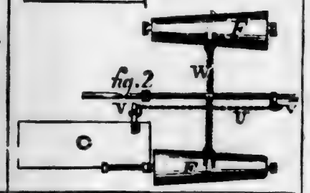


fig.2



12859



13749 fig.1

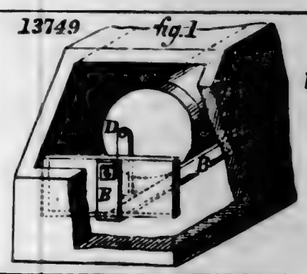
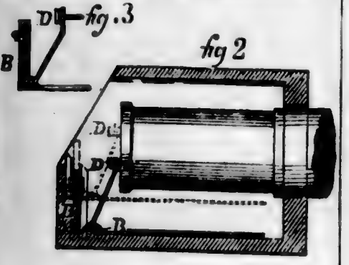


fig.3

fig.2



12740 fig 1

fig 2

13060 fig 2

fig 1.

13337 fig 1

fig 2

13199

13426

13061

Fig 2

13436 Fig 1

Fig 1.

Fig 2.

13180 Fig 1

Fig 3.

13005

Fig 4.

Fig 1

Fig 3

Fig 2.

13155 Fig 4

12802

Fig. 2

Fig 3

Fig. 1

13840

Fig. 3

Fig. 1

12147

Fig. 1

Fig 2

Fig. 3

13407

Fig. A

Fig. 1

Fig. 3

13231

Fig. 1

Fig. 2

12240.

Fig. 1

Fig. 2

13252

Fig. 3

12240

Fig. 1

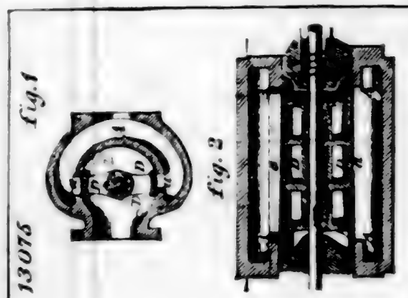
Fig. 2

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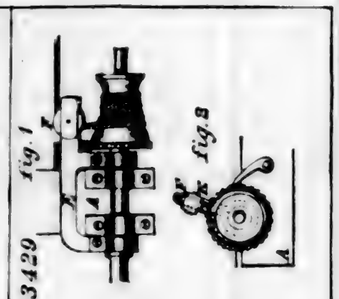
Fig. 4

Fig. 5

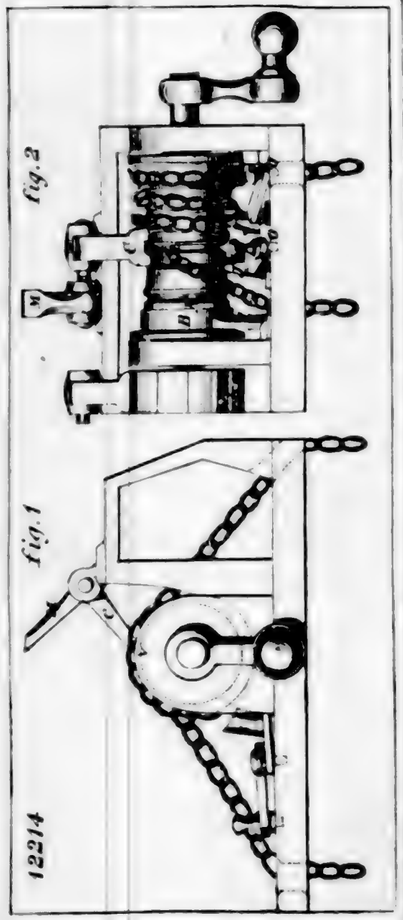
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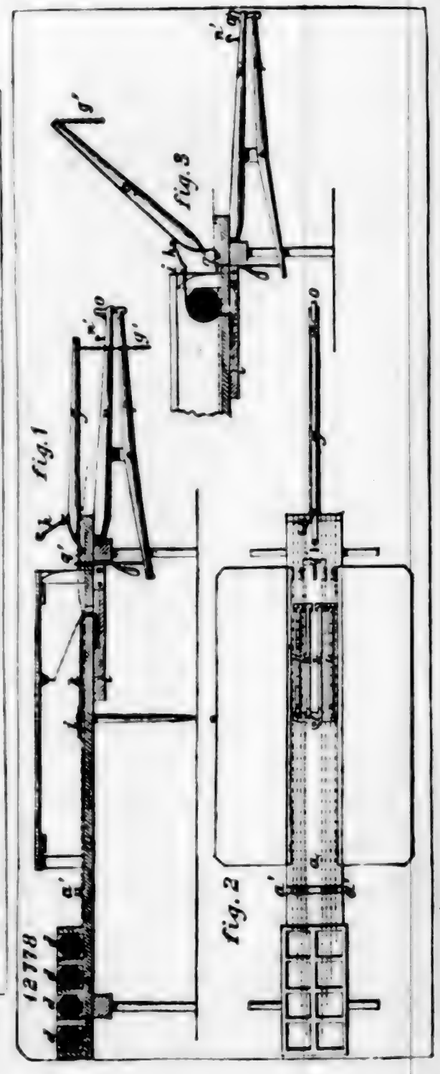
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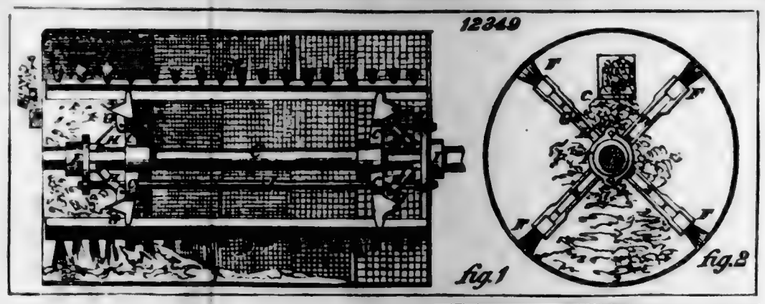
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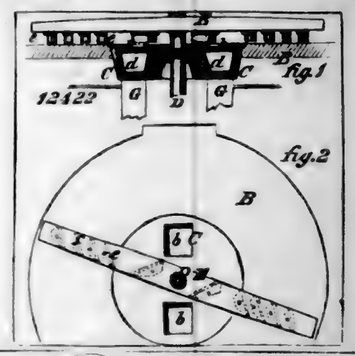
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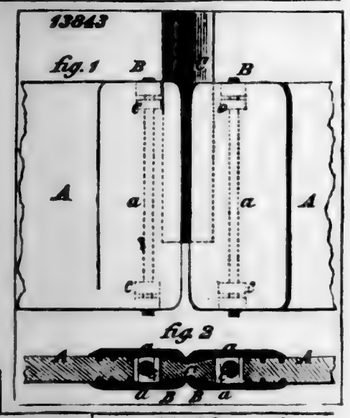
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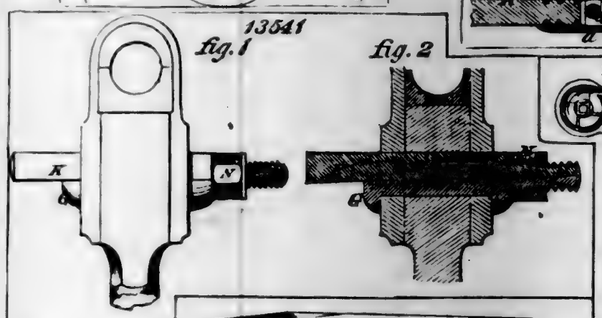
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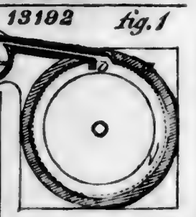
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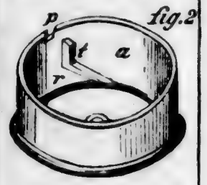


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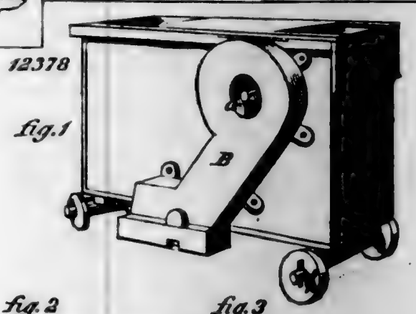


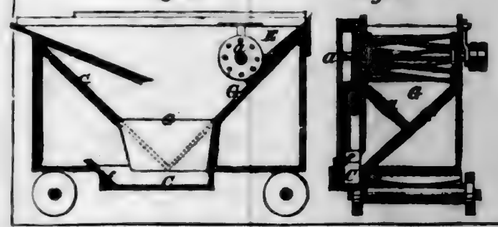
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12378





13037

13057 fig. 1

fig. 2

12731

fig. 1

fig. 2

13167 fig. 1 fig. 2

13161 fig. 1 fig. 3 fig. 2

13955 fig. 1 fig. 2 fig. 3

13029 fig. 1 fig. 2

12431 fig. 1 fig. 2

fig. 4 fig. 5 fig. 3

12707 fig. 1

12782 fig. 2

fig. 1 fig. 2 fig. 3

13336 fig. 1 fig. 2

13105 fig. 1

12348 fig 1

13384 fig 1

13984

13988 fig 1

fig 2

fig 2

12408 fig 1

fig 2

12856

fig 1

13115

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fig 2

fig 4

fig 3

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fig 2

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fig 2

fig 3

fig 5

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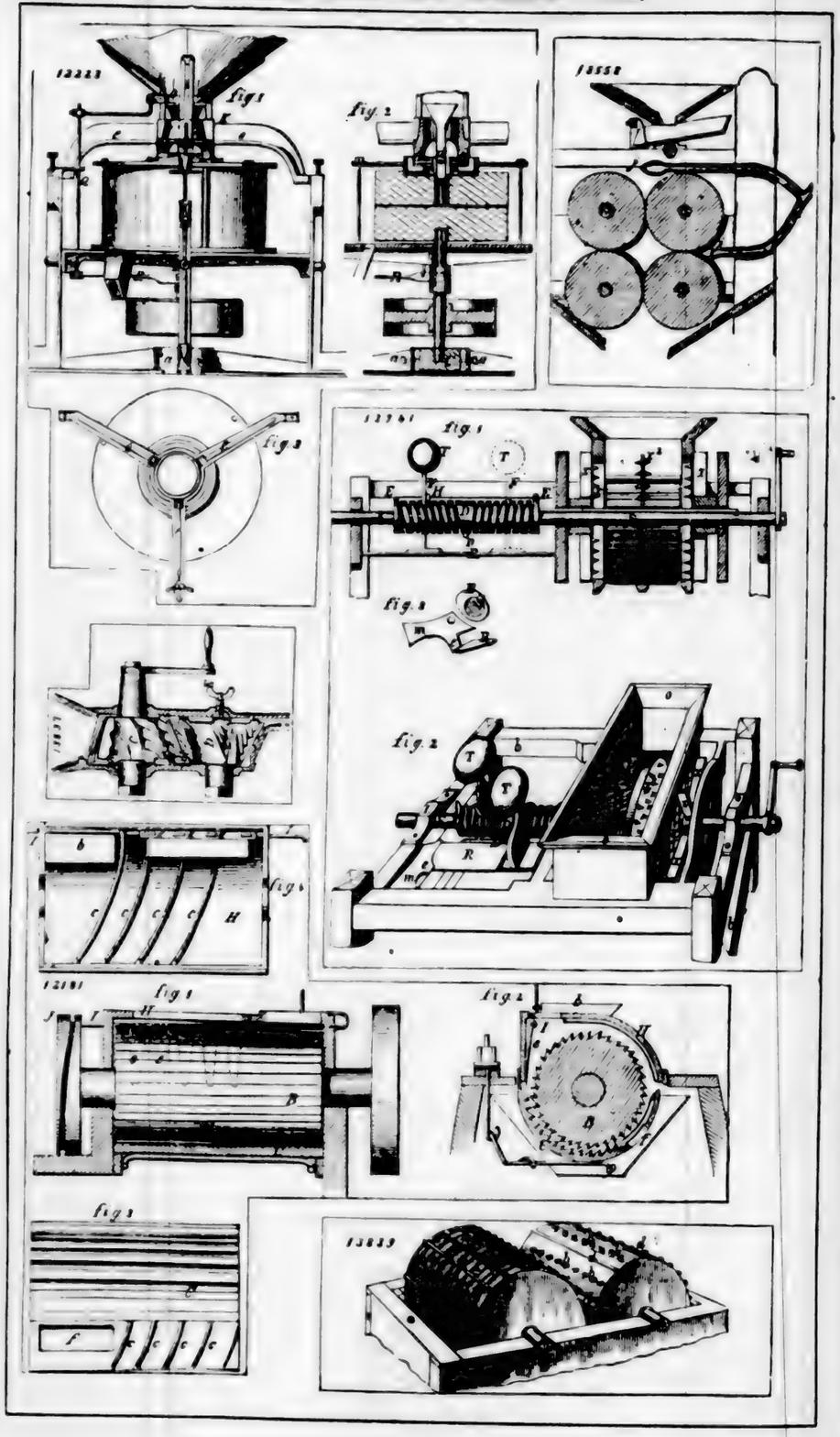
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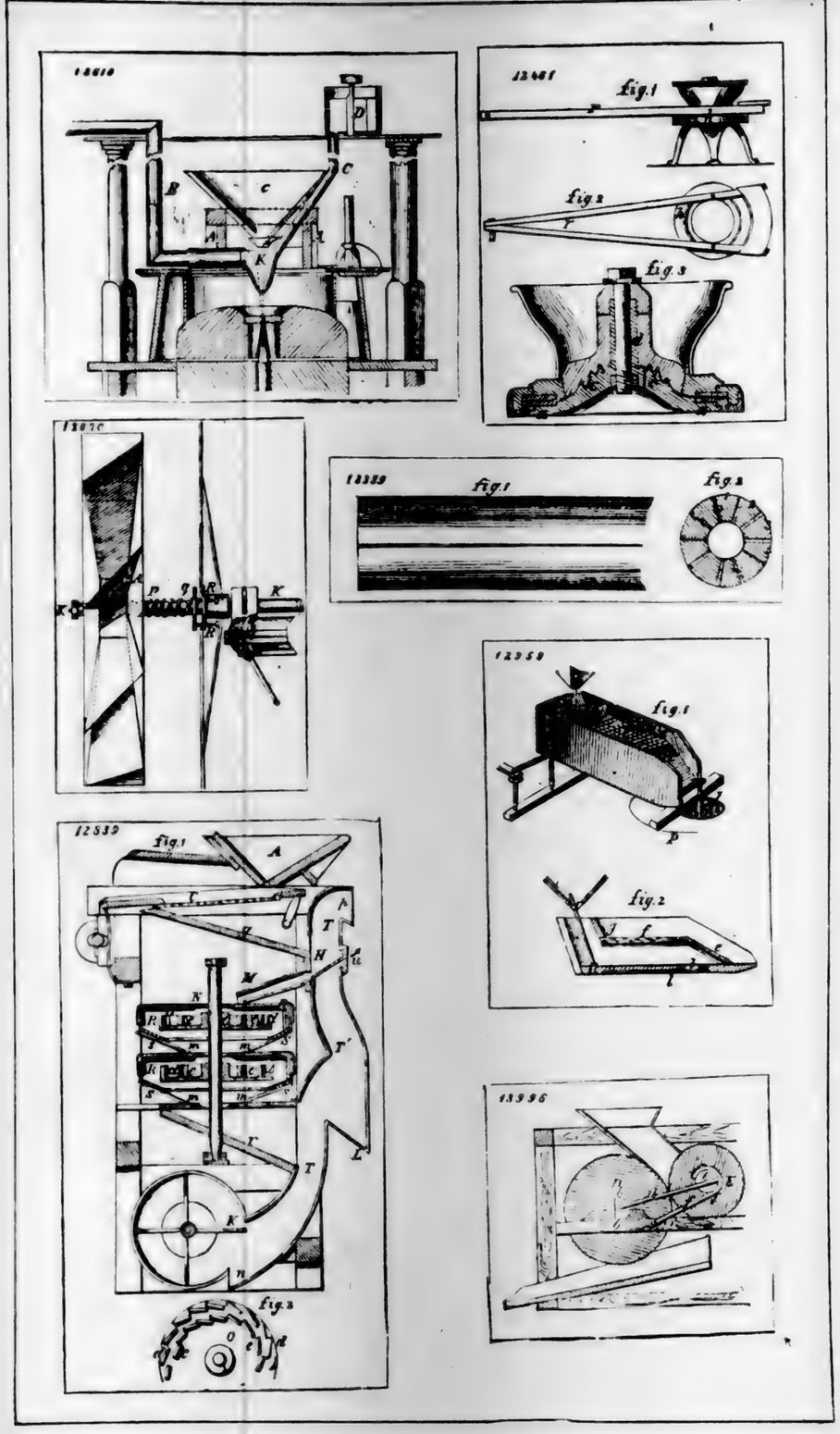
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fig 2

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13567


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fig. 1
fig. 2
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fig. 3
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fig. 1
fig. 4
fig. 2
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fig. 1
fig. 2
fig. 3
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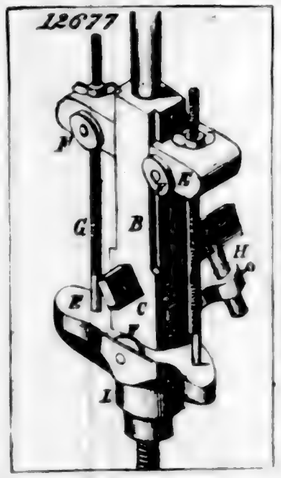
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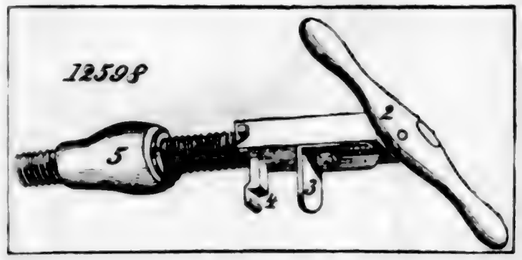
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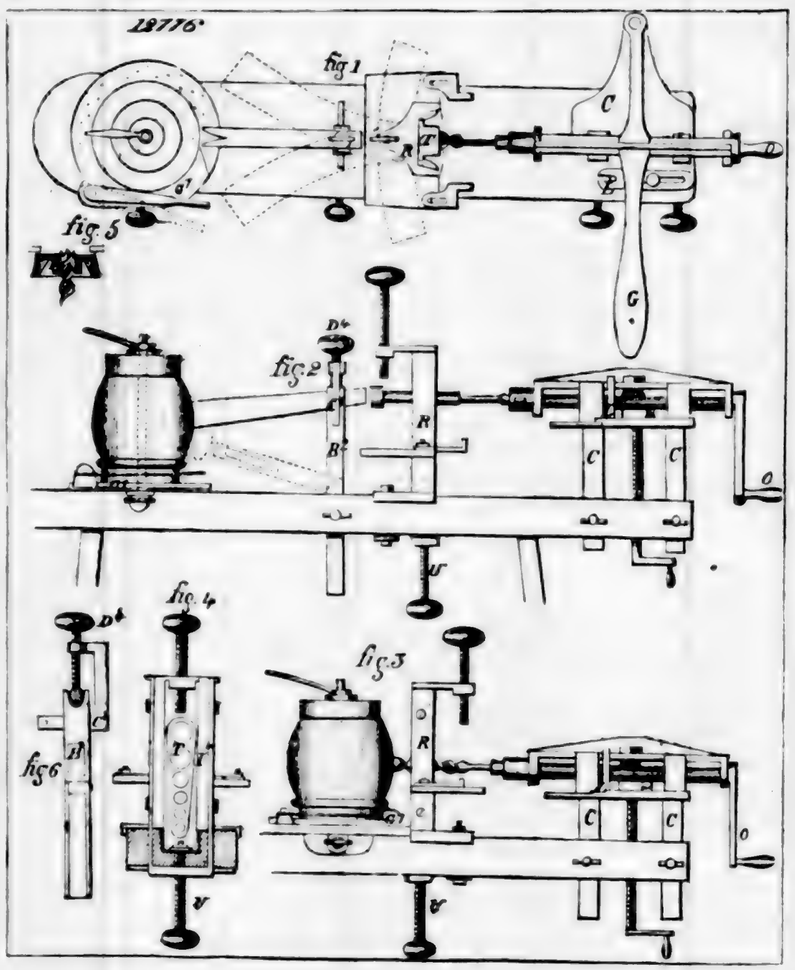
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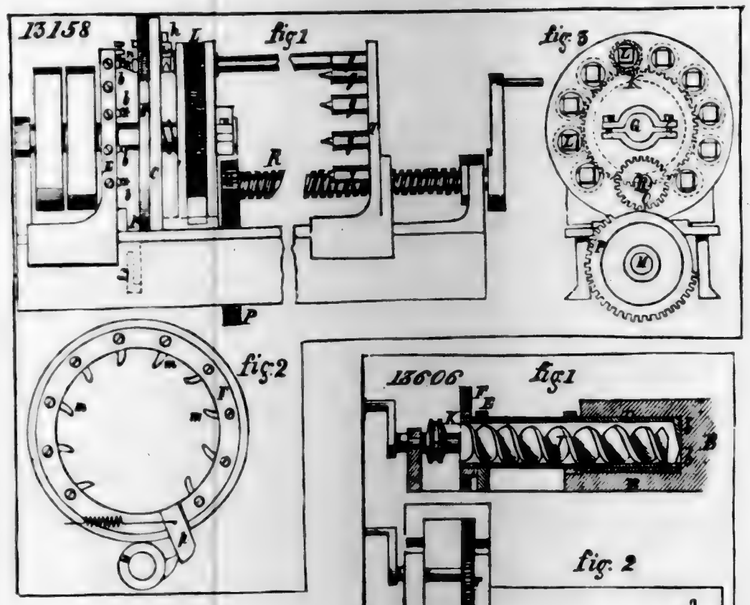
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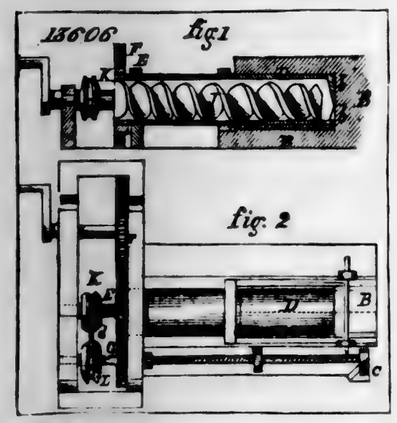
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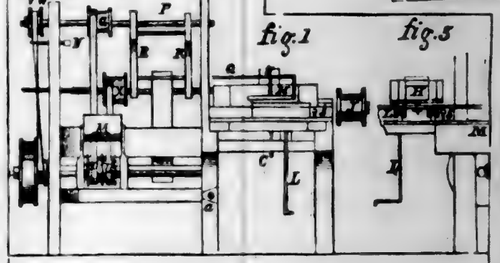
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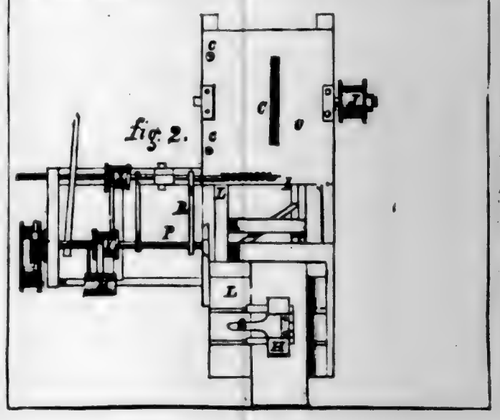


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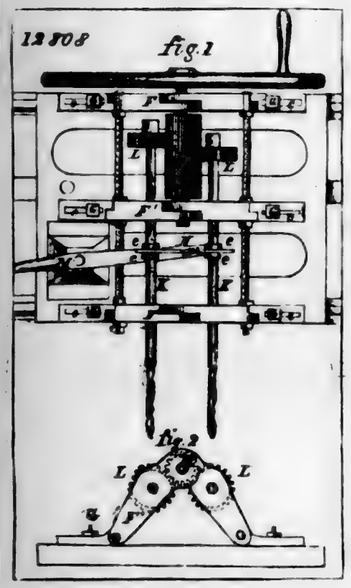


fig 1

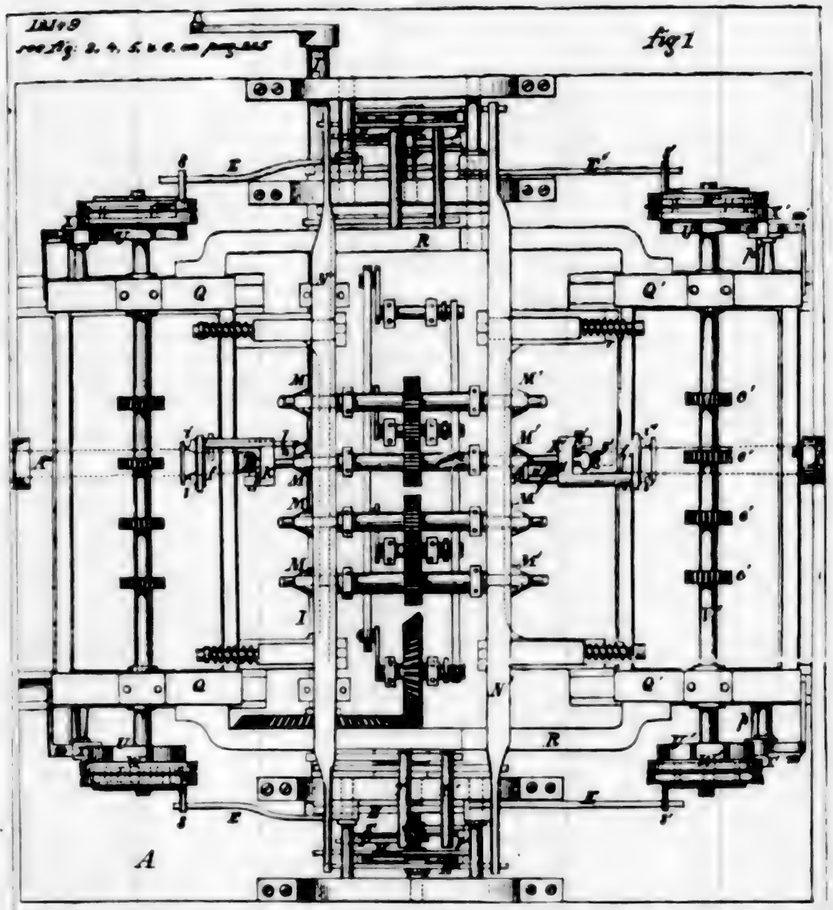
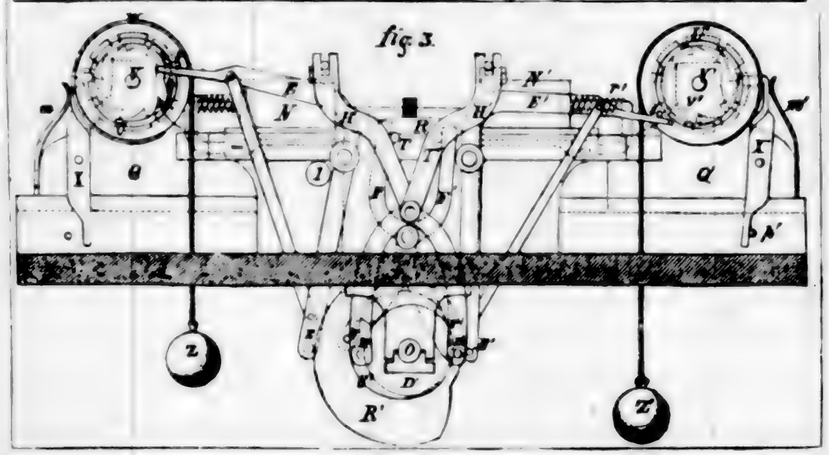
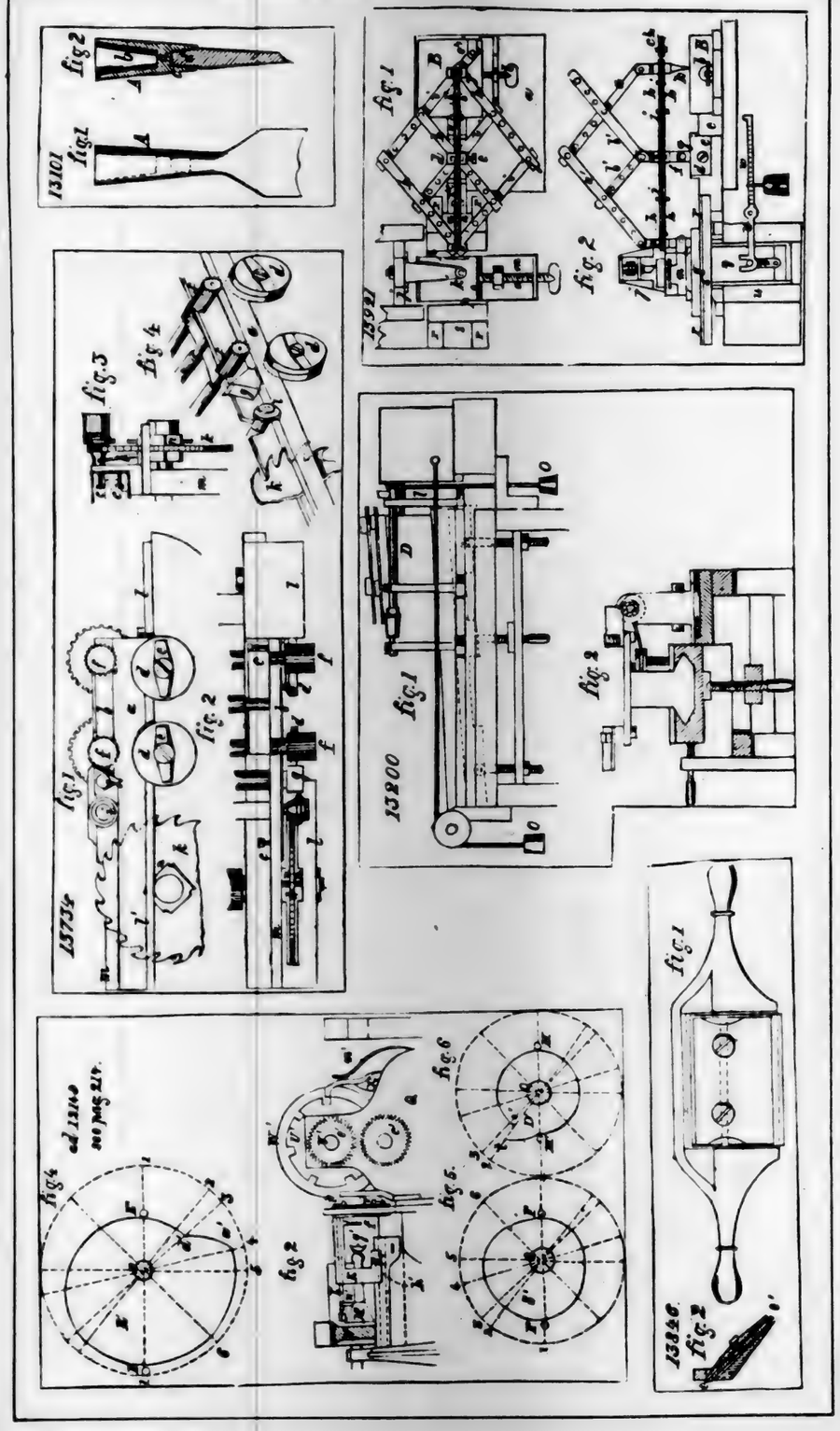
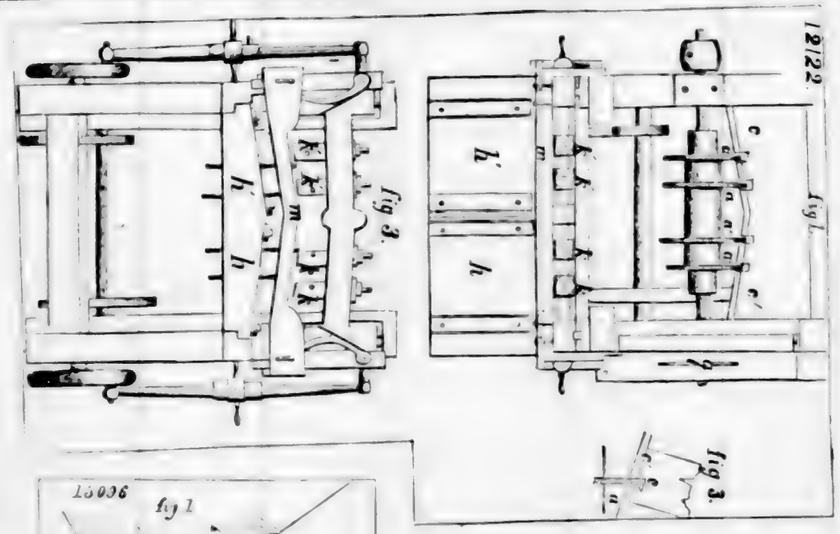


fig 3.

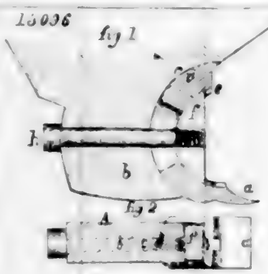




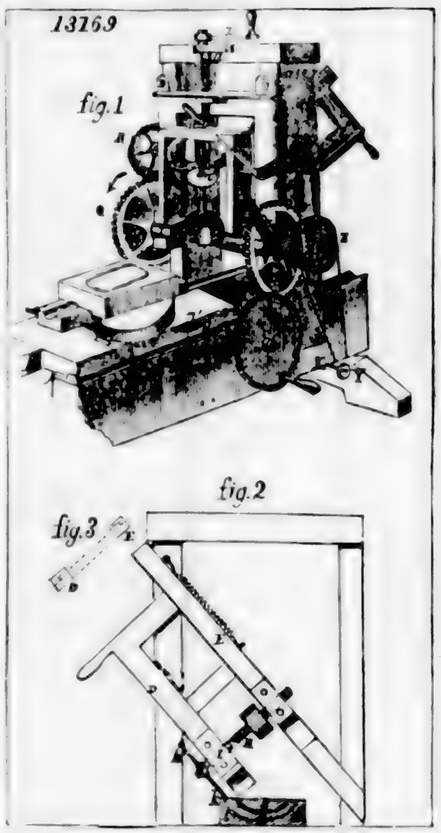
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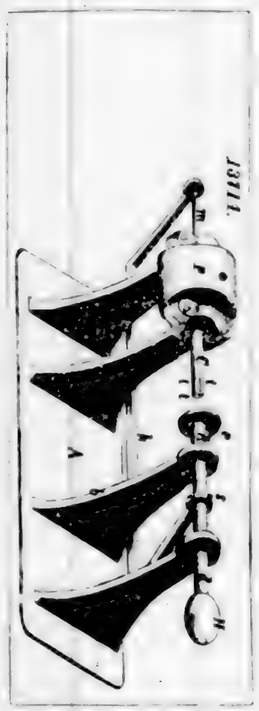
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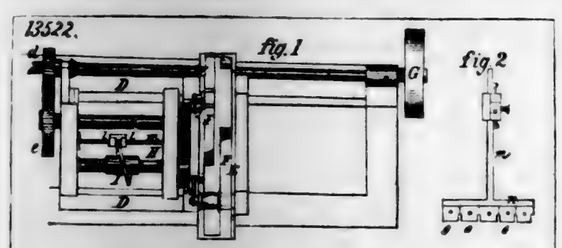
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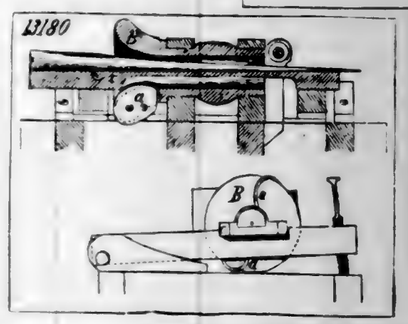
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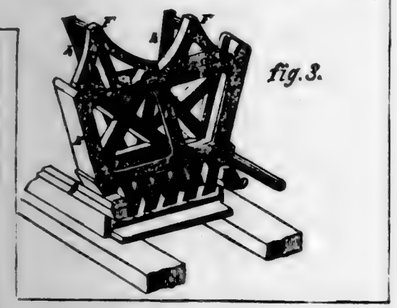


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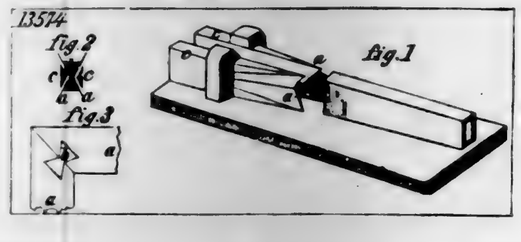


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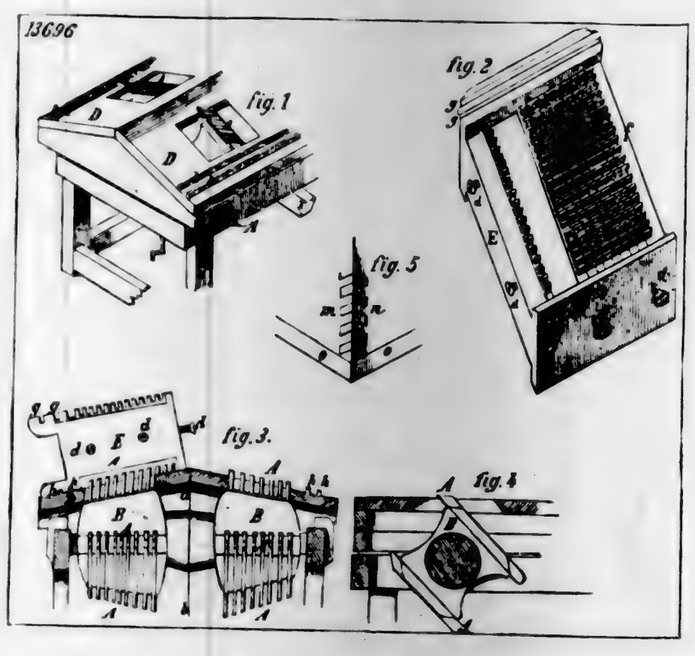




13574



13696



12711 fig 1

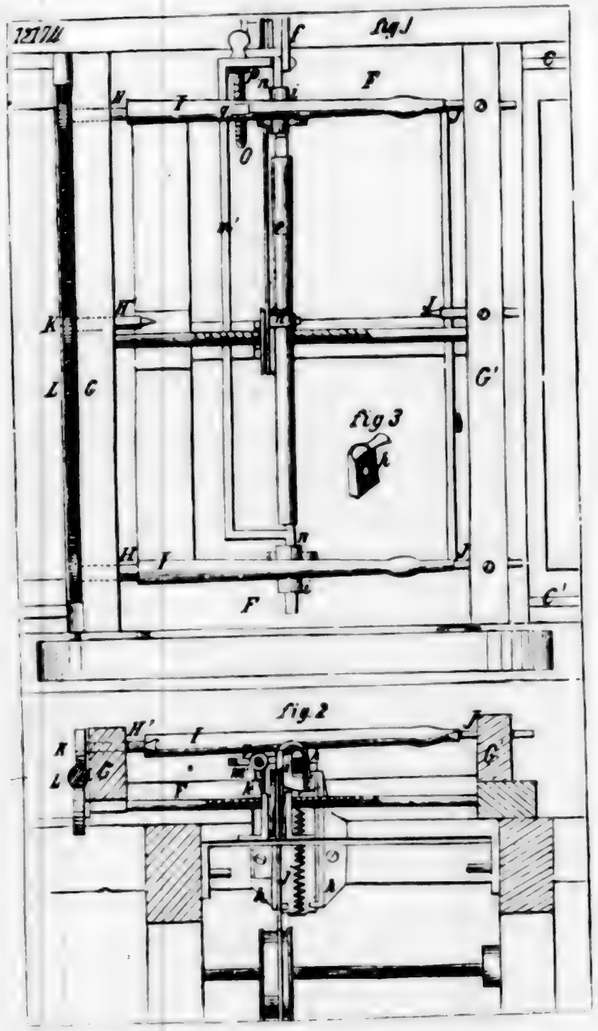


fig 2

12568 fig 1

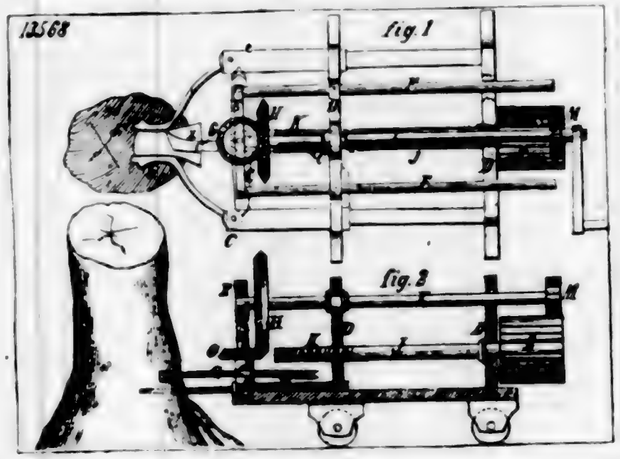


fig 2

12192 fig 1

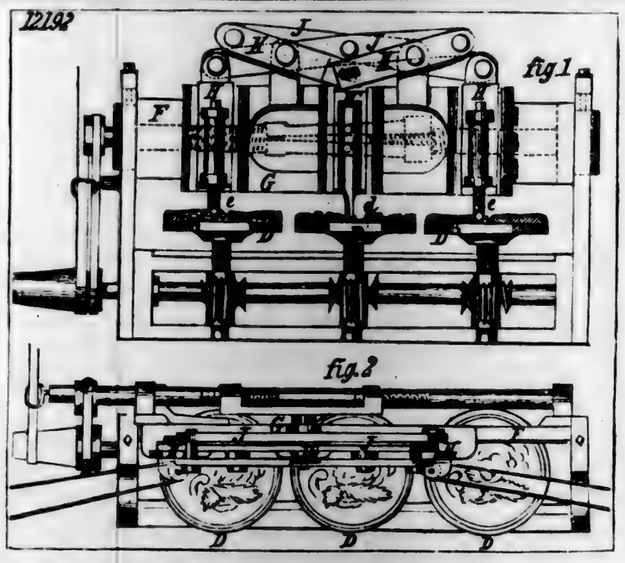
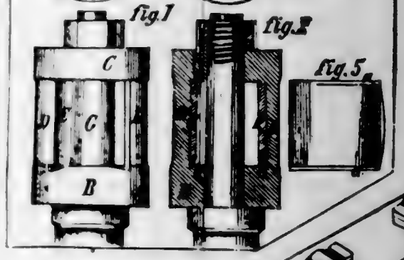


fig 2

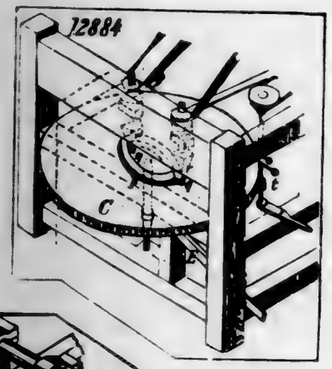
13386 fig 3 fig 4



fig 1 fig 2 fig 5



12884



13076 fig 1

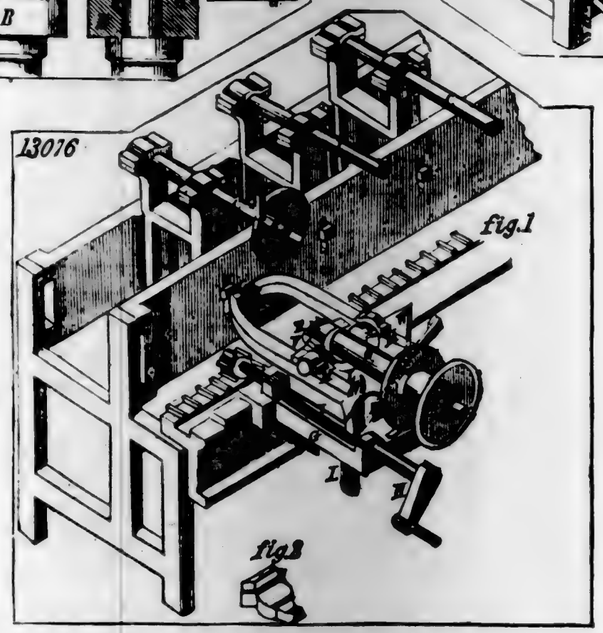


fig 2

135/1

fig.1

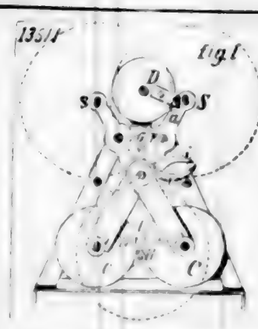


fig.2

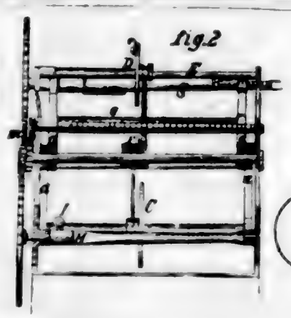


fig.3



12429

fig.1

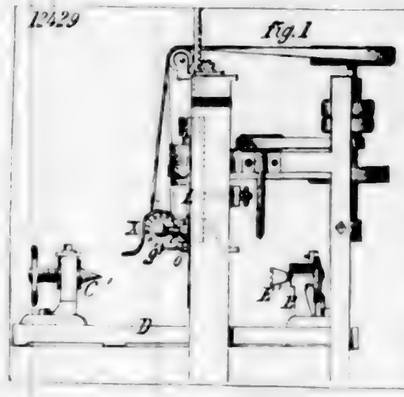
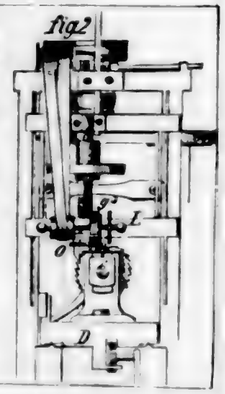


fig.2



13091

fig.1



fig.2



fig.3



13897

fig.1



fig.2

13746

fig.1

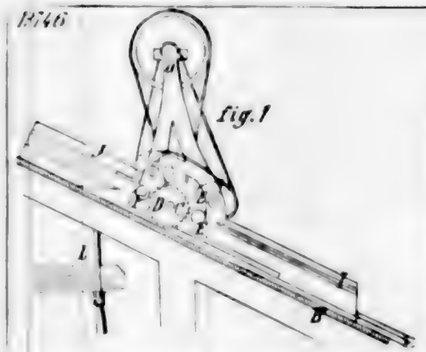


fig.2

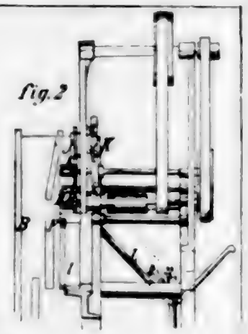


fig.3

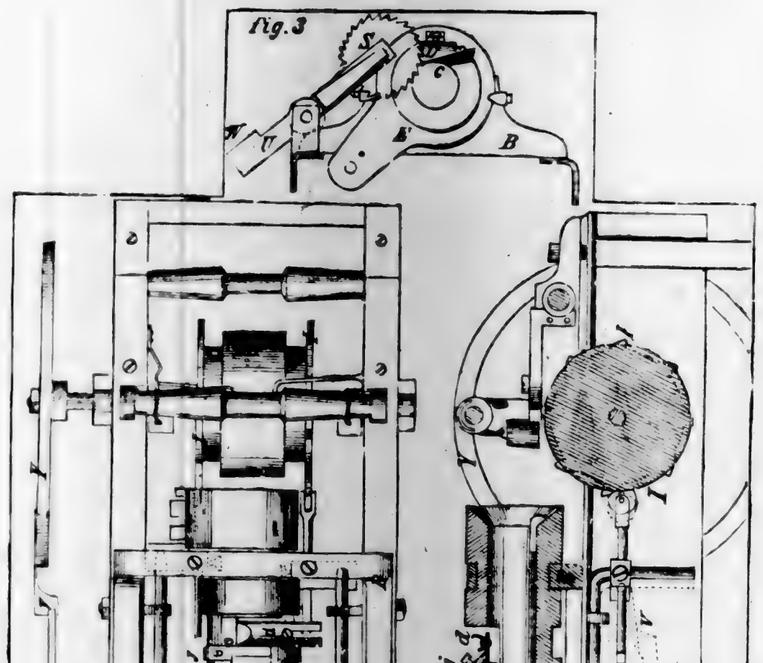


fig.1

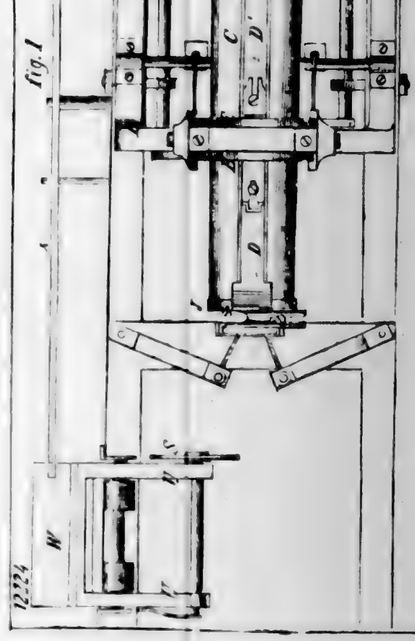
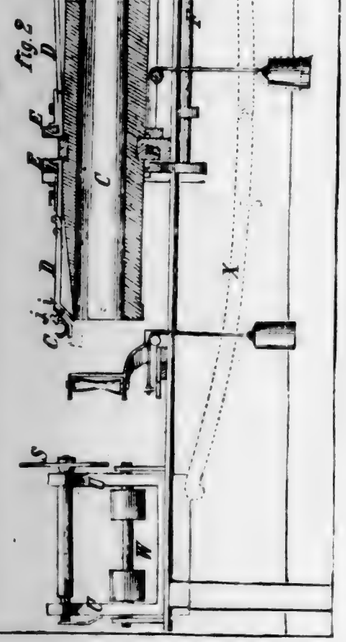
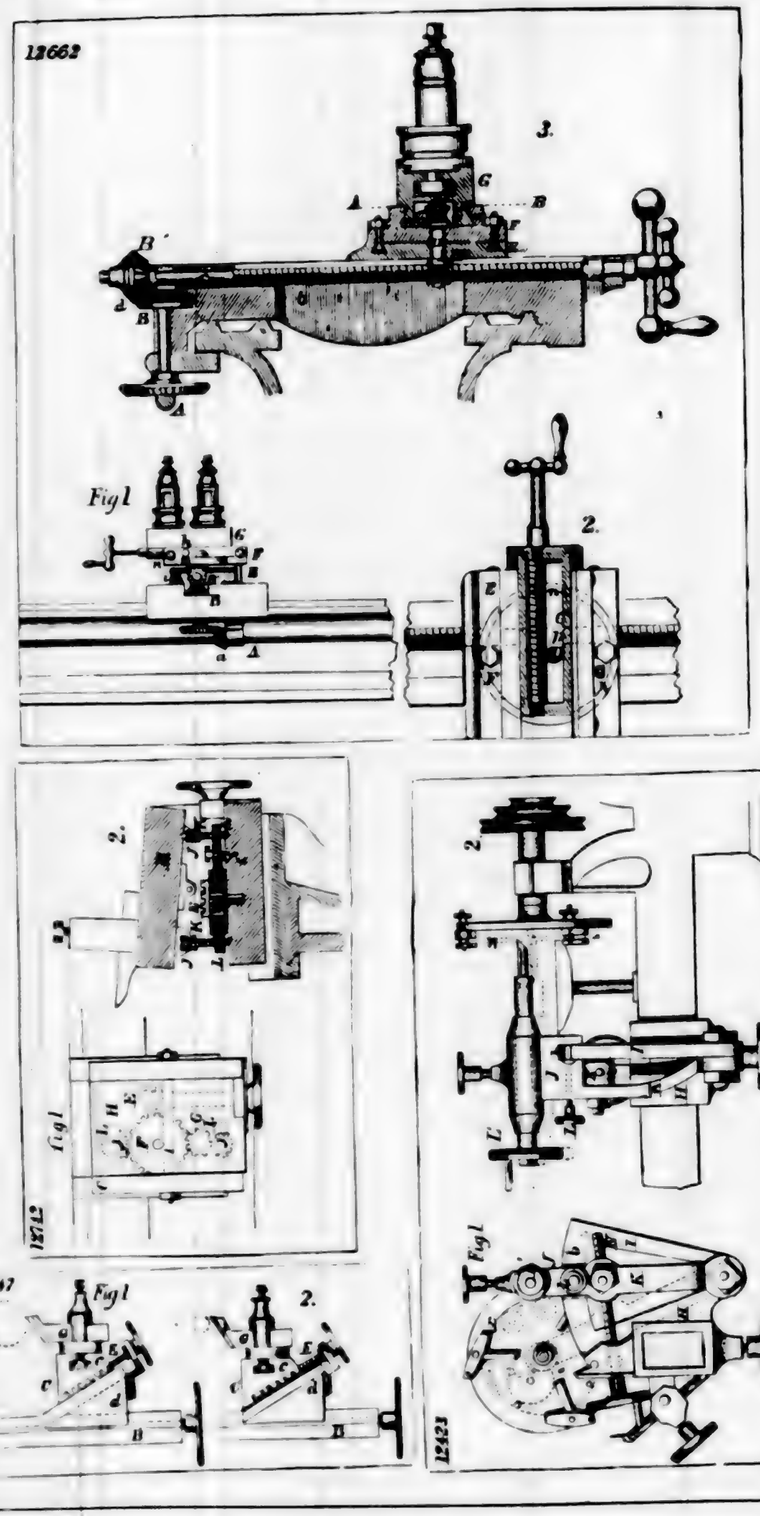
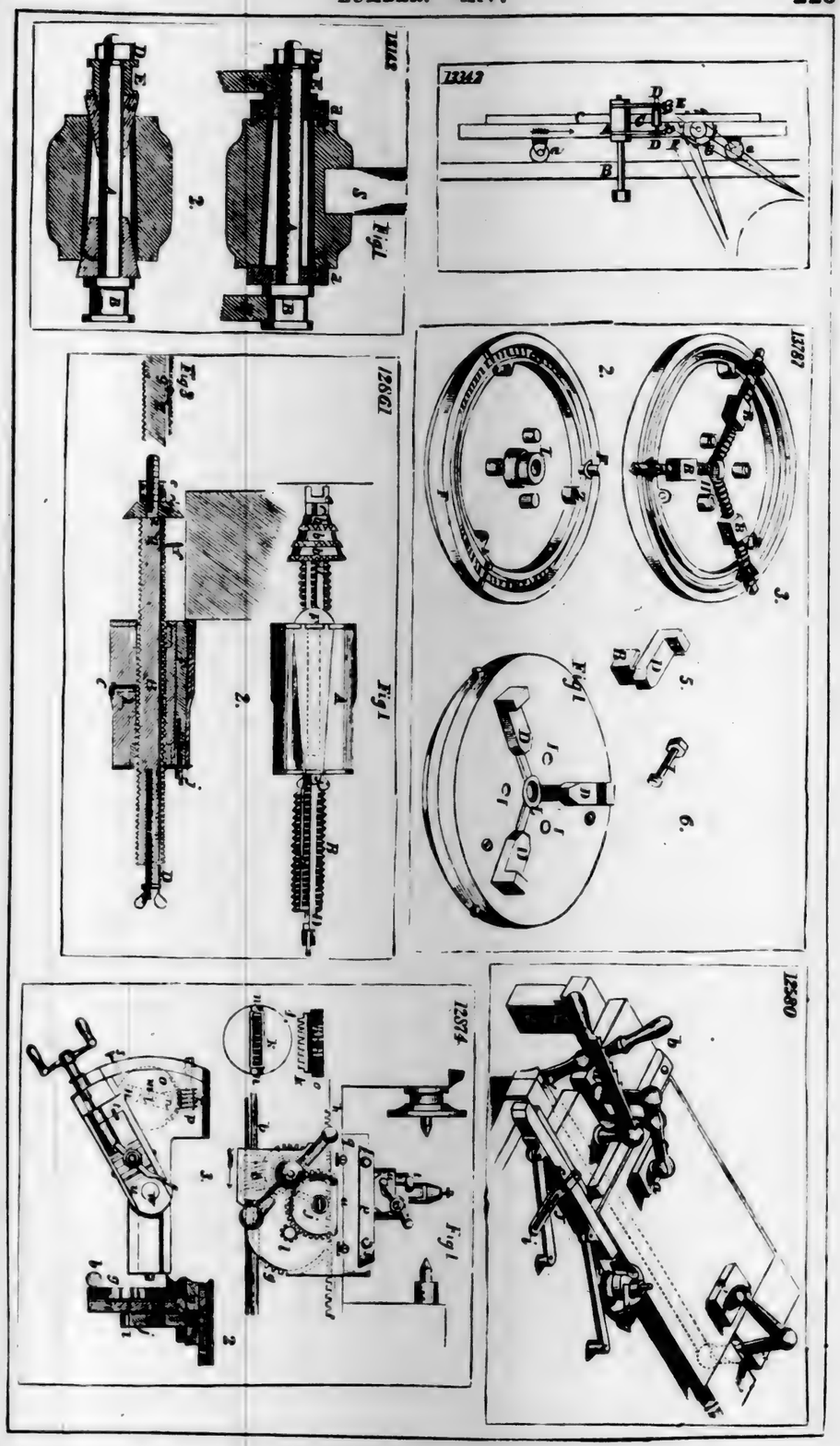


fig.2



12224


12662
3.
Fig 1
2.
12742
Fig 1
12747
Fig 1
2.
12423
2.
Fig 1


13143
Fig 1
2.
13342
13781
2.
3.
Fig 1
5.
6.
12821
Fig 3
Fig 1
2.
12574
Fig 1
2.
12580

12182

fig. 1

12297

fig 1

12216

fig. 1

15796

Fig. 1

fig. 1

12287

fig. 1

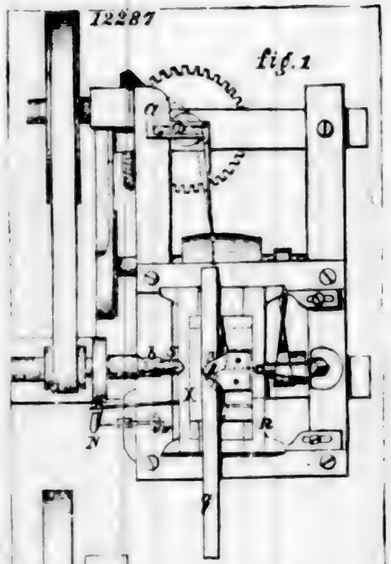


fig. 2

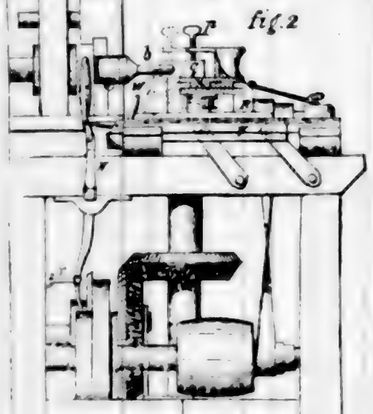
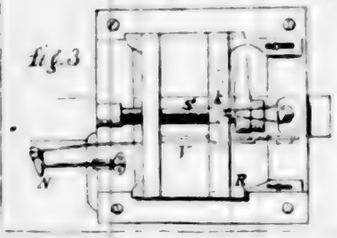


fig. 3



12852

fig. 1

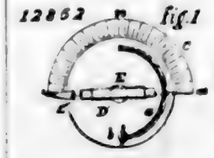


fig. 4



fig. 3

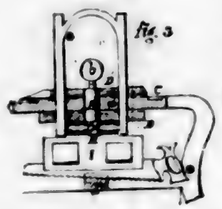


fig. 4



12956

fig. 1

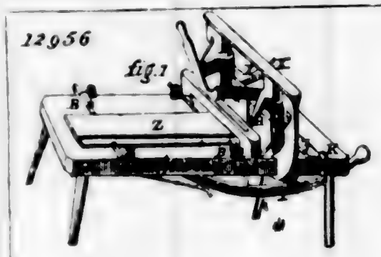
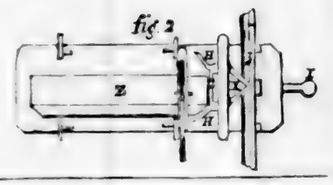


fig. 2



13127

fig. 1

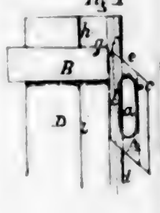
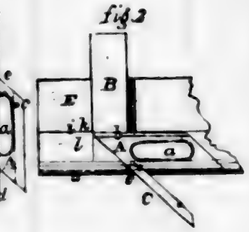
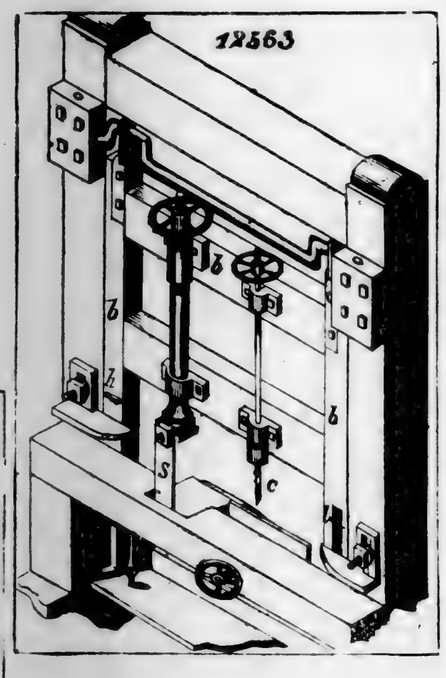


fig. 2



12563



12691

fig. 3



fig. 4

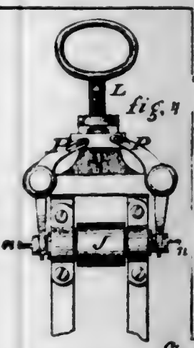


fig. 2

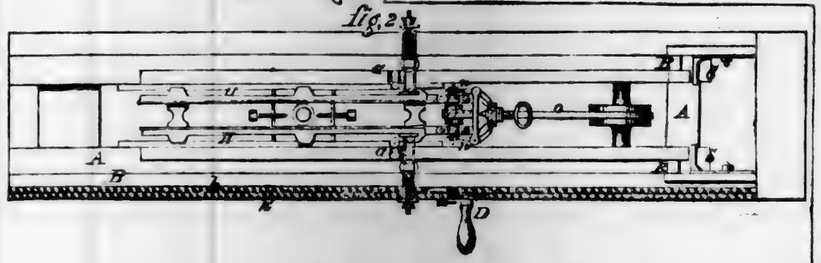
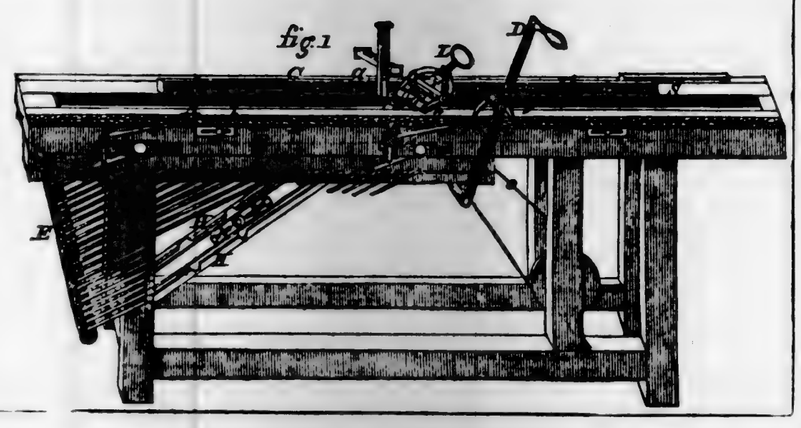
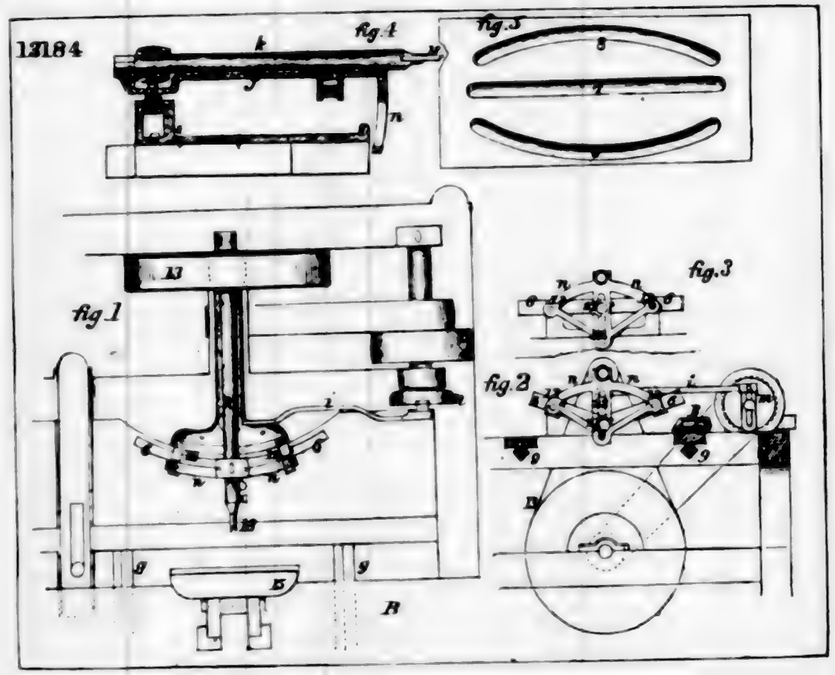


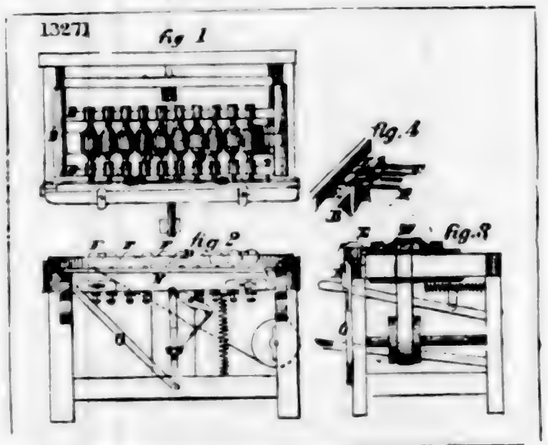
fig. 1



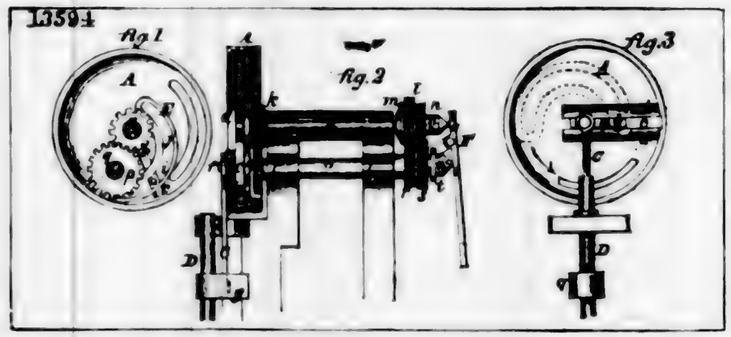
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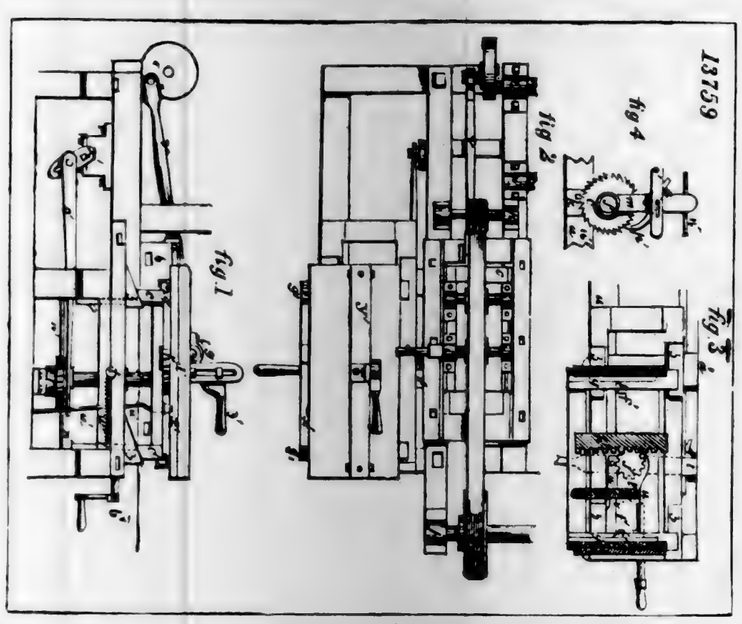
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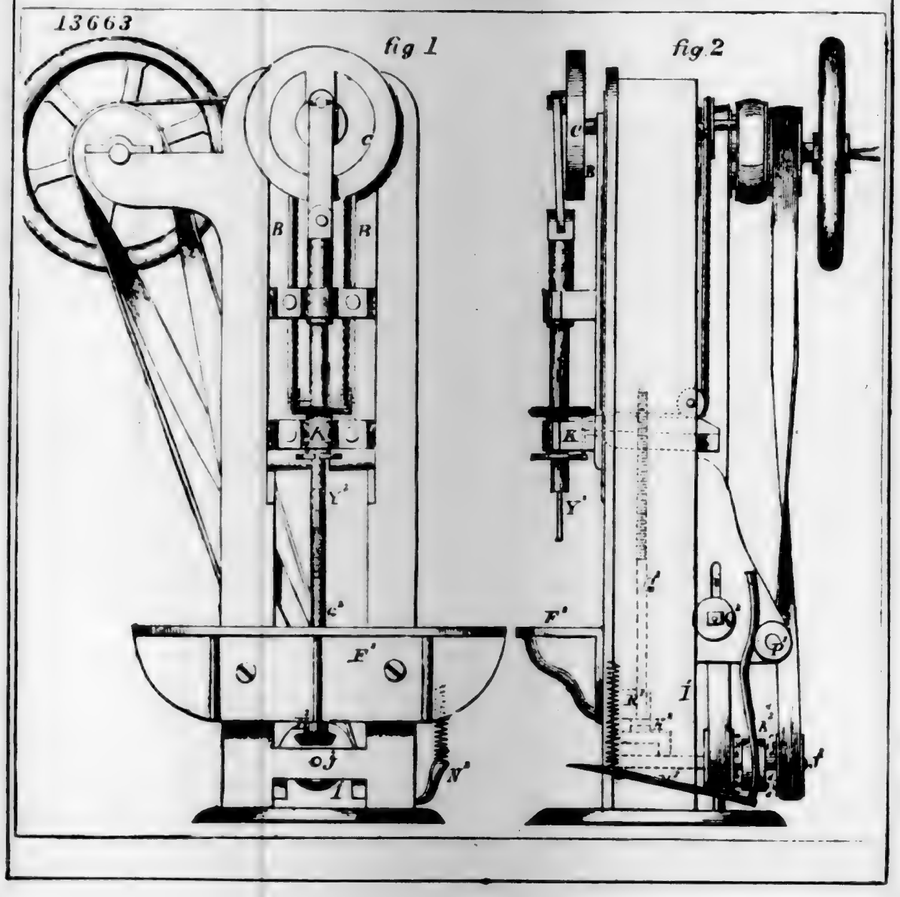
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fig. 1

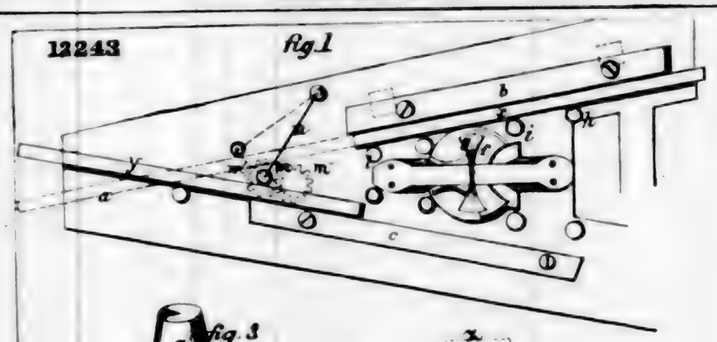


fig. 3

fig 2

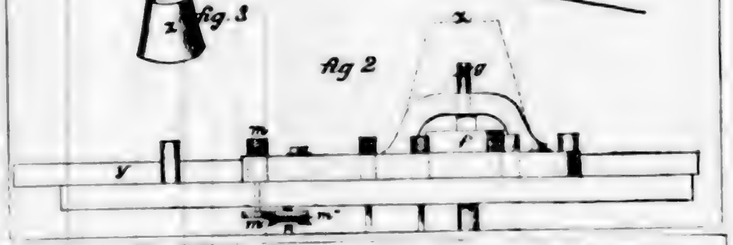
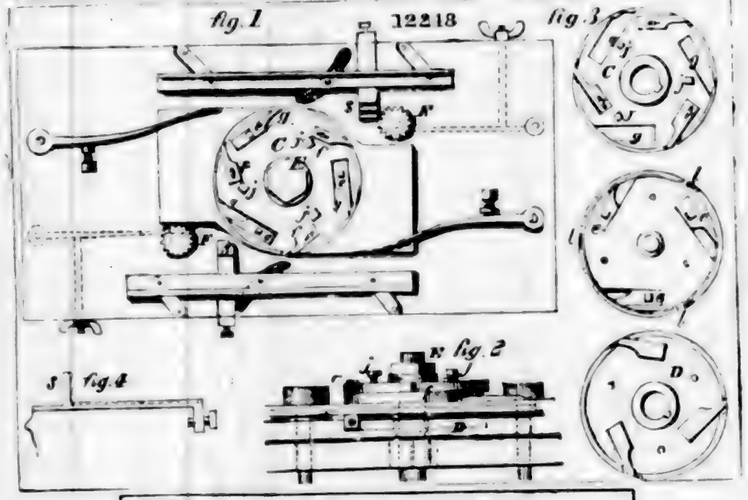


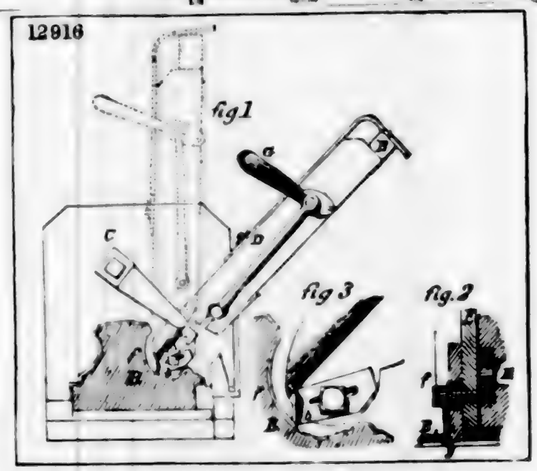
fig. 1

12218

fig. 3



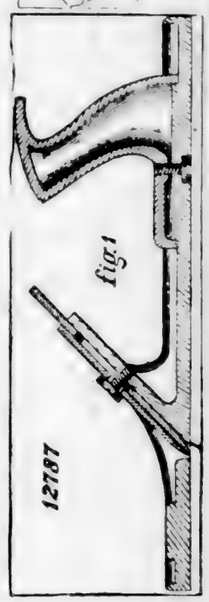
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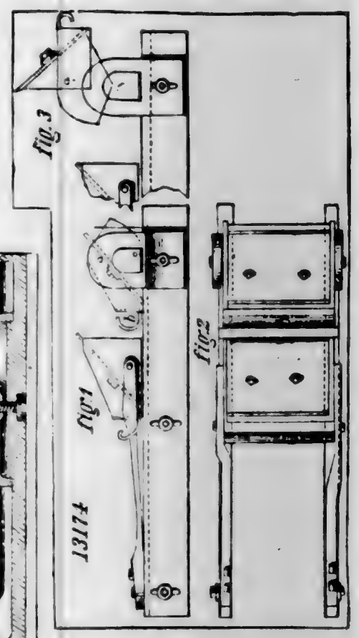
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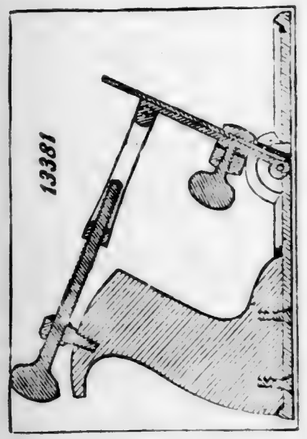
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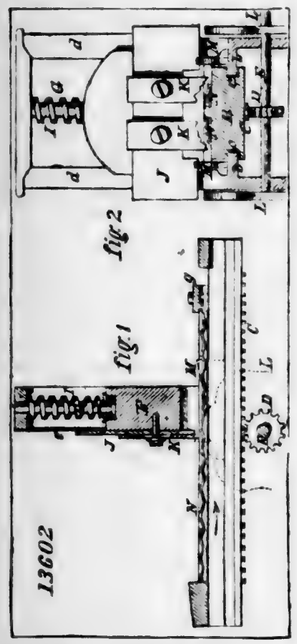
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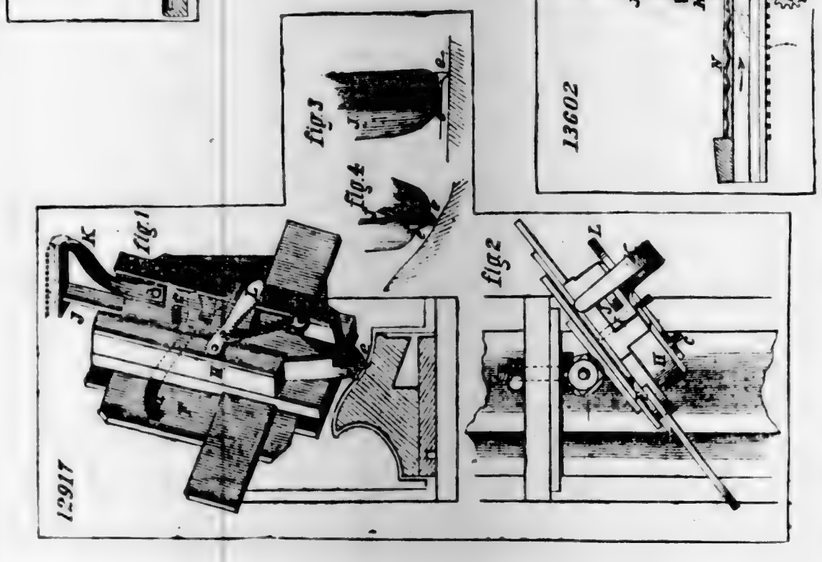
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13602



12917



13626

fig.1

fig.2

fig.3

13745 fig.1 fig.2

12162

13575 fig.1 fig.2

13957

fig.1 fig.2 fig.3 fig.4 fig.5

13757

12110 fig.1 fig.2 fig.3 fig.4

12451 fig.1 fig.2

12211 fig.1 fig.2

13345 fig.1 fig.2 fig.3

13808 fig 2

fig 1

13618 fig 1

fig 2

13947

13536 fig 1

fig 2

fig 3.

13881 fig 1

fig 2

13257 fig 1 fig 2

12707 fig 1

fig 2

12126 fig 1

fig 2

fig 3

13170 fig 2

fig 1

12197

12337 see figs 2, 4, & 5 on page 237

fig 3.

fig 1

12176

fig 4.

fig 1.

fig 2.

fig 3.

fig 6.

12664

fig 1

fig 2.

fig 4.

fig 5.

ad 12337 see page 236

fig 2.

12705

fig 1

fig 3.

fig 2

12493

12412

fig 1.

fig 2

12679

fig 1

fig 2

12809

fig 3.

fig 2.

fig. 1

fig 4.

12621

Fig 1

Fig 2

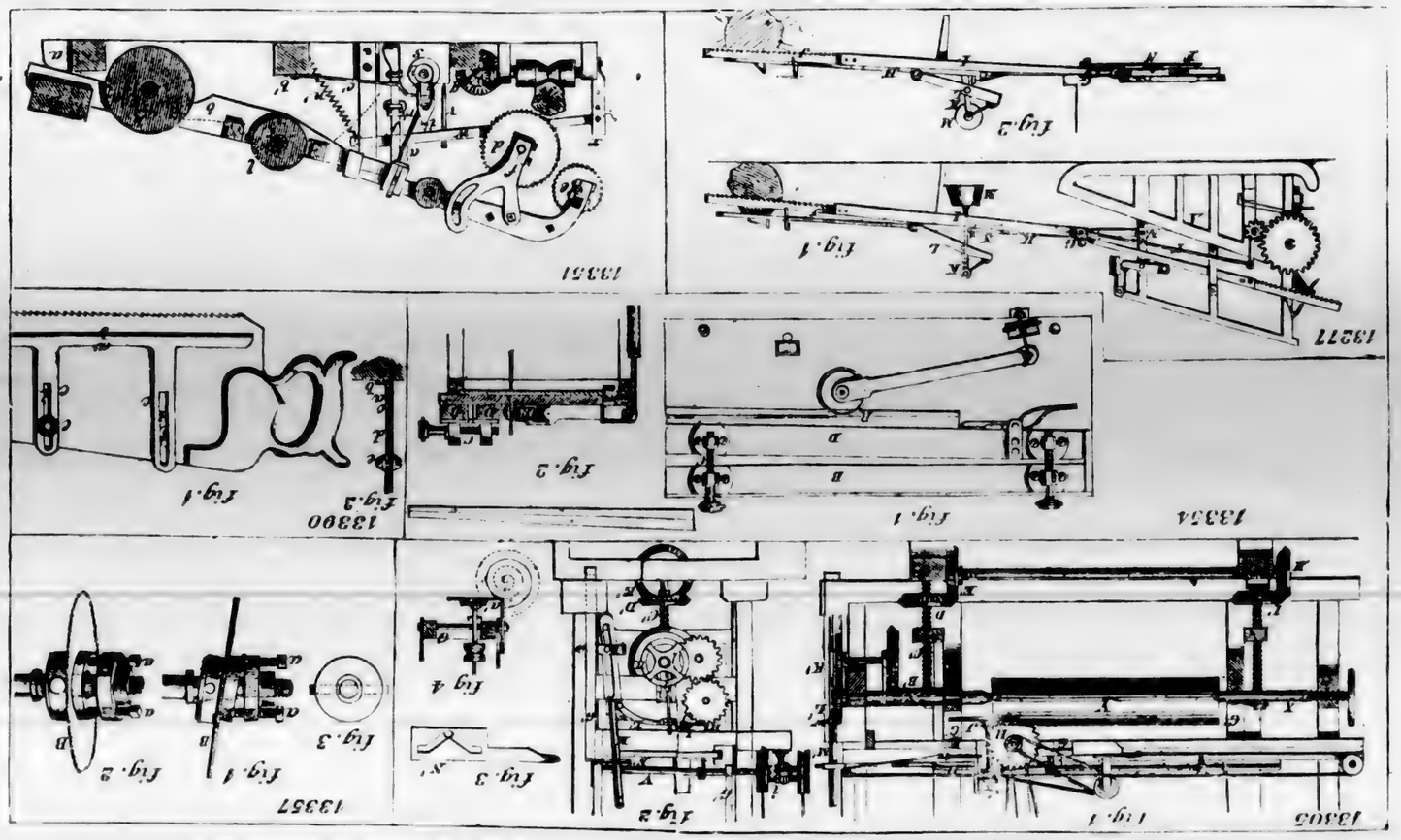
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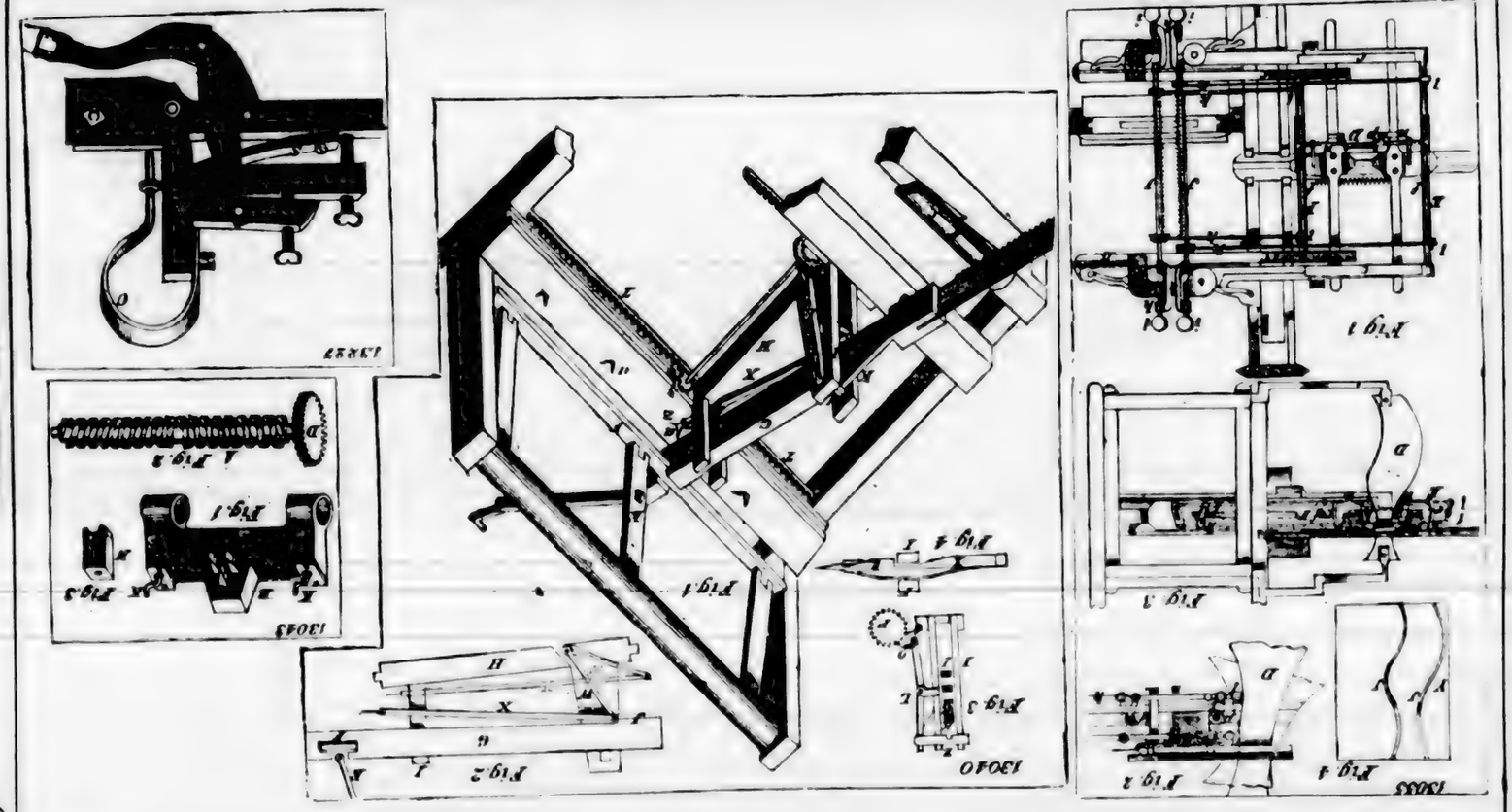
Fig 1

Fig 2

Fig 3

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13444 fig. 1

fig. 2

fig. 4

fig. 5

fig. 6

fig. 3

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13399 fig. 1

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13573 fig. 1

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13544 fig. 1

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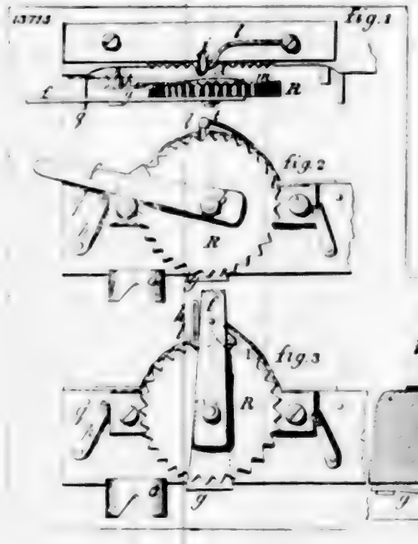
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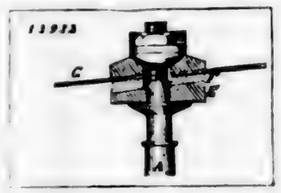
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13564 fig. 2

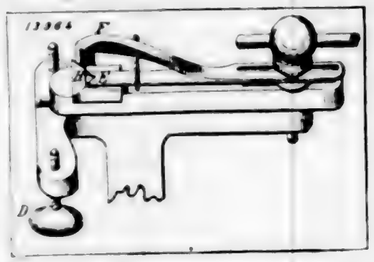
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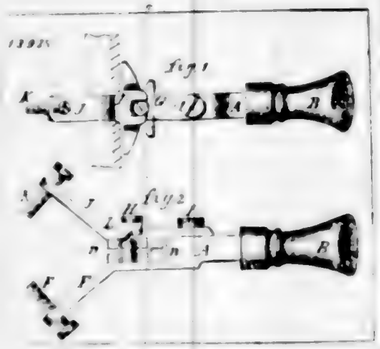

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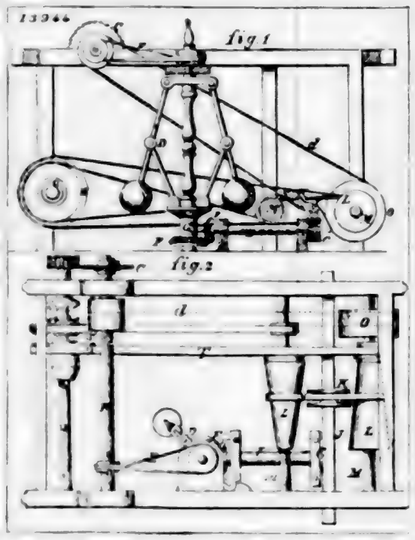

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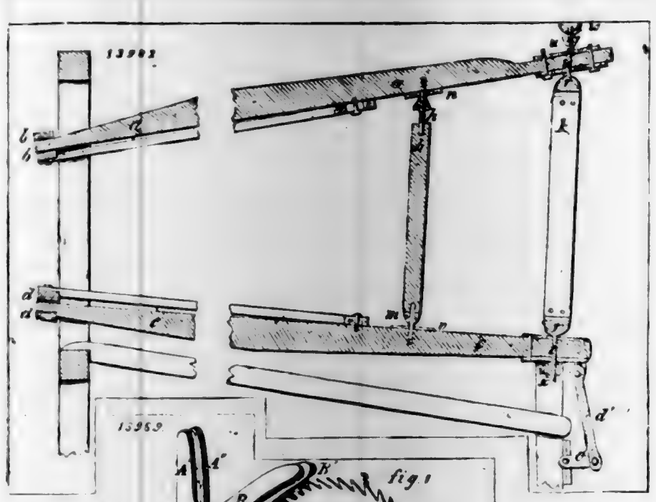

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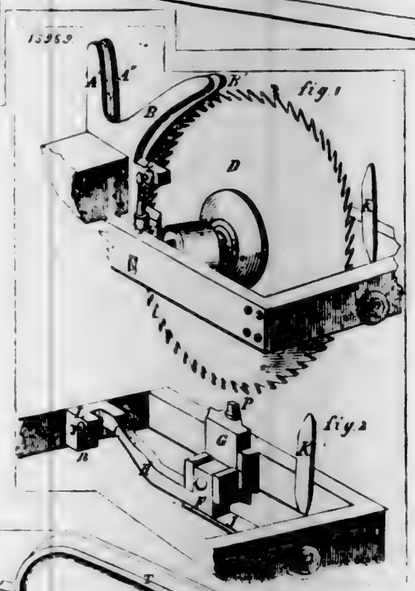

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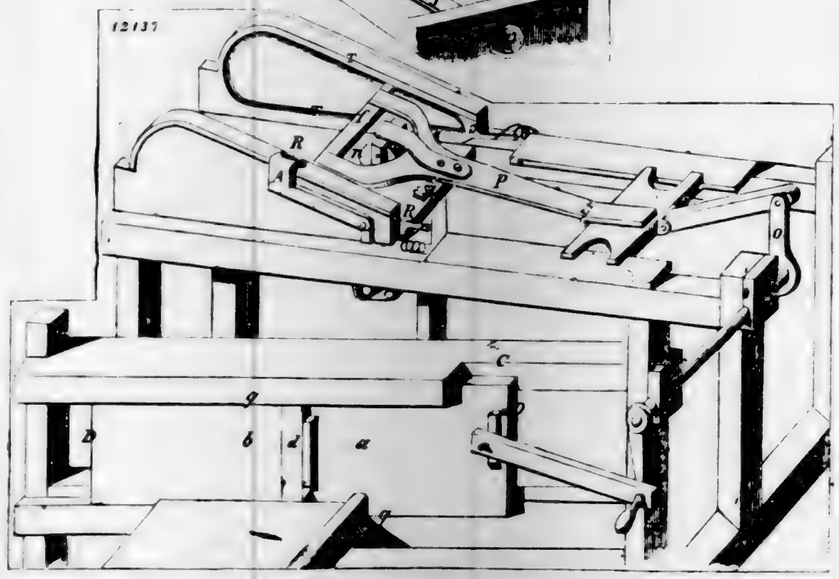

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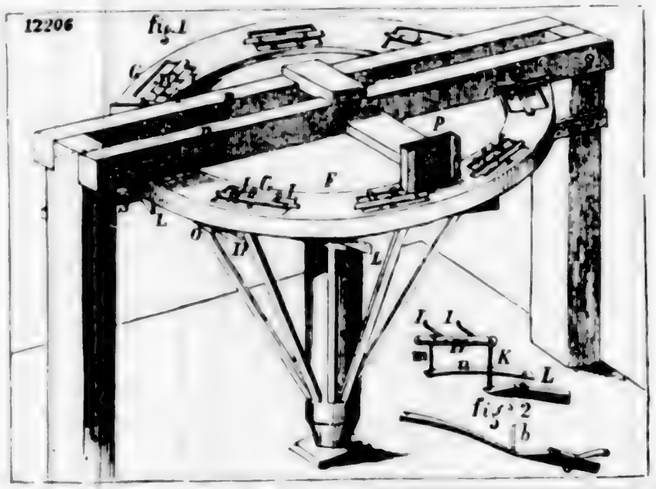

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fig. 2


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12206 fig. 1



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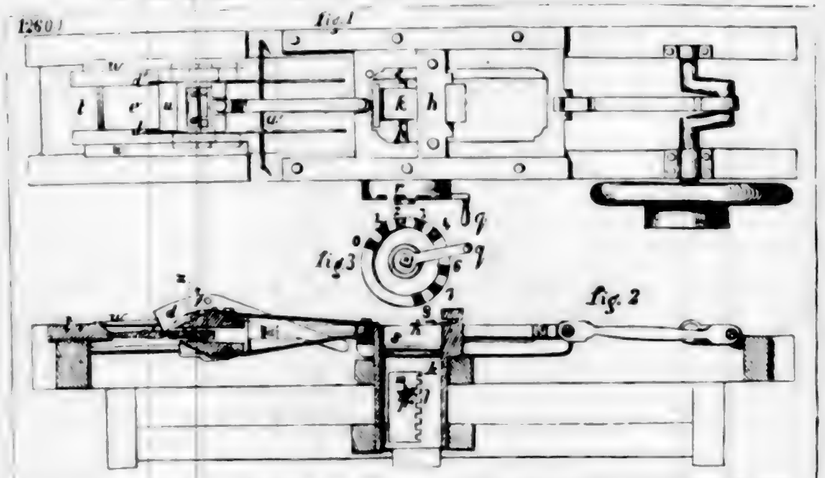


fig. 3

fig. 2

12642 fig. 1



fig. 5 fig. 6



fig. 2

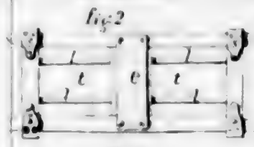


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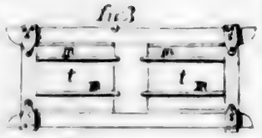
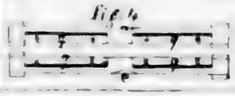


fig. 4



15155 fig. 1

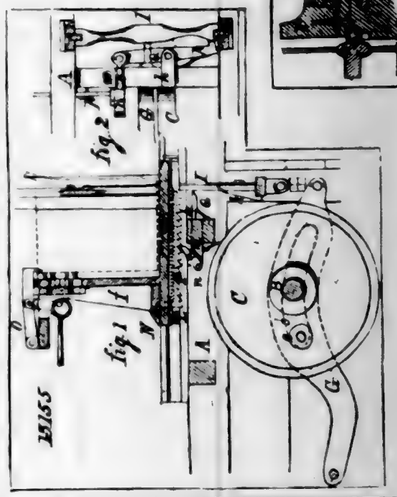


fig. 2

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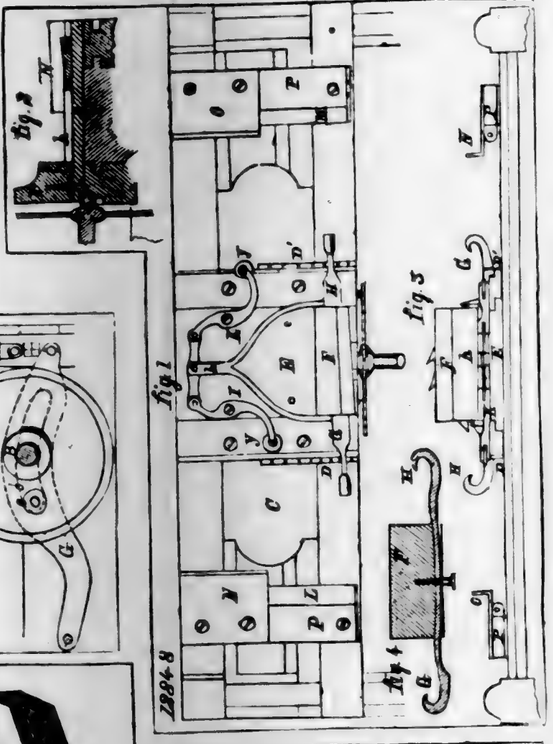


fig. 3

fig. 4

fig. 5

13175 fig. 1

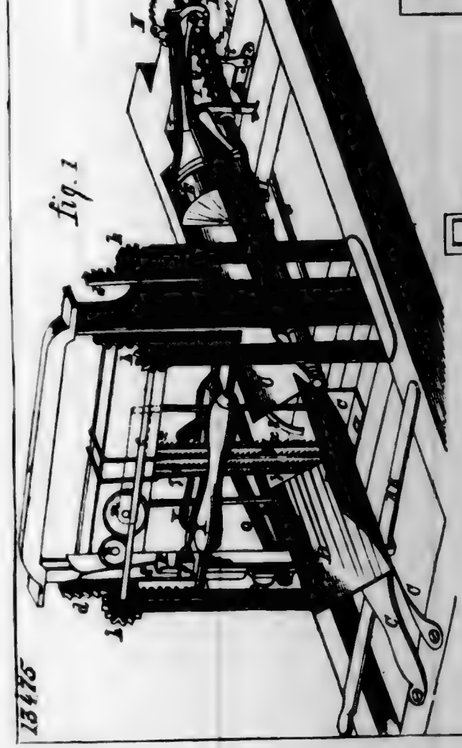
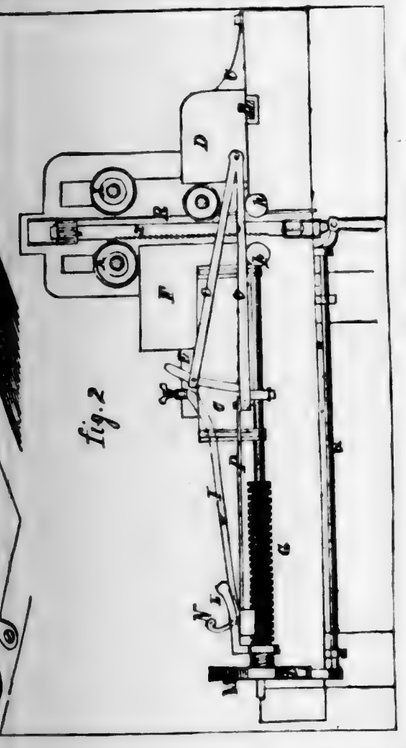


fig. 2



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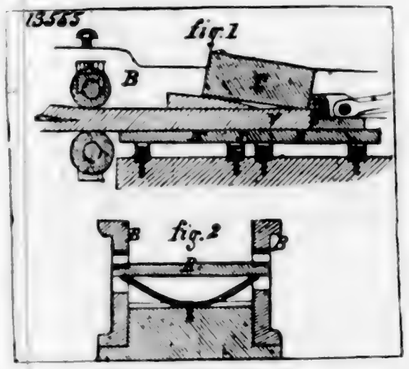


fig. 2

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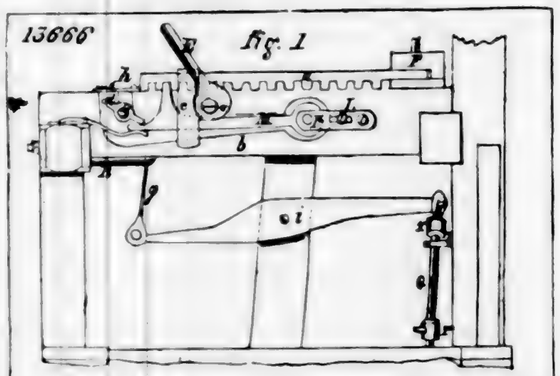
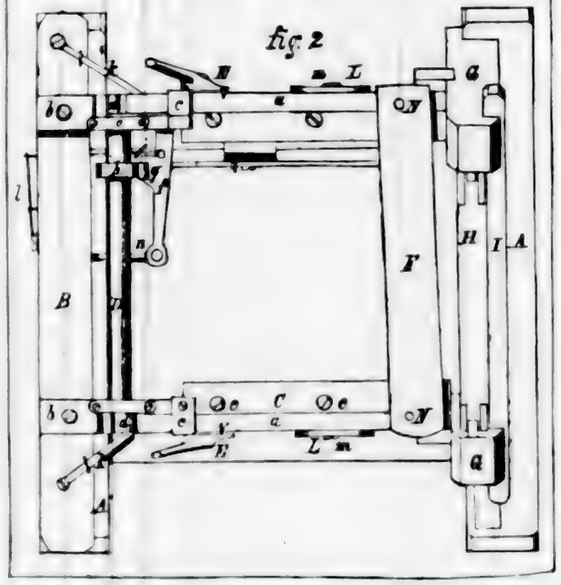


fig. 2



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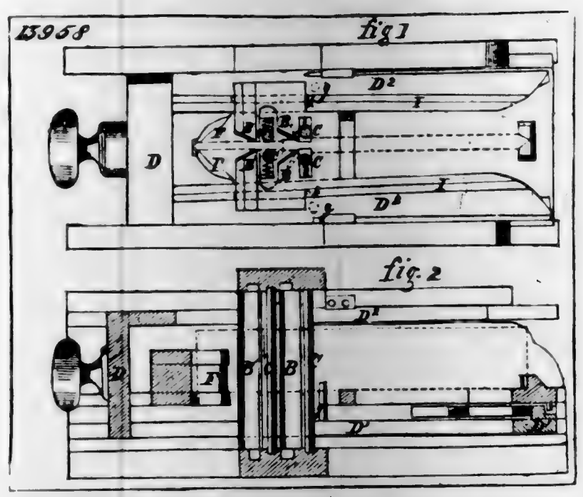


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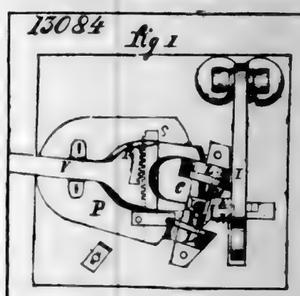


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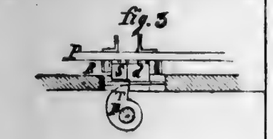


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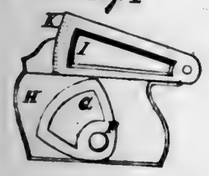
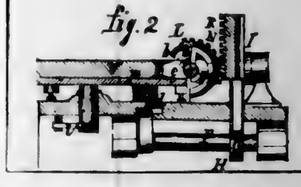


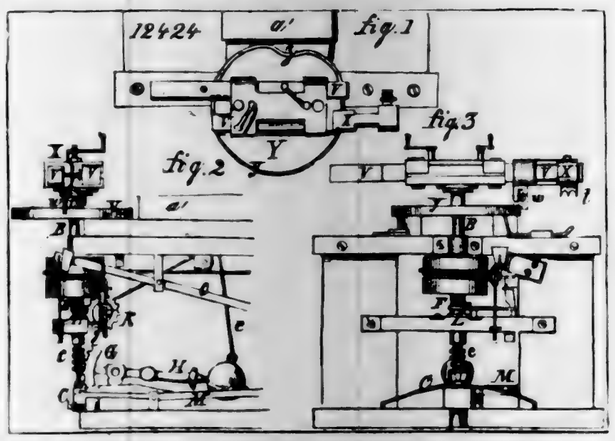
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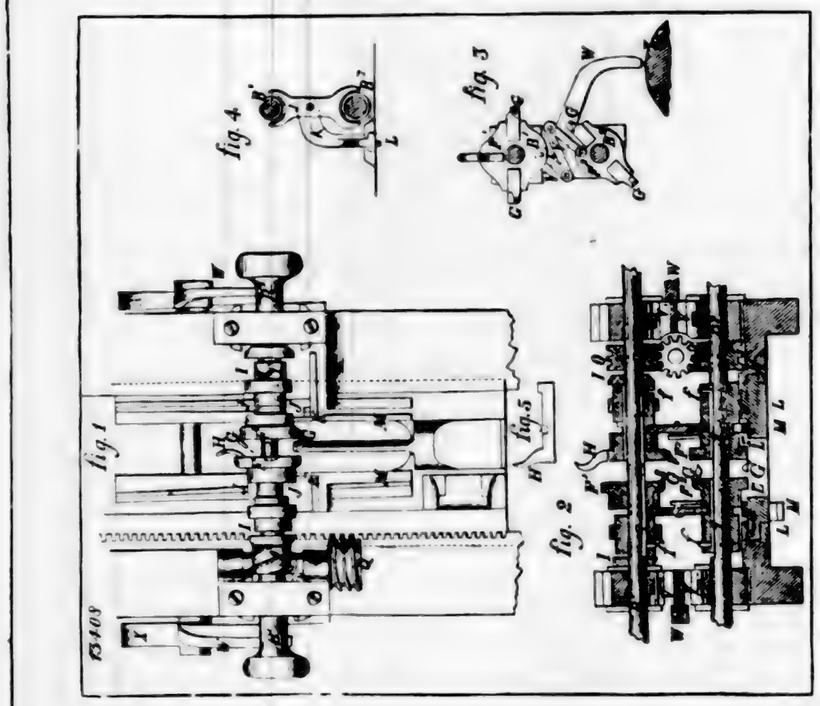


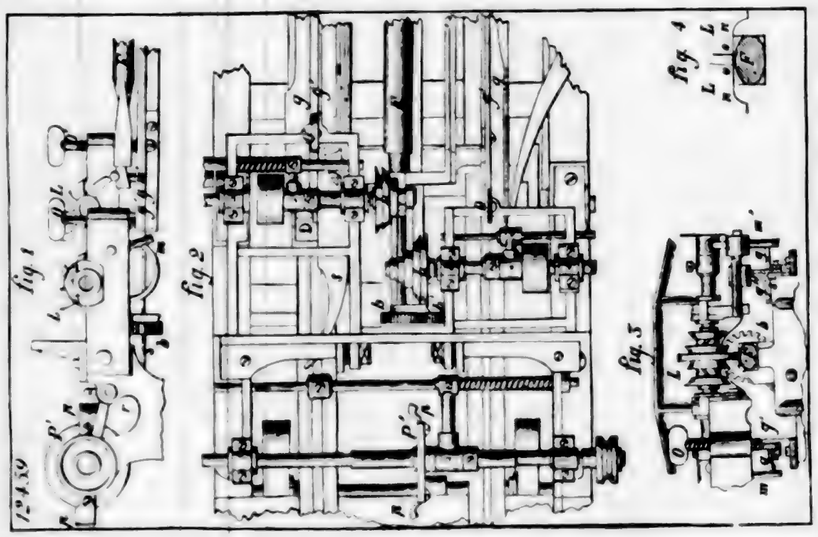
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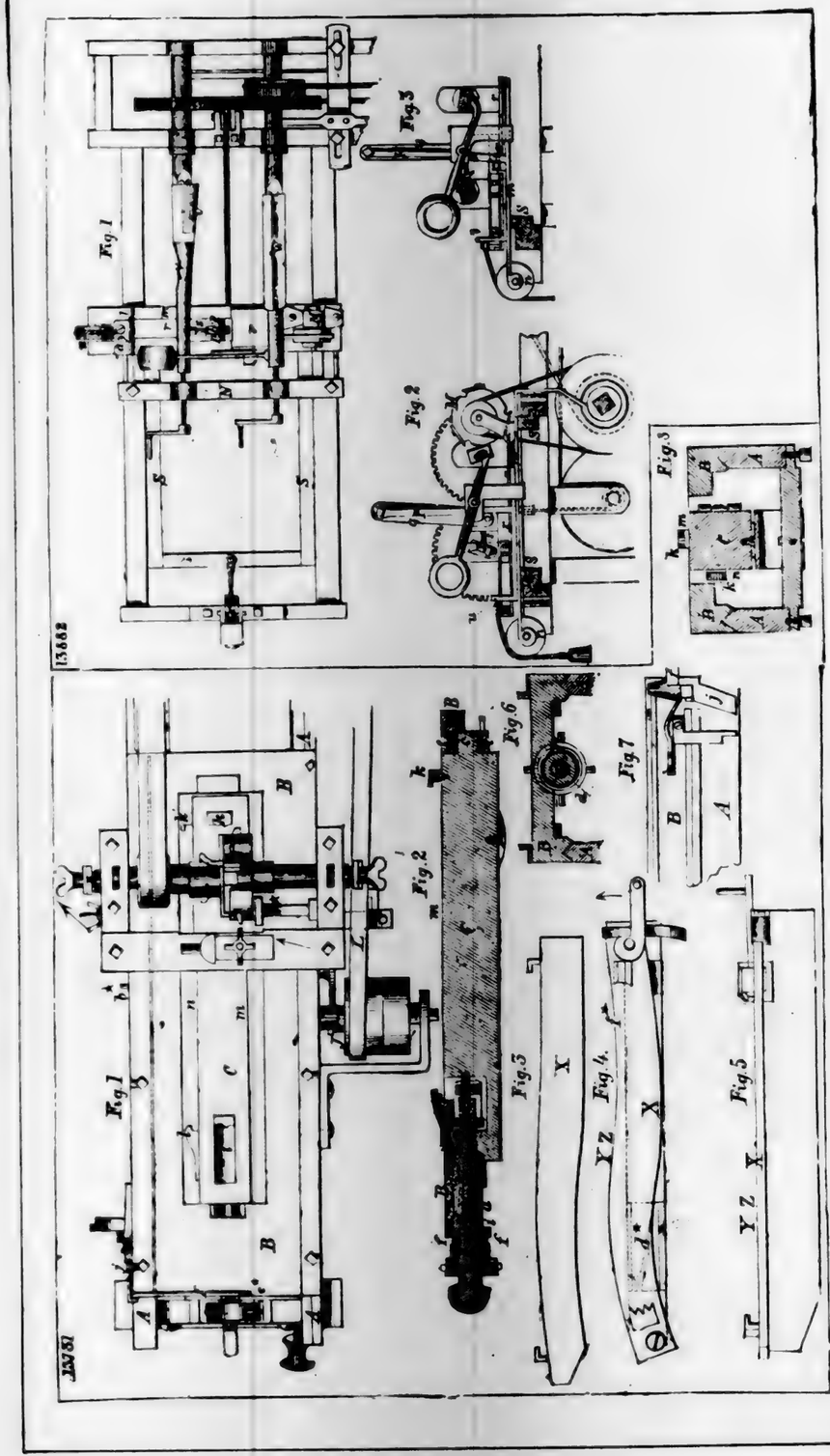
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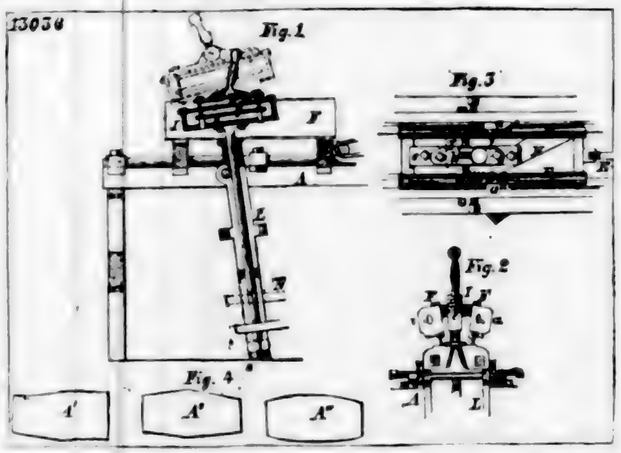



fig. 4
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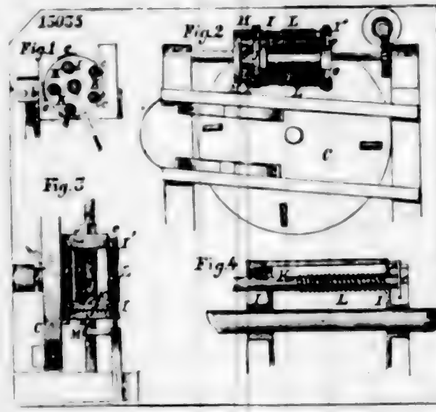

fig. 1
fig. 2
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Fig. 1
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Fig. 5

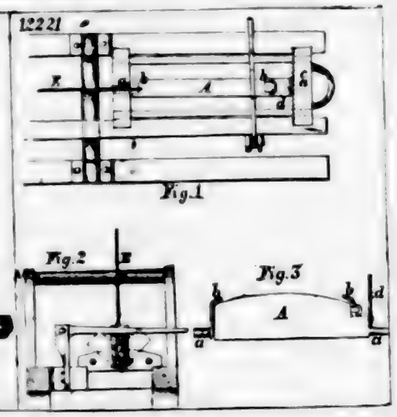
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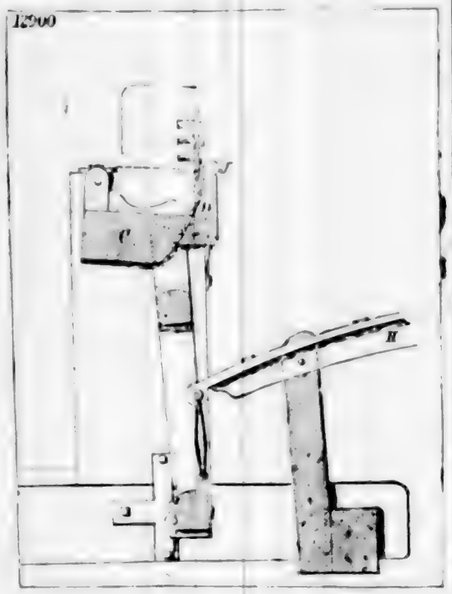
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12221



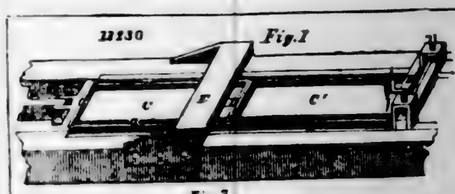
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13045



13130 Fig. 1



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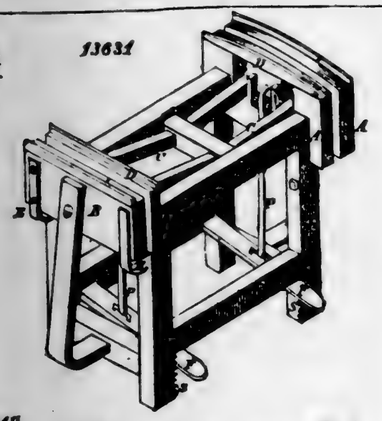


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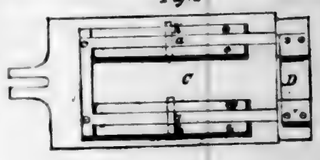
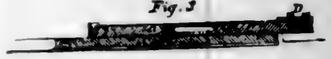


Fig. 3



13449 Fig. 5

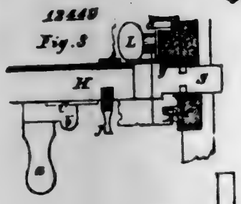


Fig. 4

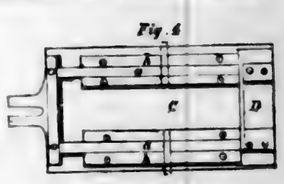


Fig. 5



Fig. 6



Fig. 1

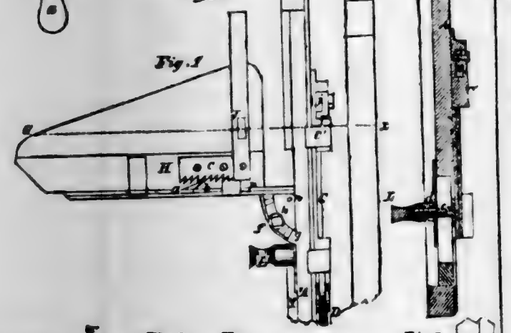
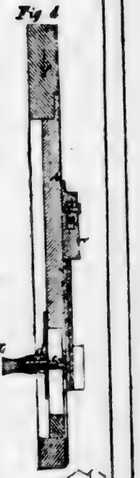


Fig. 4



13416 Fig. 2

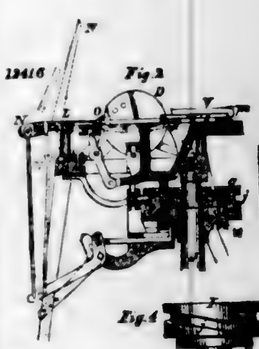


Fig. 1

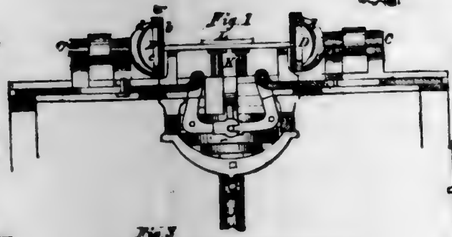


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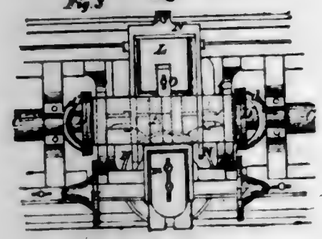


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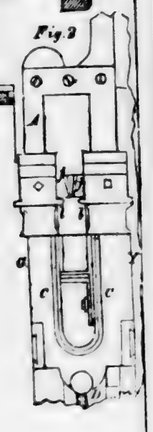


Fig. 4



Fig. 7

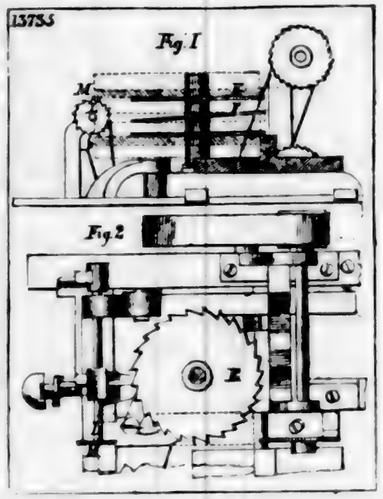


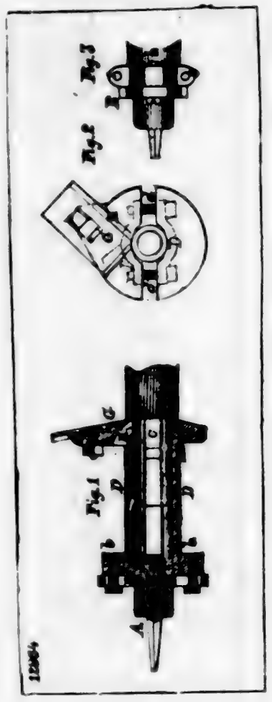
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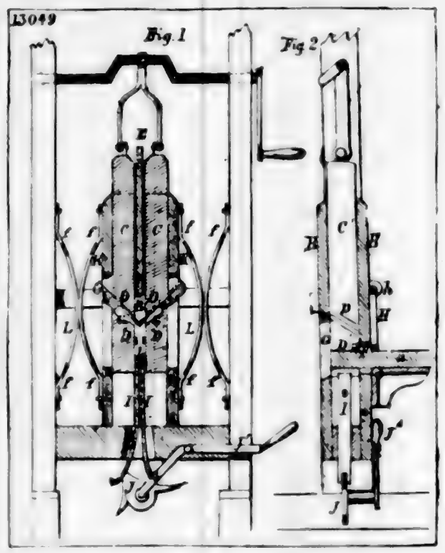


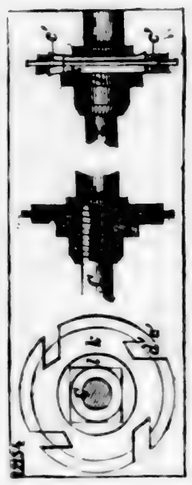
Fig. 6

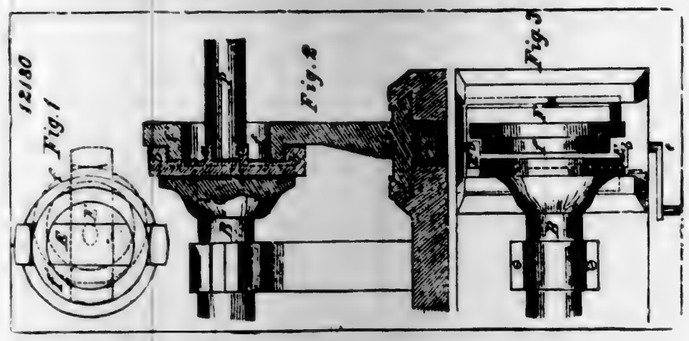


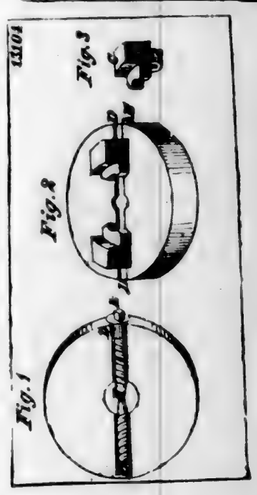

13755
Fig. 1
Fig. 2

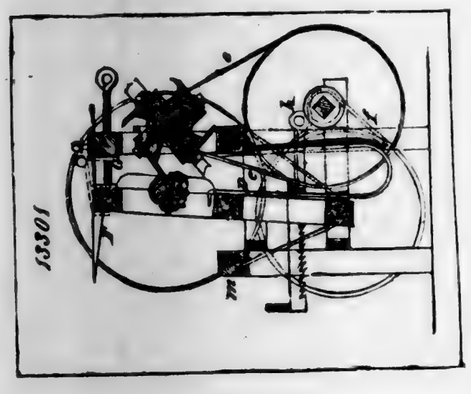

Fig. 3
Fig. 4
Fig. 1
12564

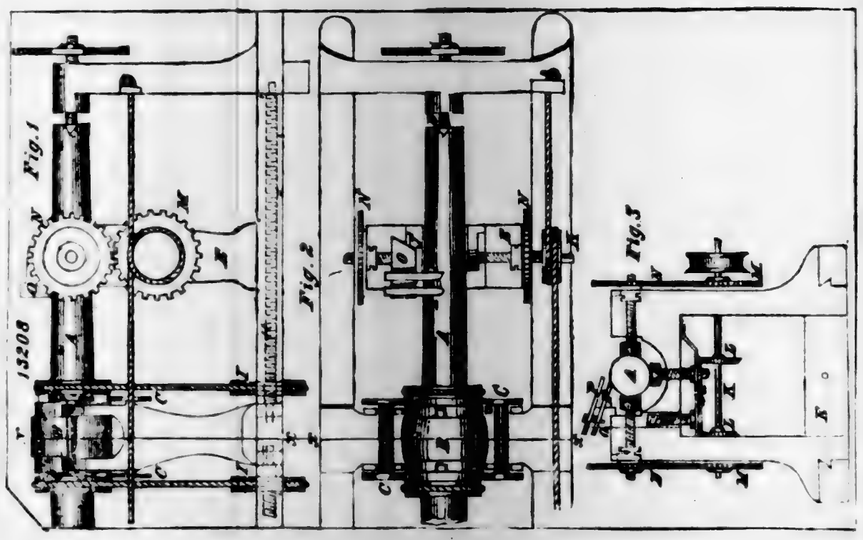

13049
Fig. 1
Fig. 2


12554


12180
Fig. 1
Fig. 2
Fig. 3


13101
Fig. 3
Fig. 2
Fig. 1


13301


13208
Fig. 1
Fig. 2
Fig. 3

13492

fig. 1

fig. 3

fig. 2

12857

fig 1

fig 2

15485

fig 1

fig 2

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fig 1

fig 2

12558

fig 1

fig 2

fig 3

fig 4

13264

13110

fig 1

fig 2

fig 3

12997

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fig 1

fig 2

fig 3

fig 4

13048

12898

fig 1

fig 2

13123 fig. 1

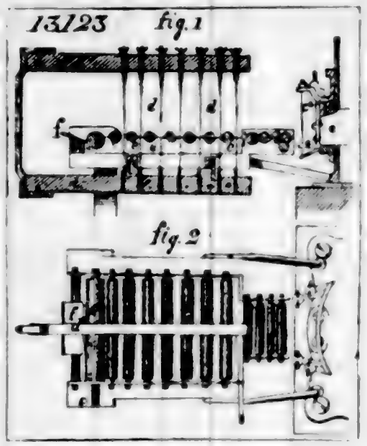
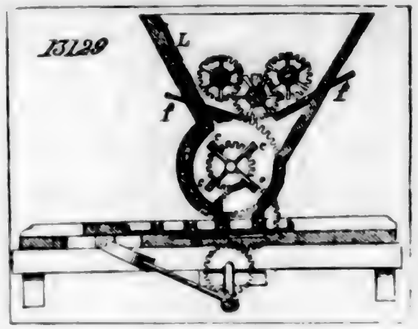


fig. 2

13129



13533



13602 fig. 1

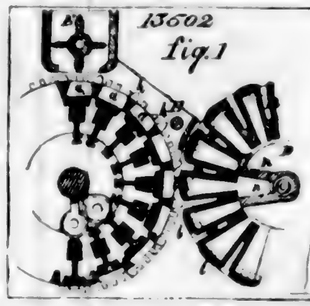
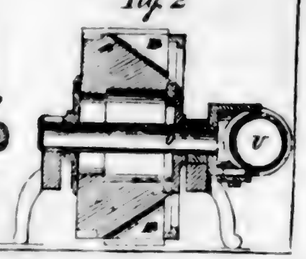


fig. 2



13239 fig. 4 fig. 5

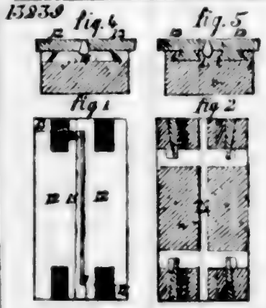
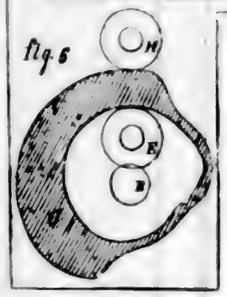
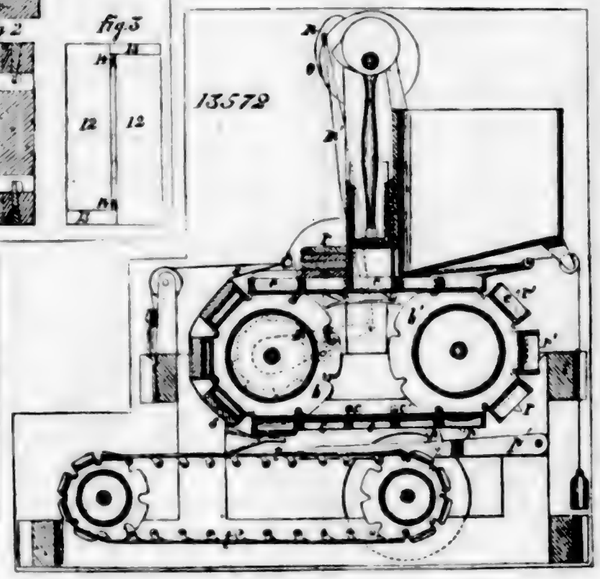


fig. 1 fig. 2 fig. 3

fig. 6



13572



13747 fig. 1

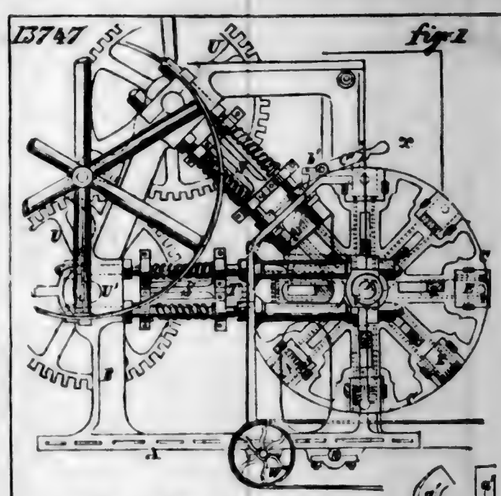


fig. 2

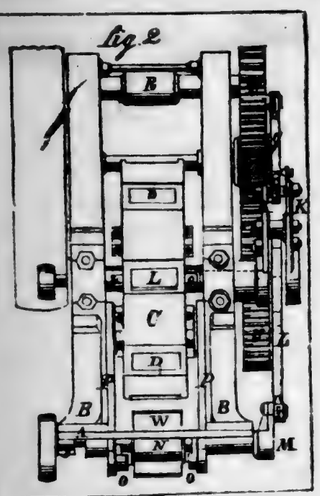


fig. 3

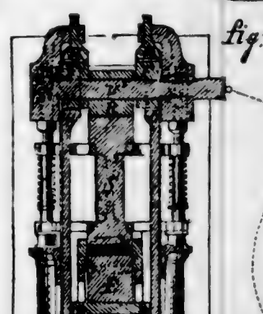
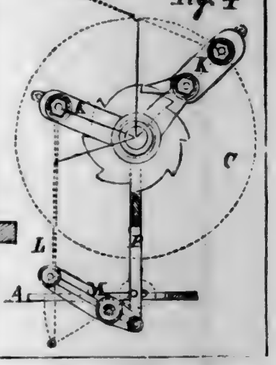


fig. 5



fig. 4



13411 fig. 1

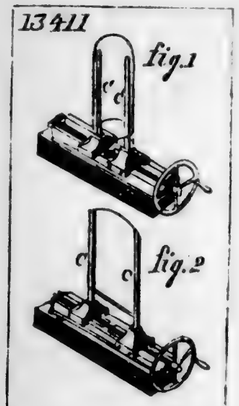


fig. 2

13177 fig. 1

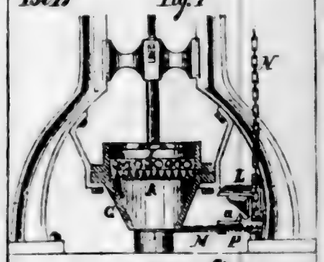
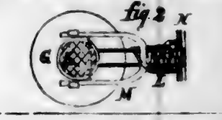
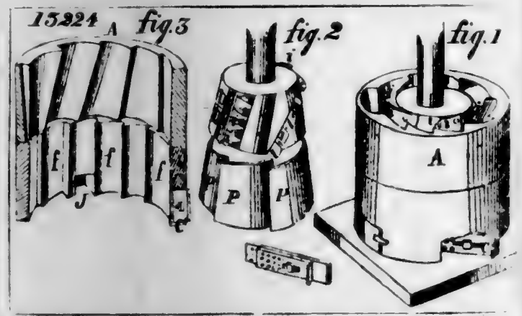


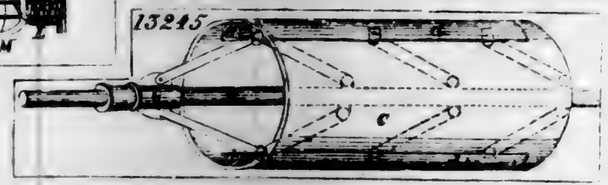
fig. 2



15224 fig. 3 fig. 2 fig. 1



13245



13880

13882

13813 fig. 1 fig. 2

13891 fig. 1

fig. 2

fig. 3

13494 fig. 1

fig. 2

13521 fig. 1

fig. 2

fig. 3

fig. 4

13074 fig. 1

fig. 2

13773 fig. 1

fig. 2

fig. 3

13591 fig. 1

fig. 2

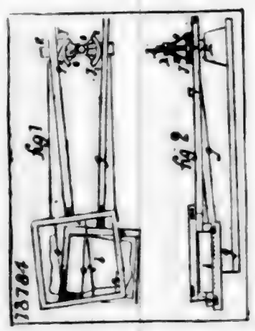
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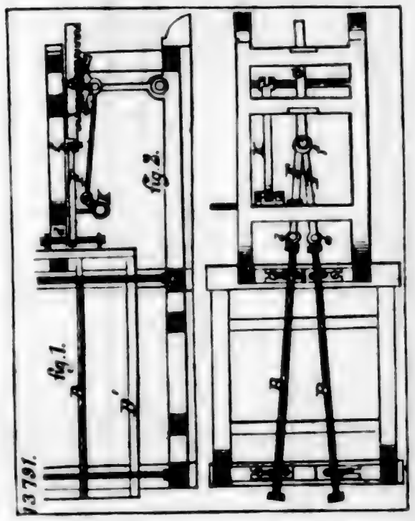
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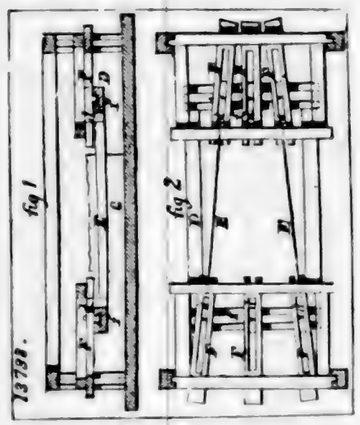
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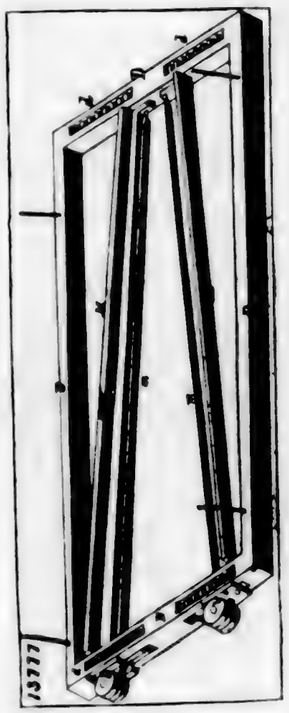
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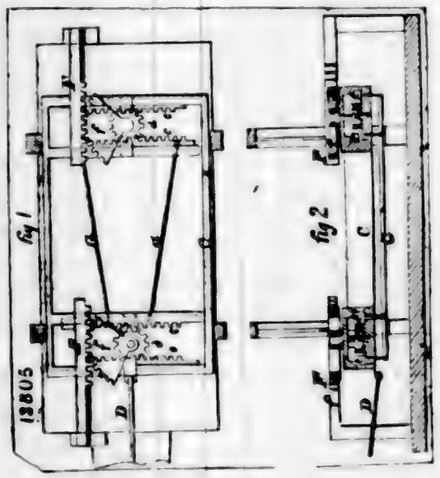
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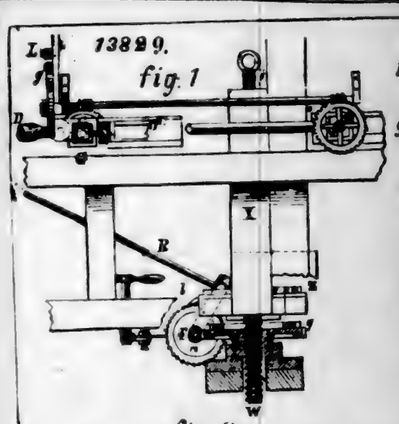

13784
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fig 2

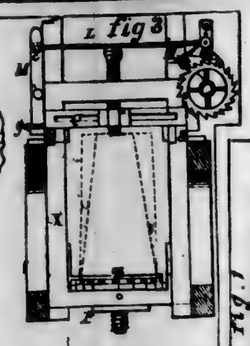

13791.
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fig 2.

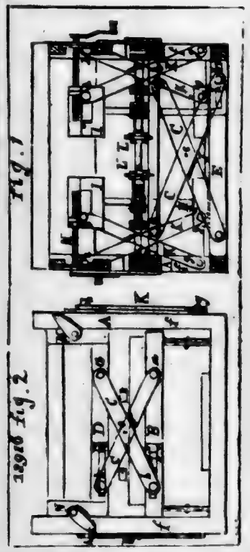

13792.
fig 1
fig 2

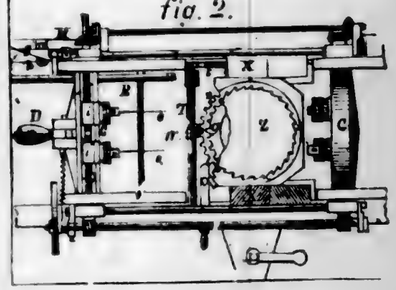

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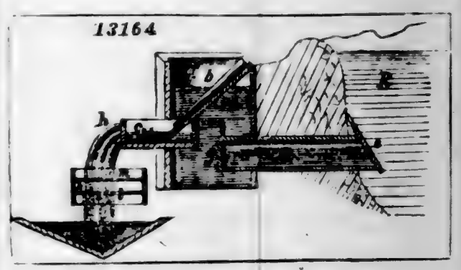

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fig 2

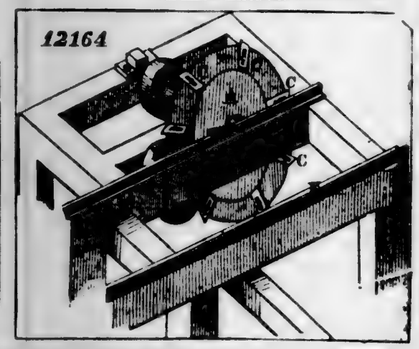

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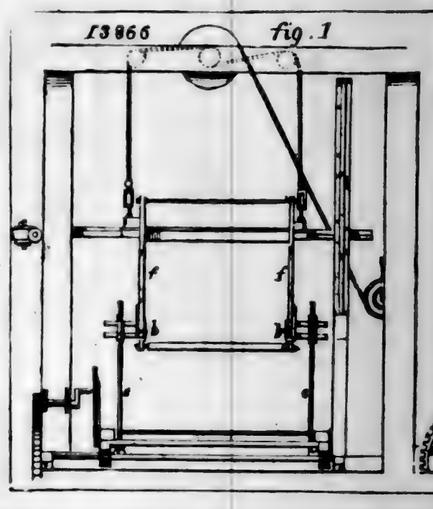

fig 3

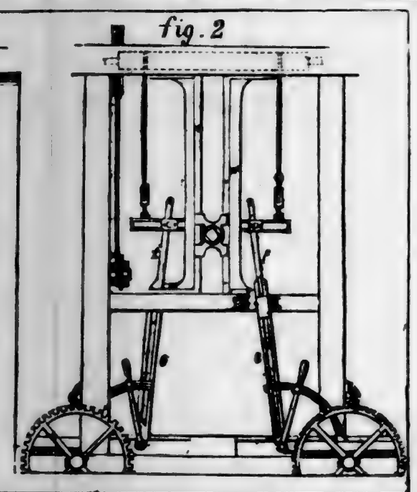

fig. 1
13916 fig. 2


fig. 2.


13164


12164


13866
fig. 1


fig. 2

12870

see fig. 3, page 265

fig. 1

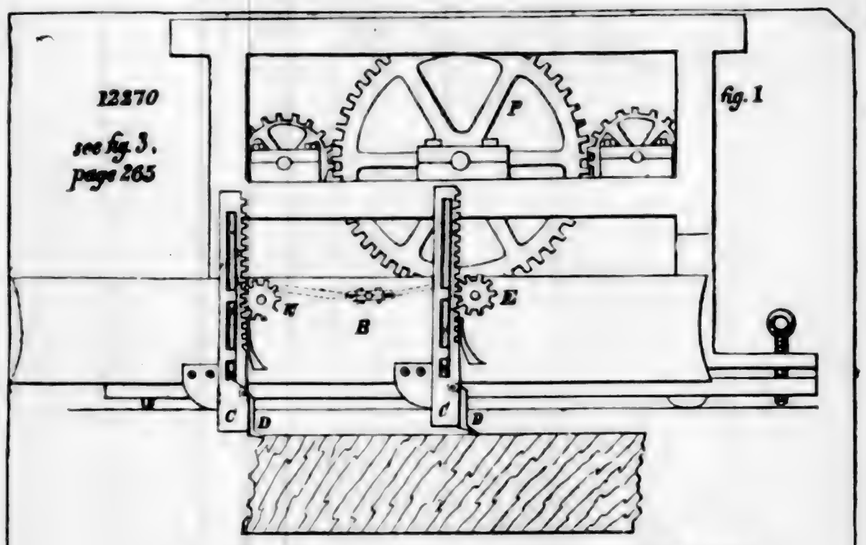


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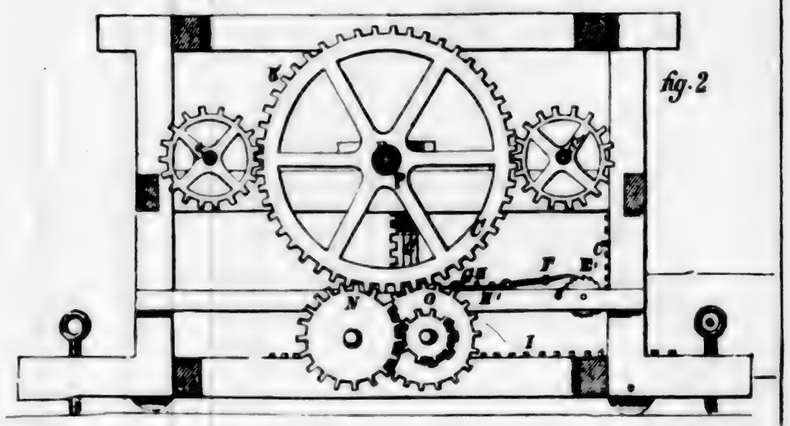


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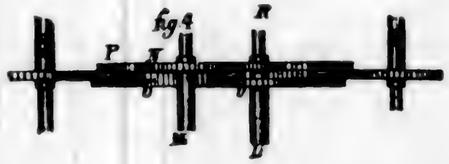


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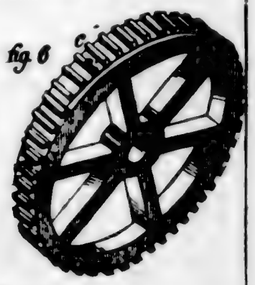
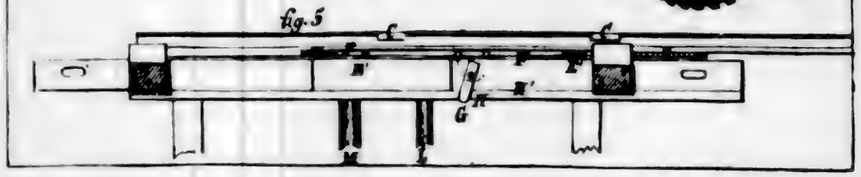
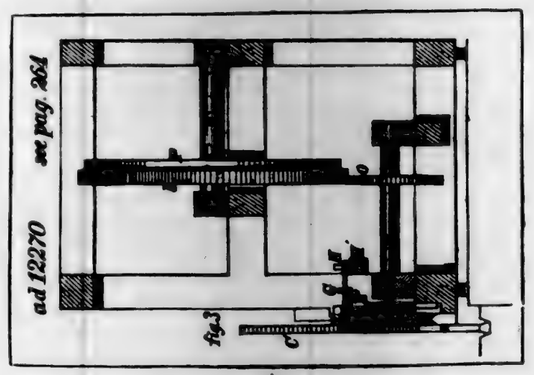


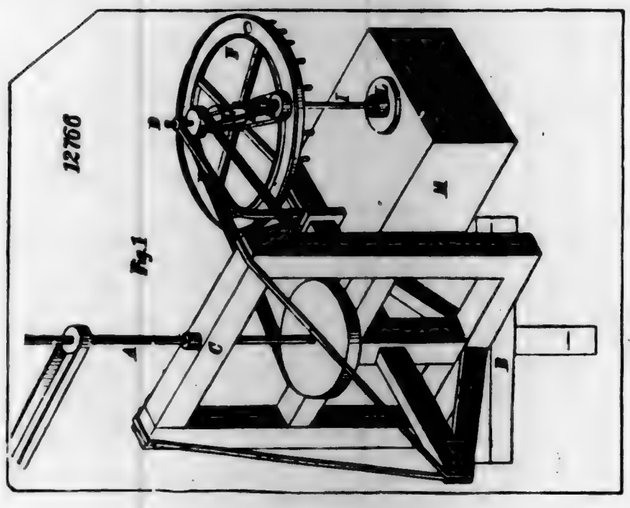
fig. 5



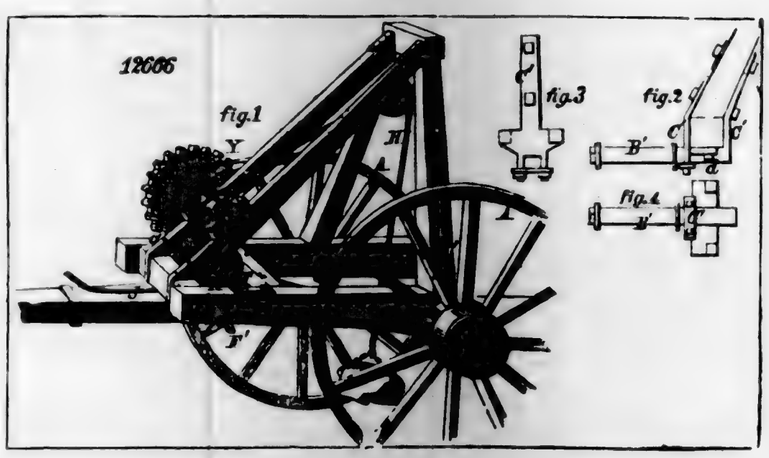
see page 264 12870

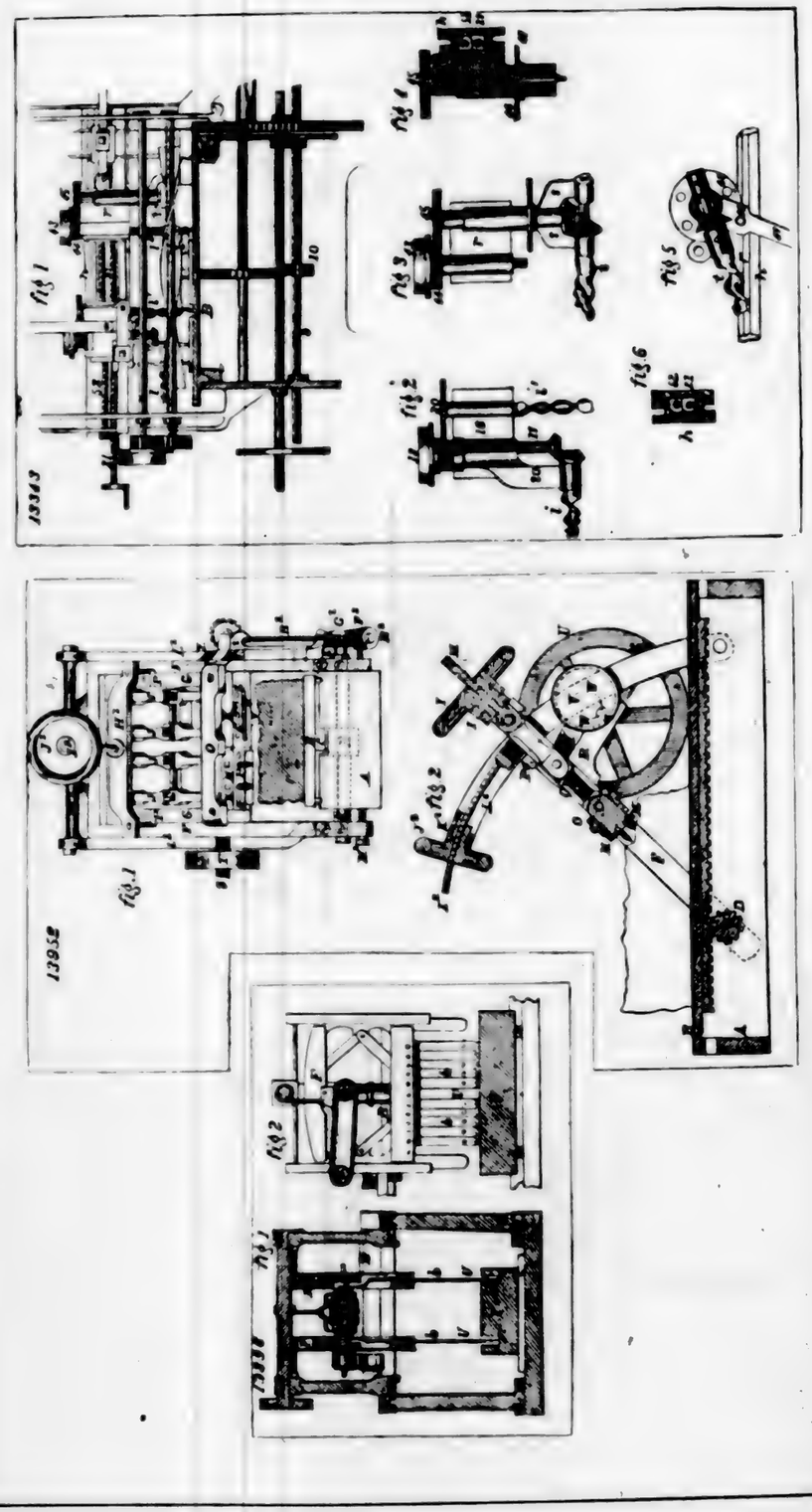


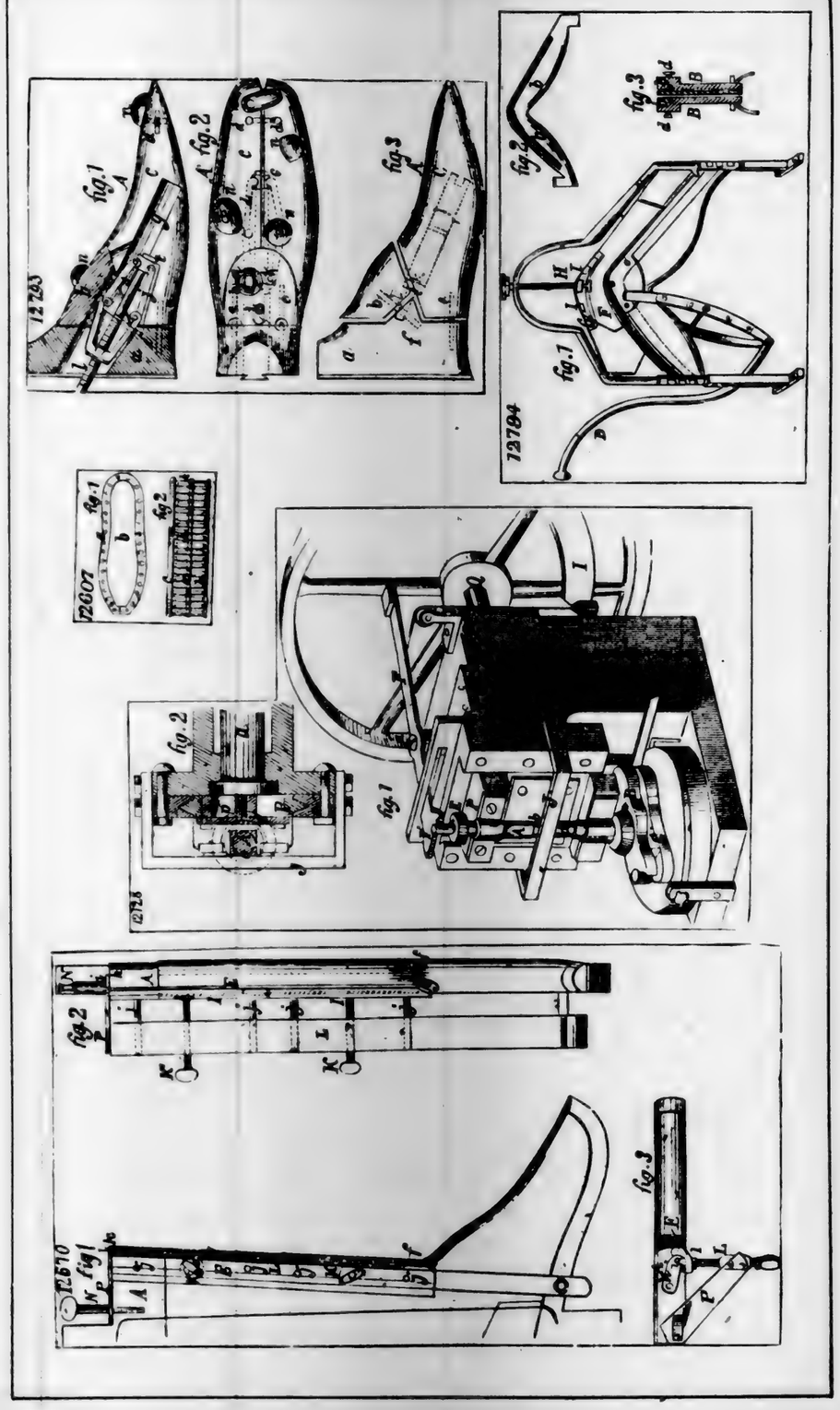
12766



12666




fig 1
fig 4
fig 3
fig 5
fig 2
fig 6
13343
fig 1
fig 2
13952
fig 2
fig 1
13331


fig.1
A
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A fig.2
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fig.1

13003

fig 1.

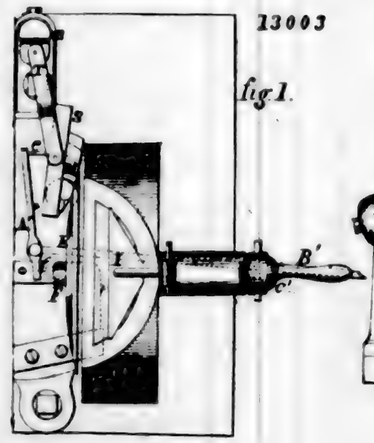


fig 2

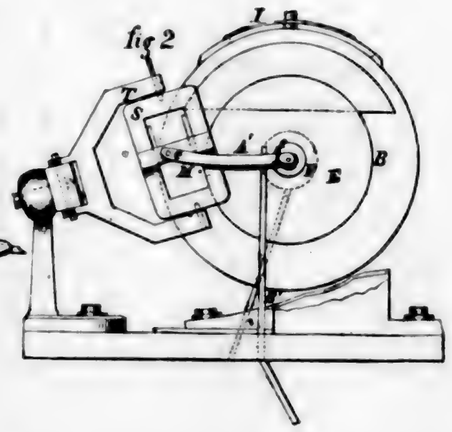
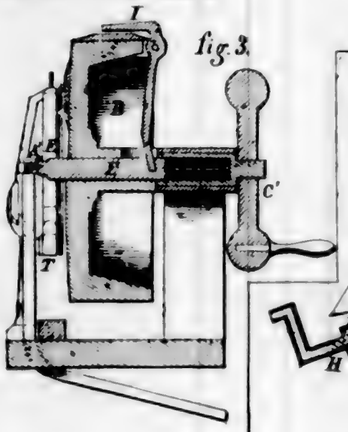


fig 3.



12816

fig 1.

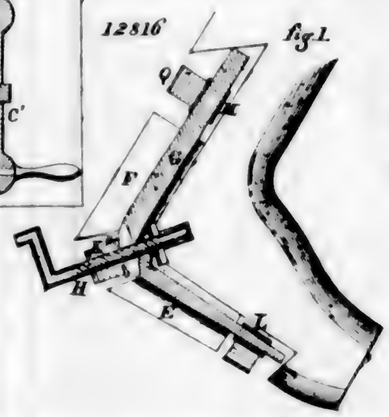


fig 2



fig 3



12985

fig 1.

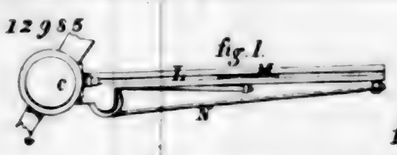


fig 2



fig 3

12877

fig 2.

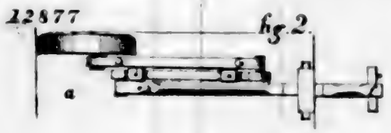


fig 1.

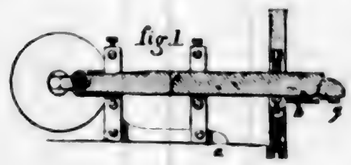
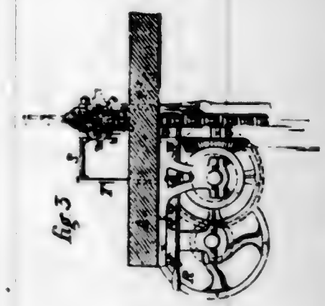


fig 3



13003

fig 2

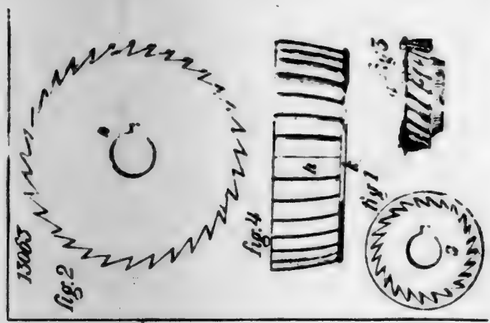


fig 4

fig 1

fig 1

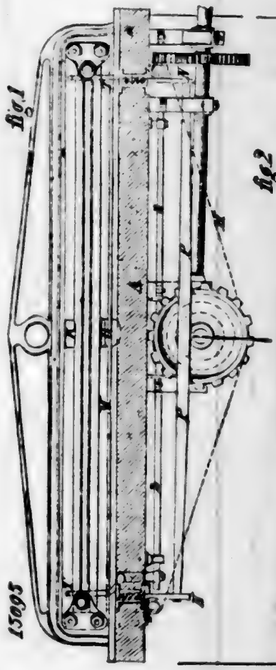


fig 2



fig 2

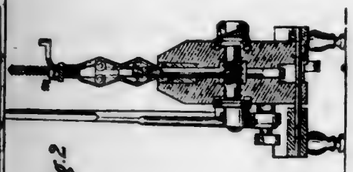
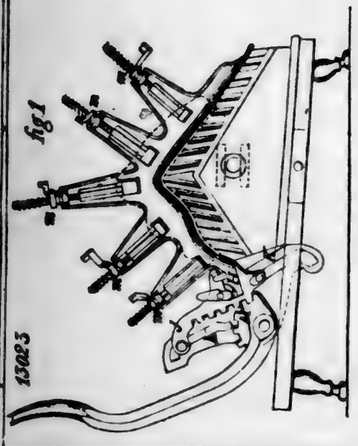


fig 1



13095

13023

fig 1



fig 4

fig 2

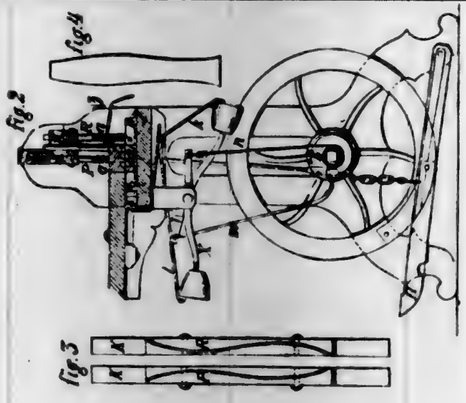


fig 3

13073



13296 fig.1

13827

13798 fig.1 fig.2 fig.3

fig.2

13796

13272

13714 fig.1 fig.2 fig.3 fig.4

13852 fig.1 fig.2

13867 fig.1 fig.2 fig.3

13816 fig.1 fig.2 fig.3 fig.4 fig.5 fig.6

13675 fig.1 fig.2 fig.3

13886 fig.1 fig.2

13301 fig.1 fig.2

13138 fig. 1 fig. 2

13950

13951 fig. 1 fig. 2

13887

13887 fig. 1 fig. 2

13888 a b c d

13888

13966

13949 Fig. 1 Fig. 2

13189 fig. 1 fig. 2 fig. 3

13965 fig. 1 fig. 2 fig. 3 fig. 4

13868 fig. 1 fig. 2 fig. 3 fig. 4

12606

Fig. 1

Fig. 2

12444

Fig. 1

Fig. 3

12392

12878

Fig. 1

Fig. 2

13071

Fig. 1

Fig. 2

Fig. 4

Fig. 3

Fig. 5

Fig. 6

13407

Fig. 1

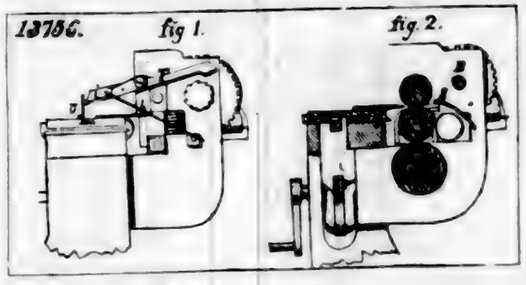
Fig. 2

Fig. 3

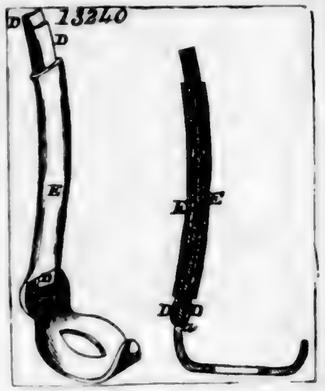
Fig. 4

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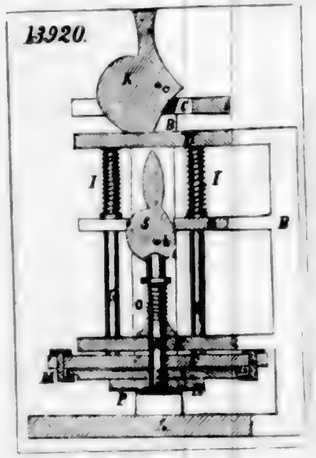
13756. fig 1. fig 2.



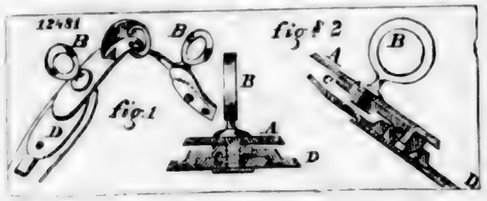
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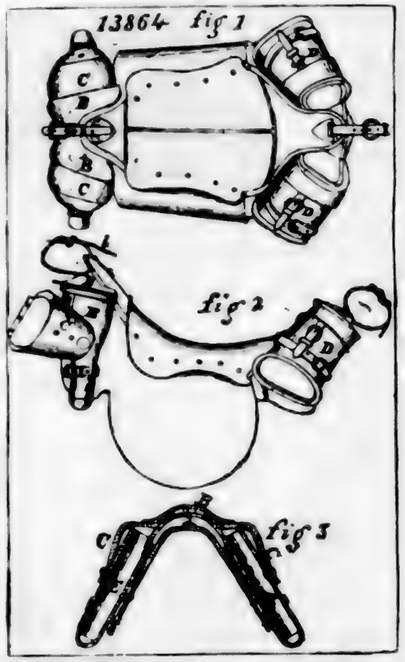
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12481



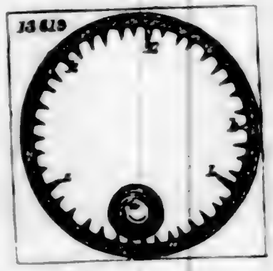
13864 fig 1



13218.



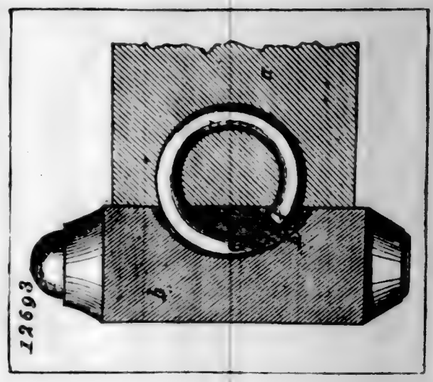
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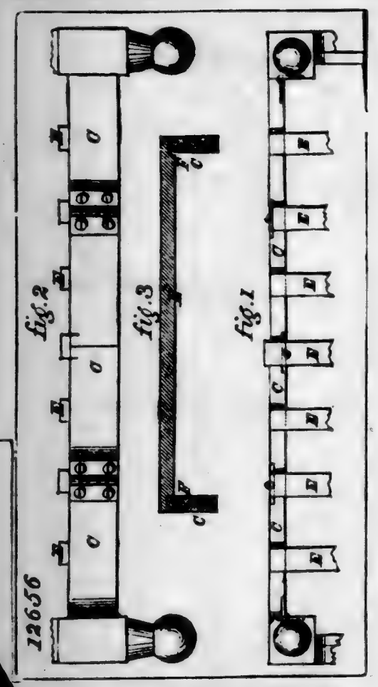
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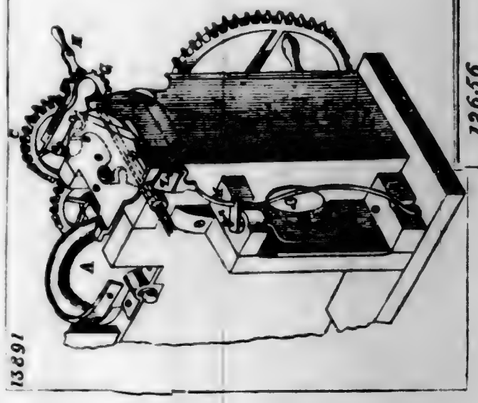
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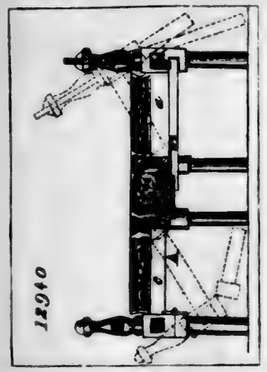
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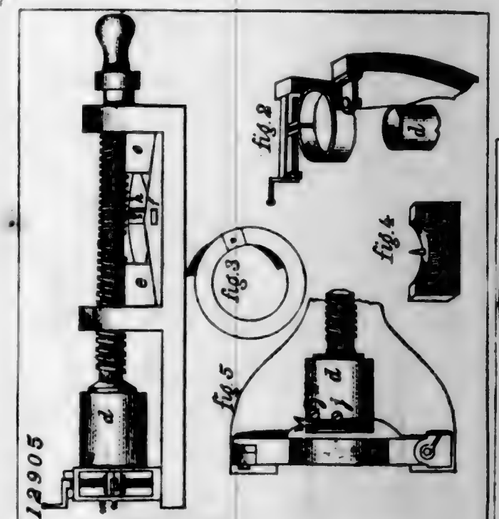
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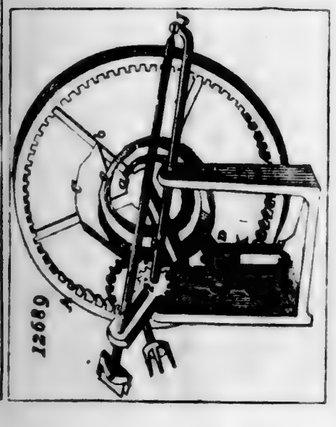
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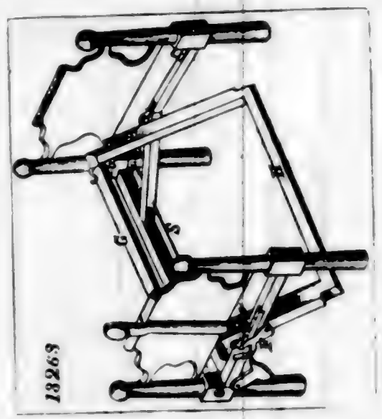


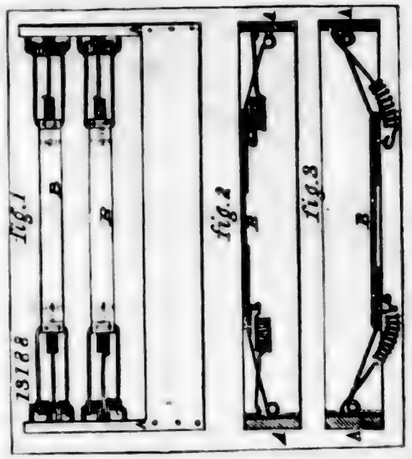
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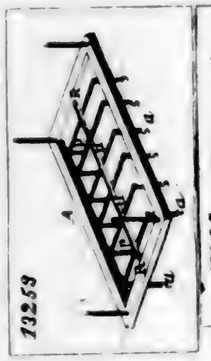


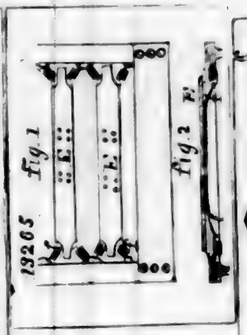
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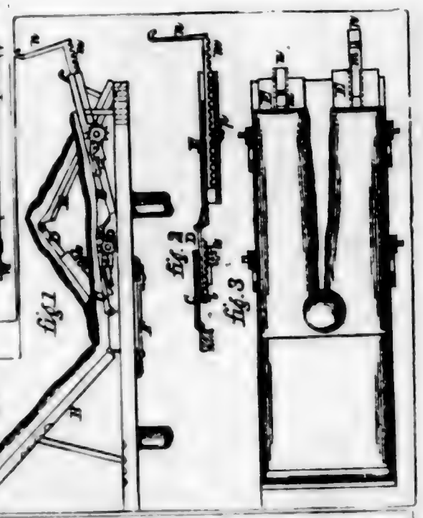


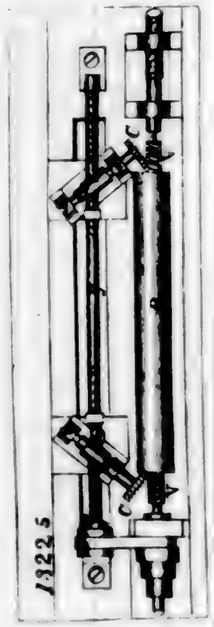

13263


13188
fig.1
fig.2
fig.3


13253


13265
fig.1
fig.2


13044
fig.1
fig.2
fig.3


13225

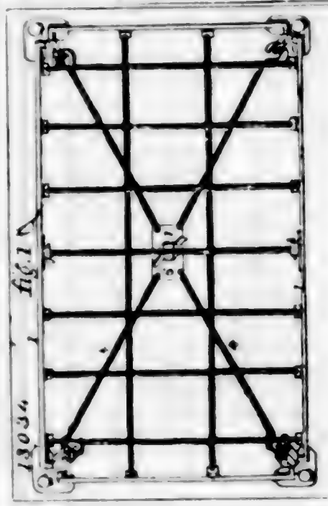
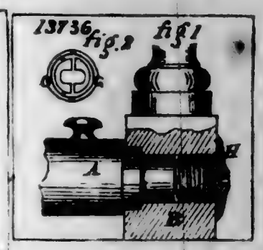
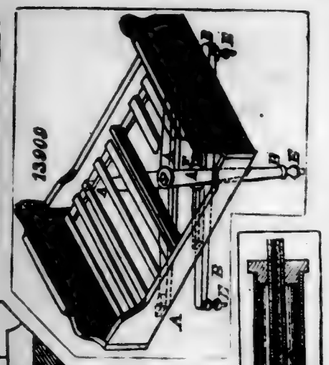
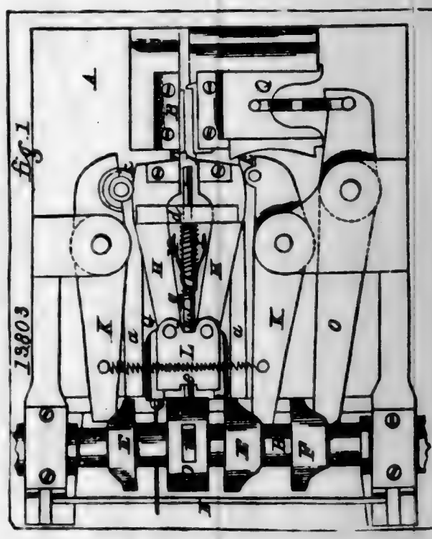

13034
fig.1

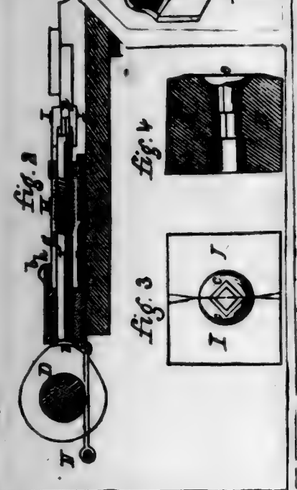

fig.2


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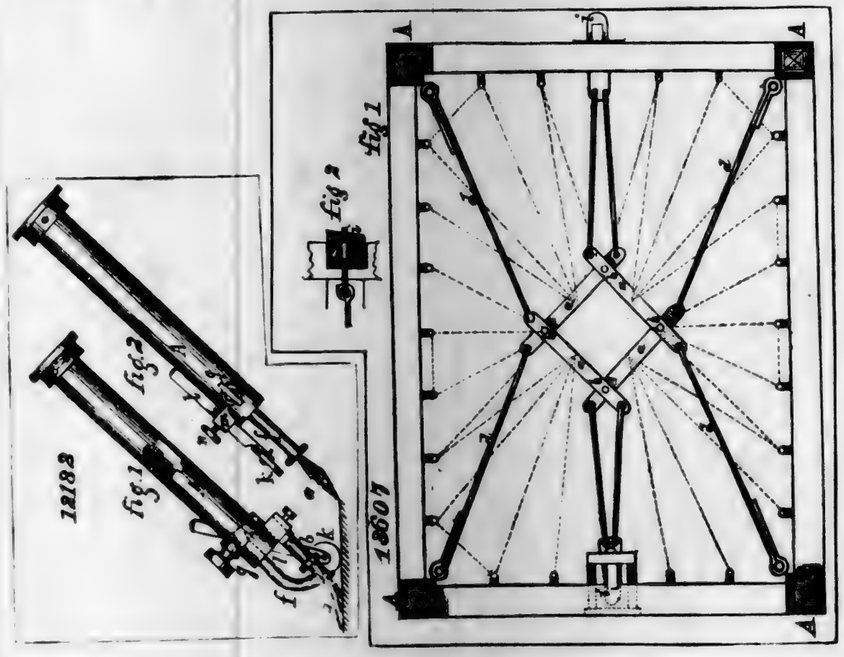

13736
fig.2
fig.1


13900


13803
fig.1


fig.3
fig.4
fig.5


11500

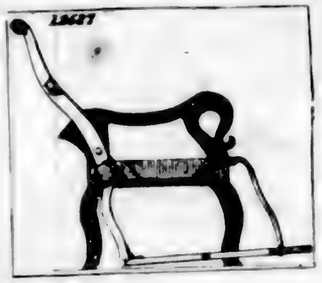

18057
fig.1
fig.2

12182
fig.1
fig.2

13291



13427



18009



13094 fig 1 fig 2

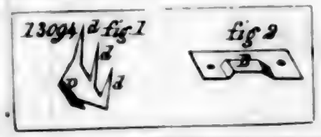
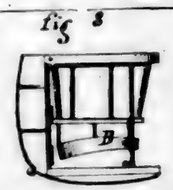
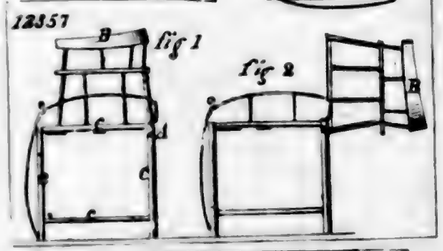


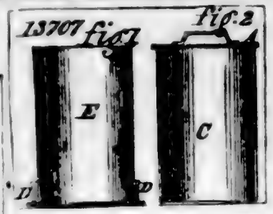
fig 3



12357 fig 1 fig 2



13707 fig 1 fig 2



13667 fig 1 fig 3

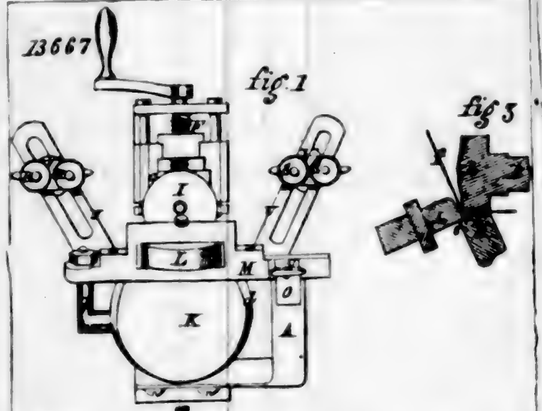
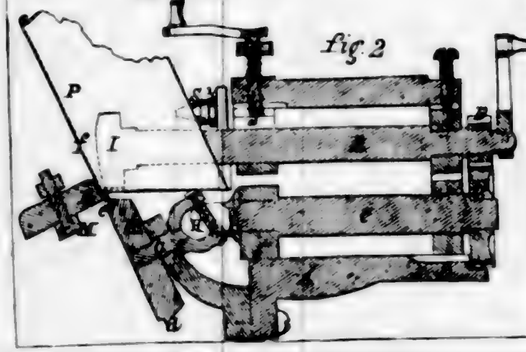
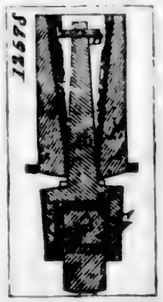


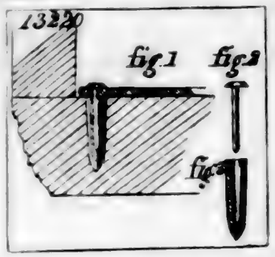
fig 2



13575



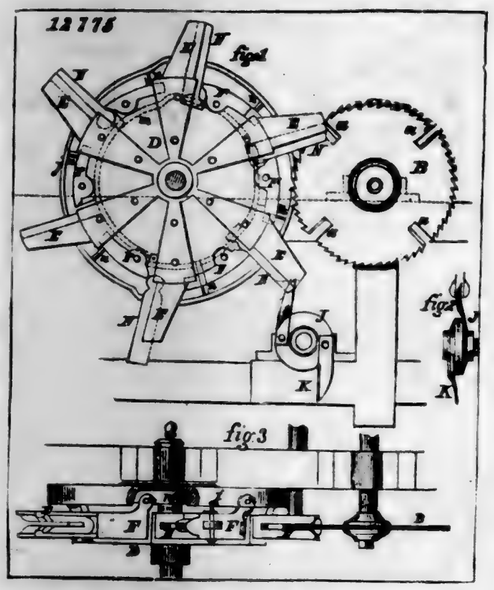
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13479 fig 1 fig 2



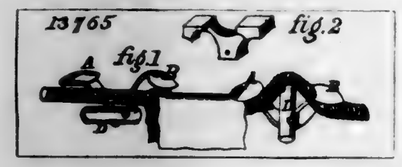
12776 fig 1 fig 2 fig 3



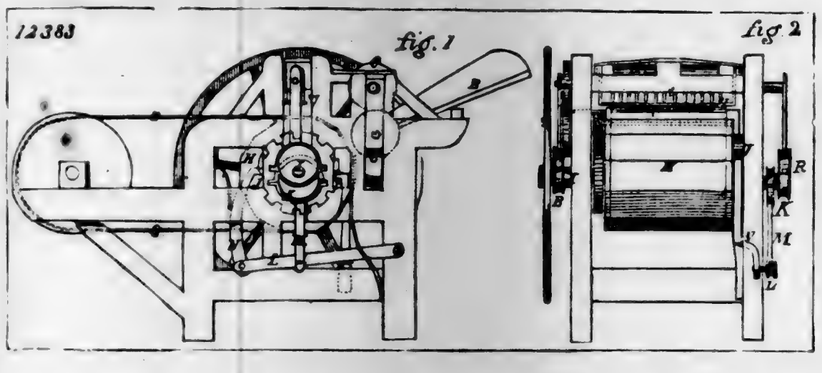
13447 fig 1 fig 2



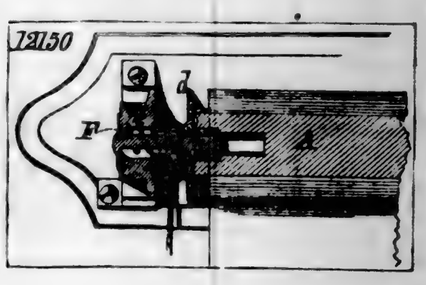
13765 fig 1 fig 2



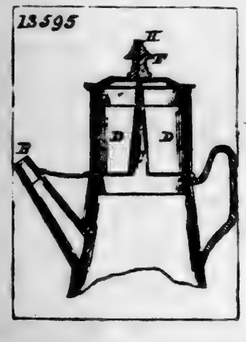
12383 fig 1 fig 2



12150



13595



12661 fig 1 fig 2

12881 fig 1 fig 2 fig 3

12524

12540

12792 fig 1

12866 fig 1 fig 2

13931 fig 1 fig 2

13588 fig 1 fig 2

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12217 fig 1 fig 2

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12373 fig 1

13900 fig 1 fig 2

12530

fig 2

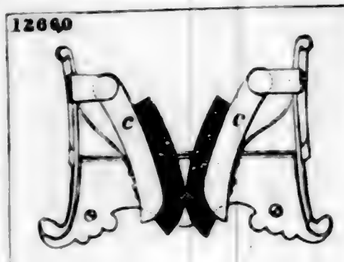
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fig 3

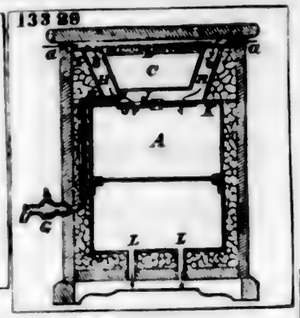
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12363 fig 1 fig 2

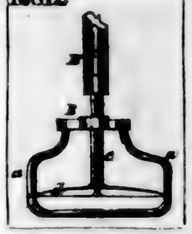
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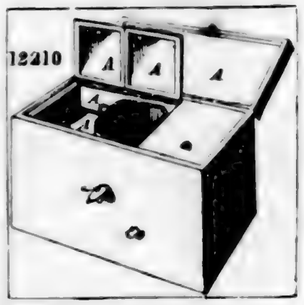


13125 *fig.1*



fig.2

12210



13566 *fig.1*



fig.2

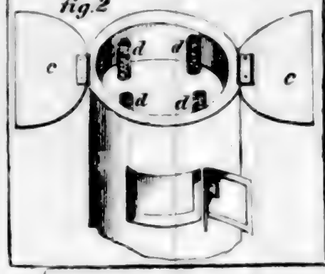


14004

fig.1



fig.2



13847

fig.1

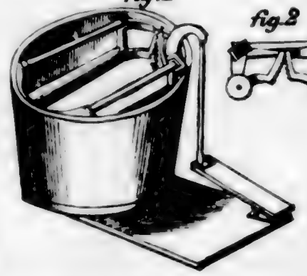
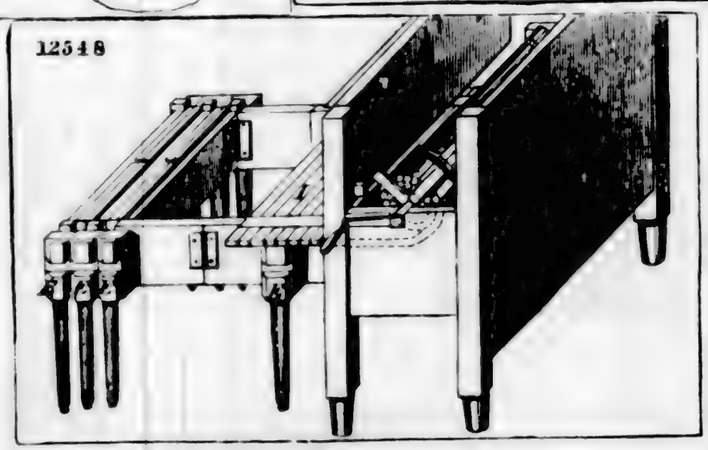


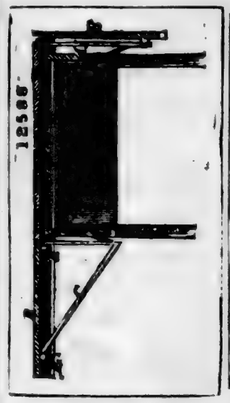
fig.2



12548



12568



12765

fig2

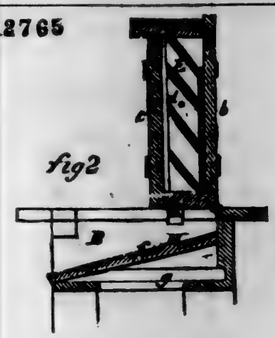
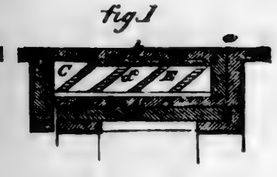


fig.1



12757

fig 1

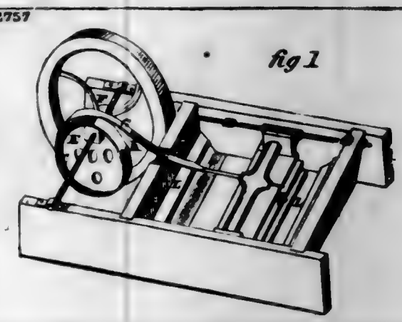
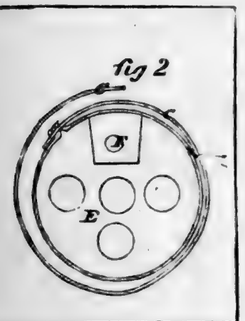


fig 2



12558

fig1



fig 3



fig 2



12518

fig.1

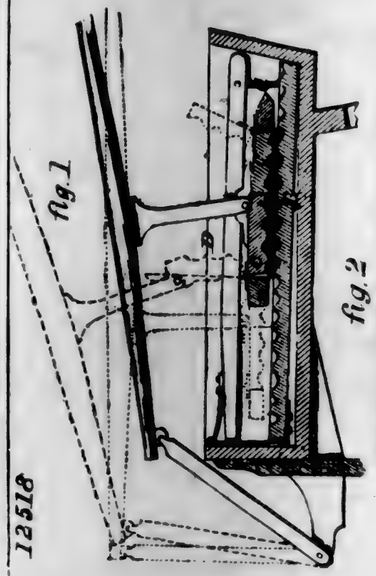
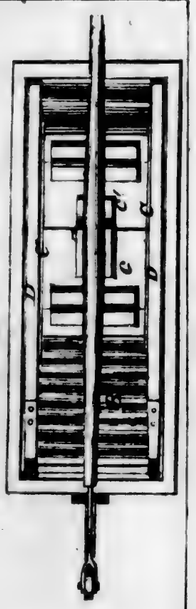


fig.2



13372

fig. 2

fig. 1

13222

12996

13356

13635

fig. 1

fig. 3

fig. 2

13344

fig. 1

fig. 2

fig. 3

13751

fig. 1

fig 2

12310

13684

fig 1

fig 2

13482

E

13692

fig. 1

fig 3

fig 2

13682

fig. 1

fig. 2

fig. 3

13044 fig.1

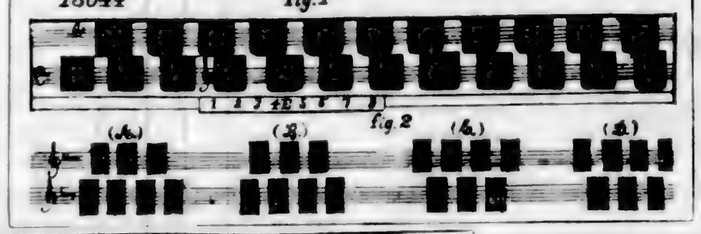
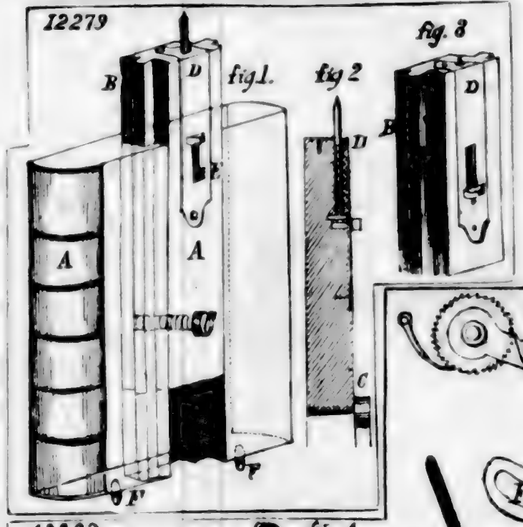


fig.2

12279 fig.3



13166. fig.1 fig.2

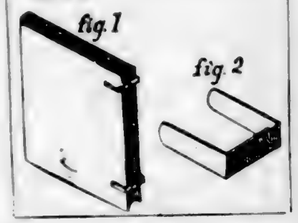
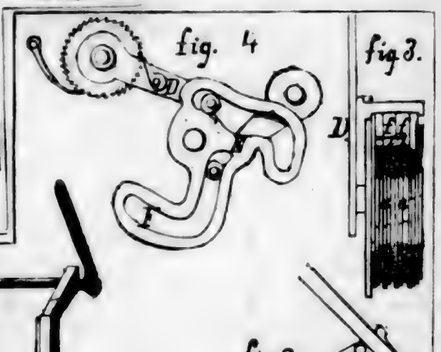


fig.4 fig.3.



13302 fig.1

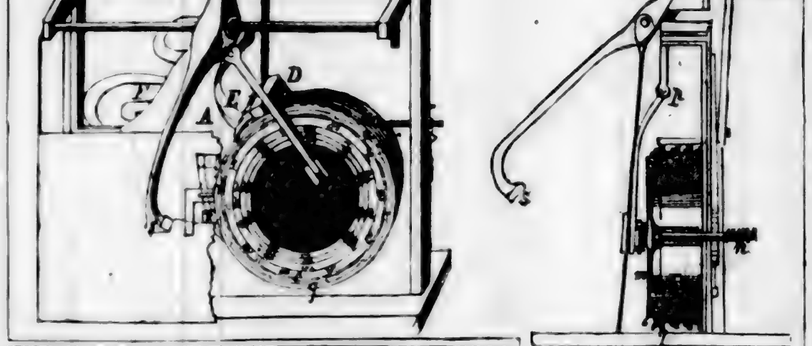
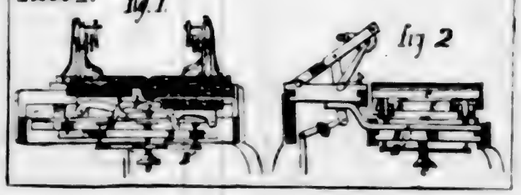
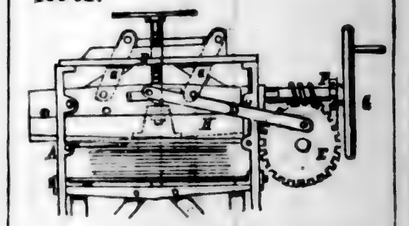


fig.2

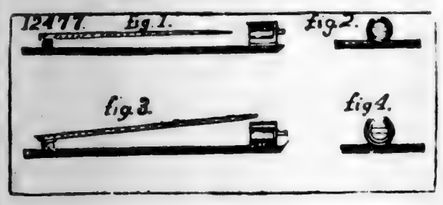
12954. fig.1 fig.2



13501.



12477. fig.1. fig.2. fig.3. fig.4.



13477 fig.1 fig.4 fig.2

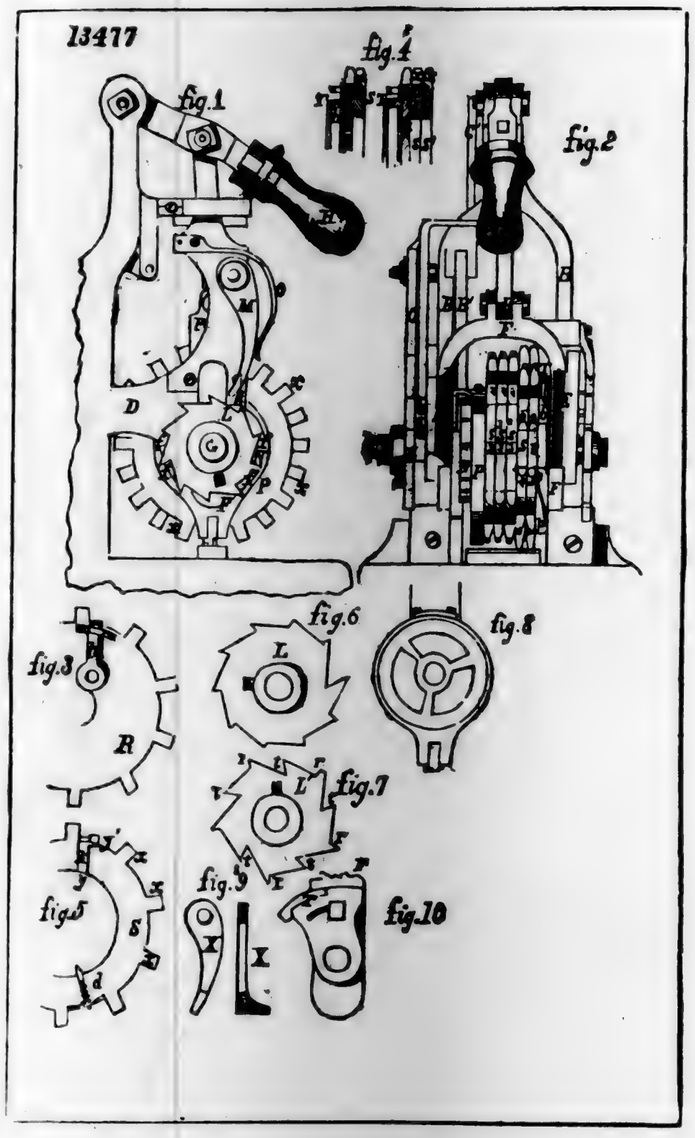
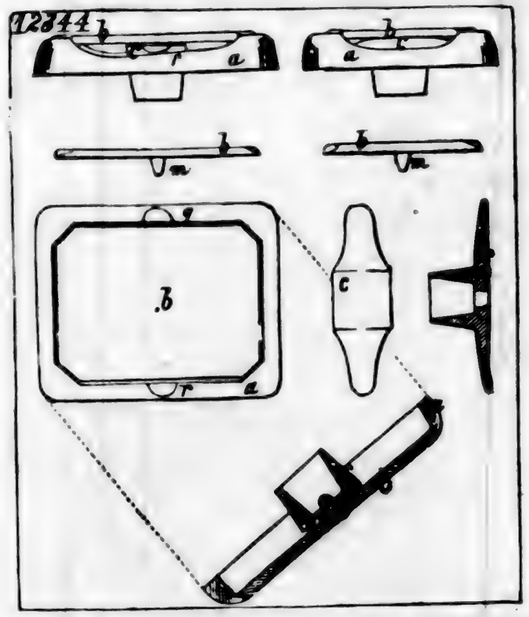


fig.3 fig.6 fig.8

fig.7

fig.5 fig.9 fig.10

12844.



12700.

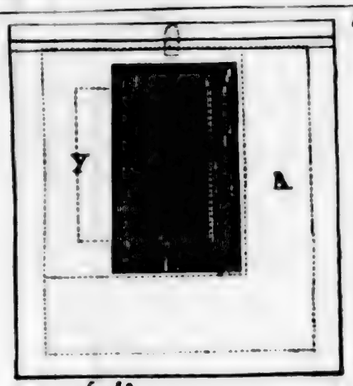


fig 1

fig 2

1	2
3	4

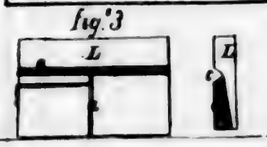


fig. 3



fig. 4

13566 fig. 1.

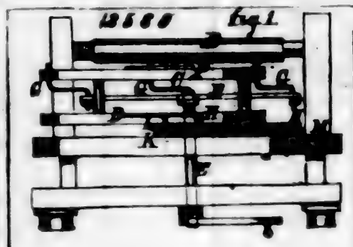
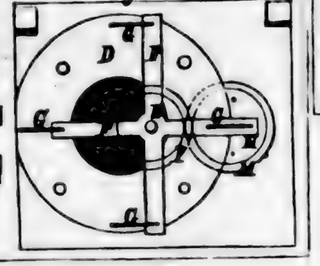
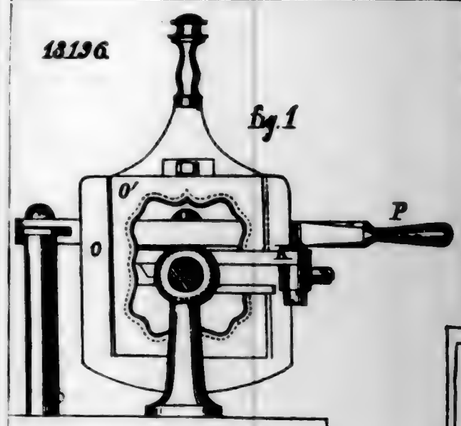


Fig. 2.



13196.

fig. 1



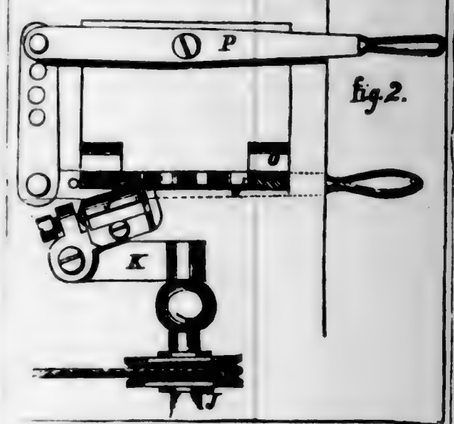


fig. 2.

13701

fig 1

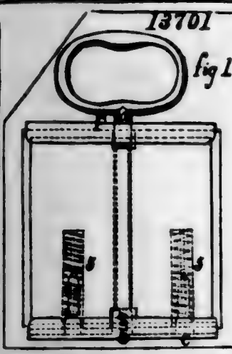


fig. 2



13516.

fig. 1.



fig 2.

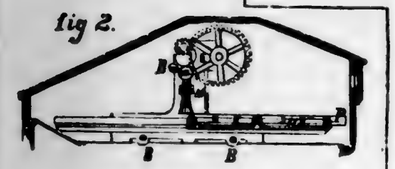
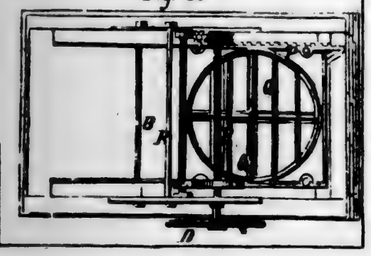


fig. 3.



13521

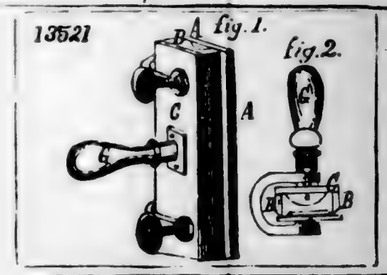


fig. 1.

fig. 2.

13565.

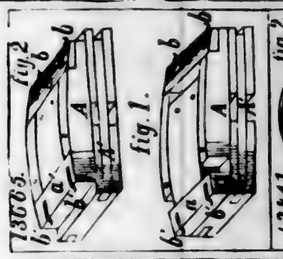


fig. 2

fig. 1.

12841.

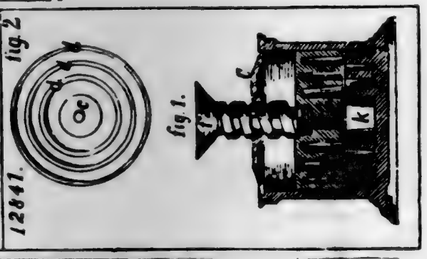
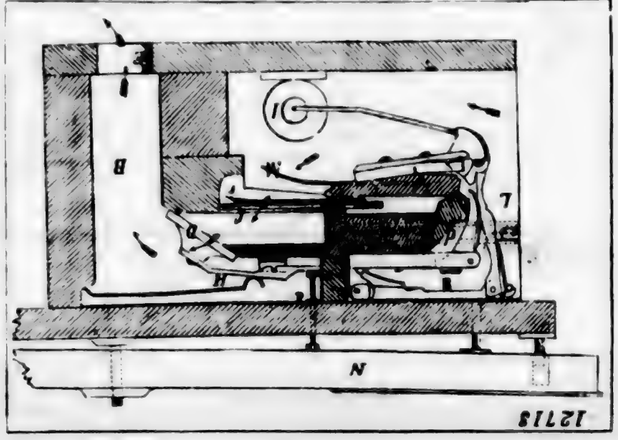


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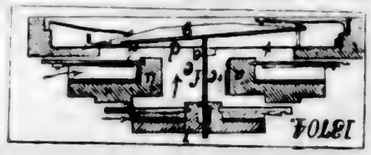
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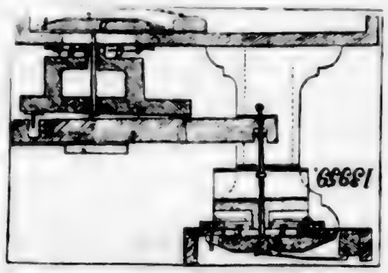
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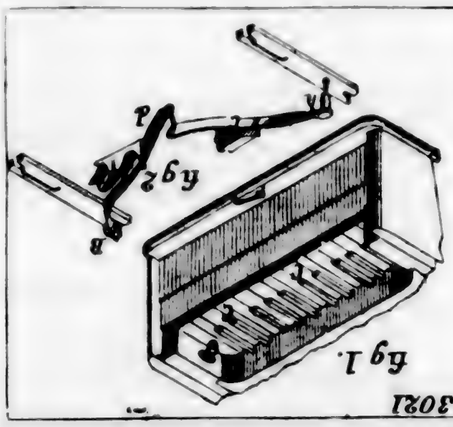
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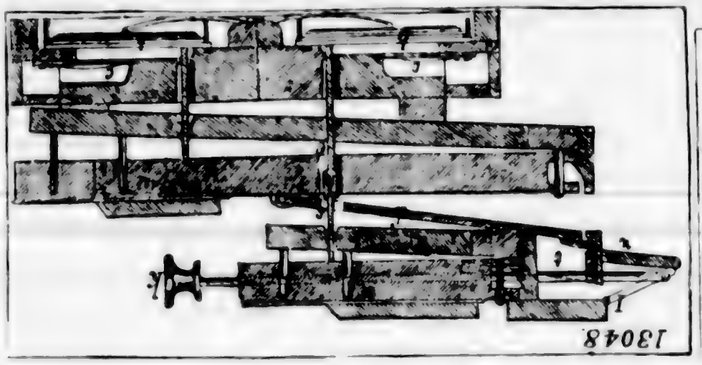
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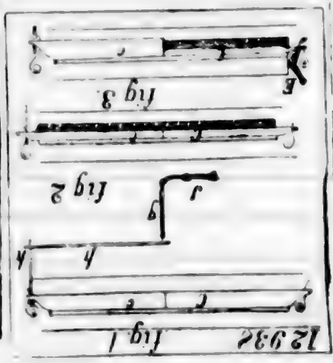
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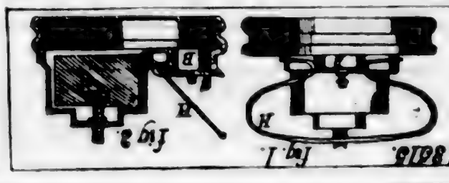
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12934 fig 1



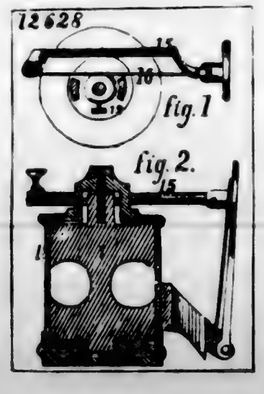
18818. fig 1.



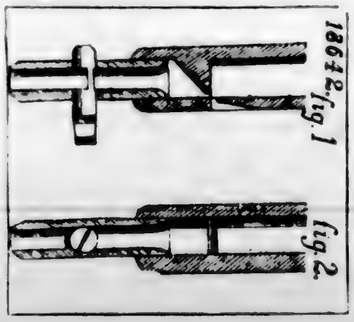
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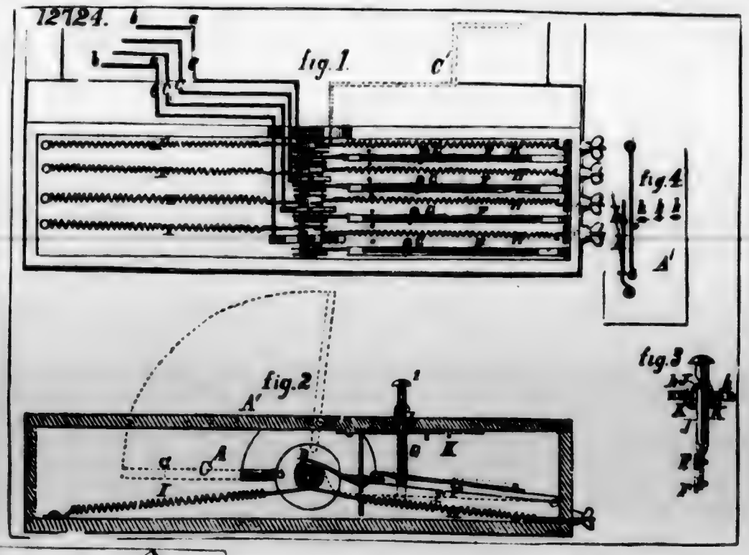
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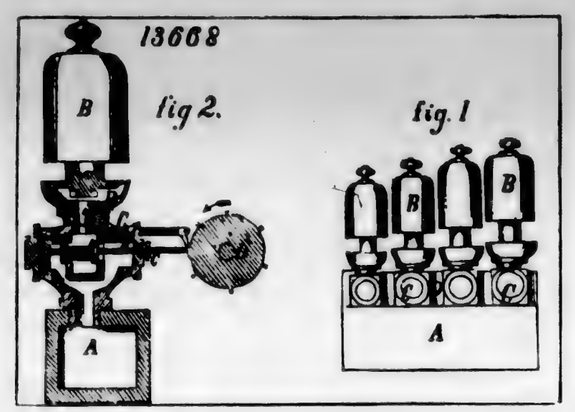
18612 fig 1



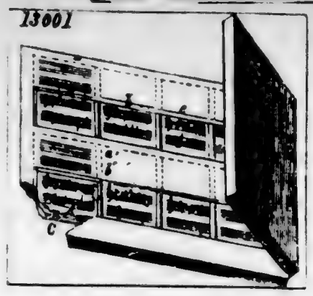
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13668



13001



18865. fig 1

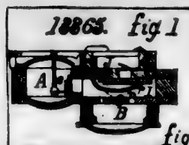


fig 3.

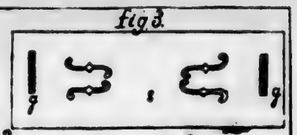


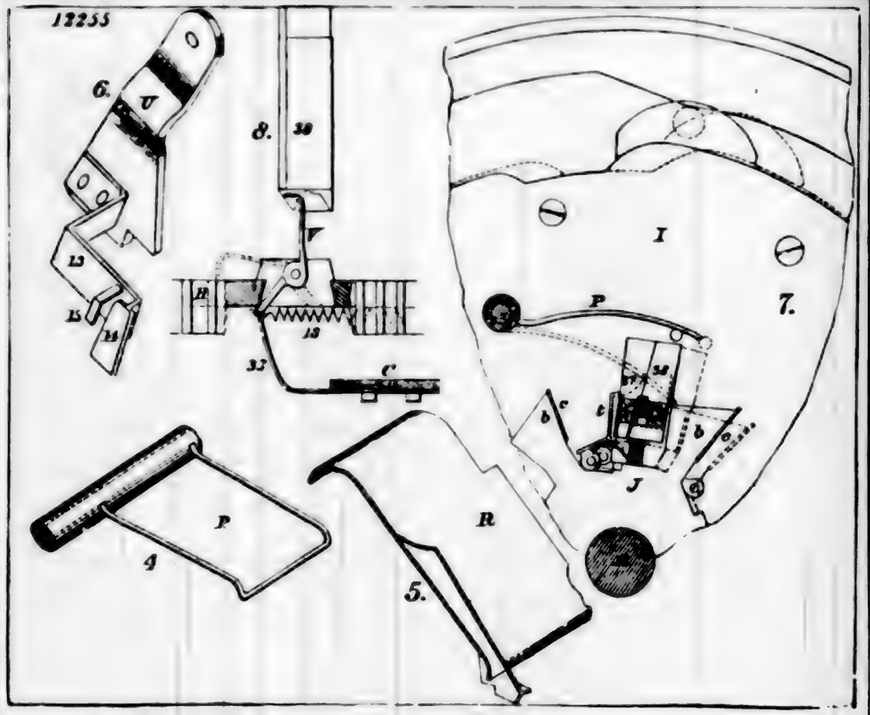
fig 2.



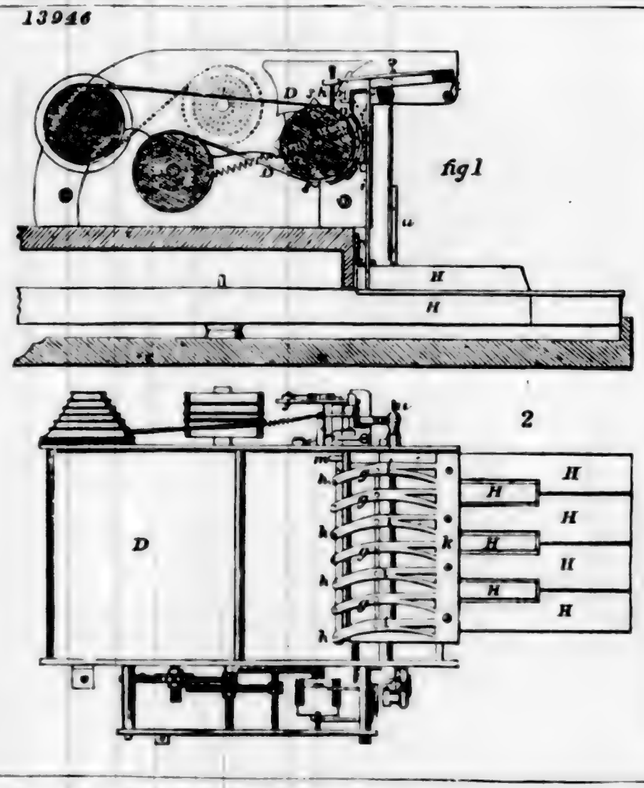
fig 4.



12255

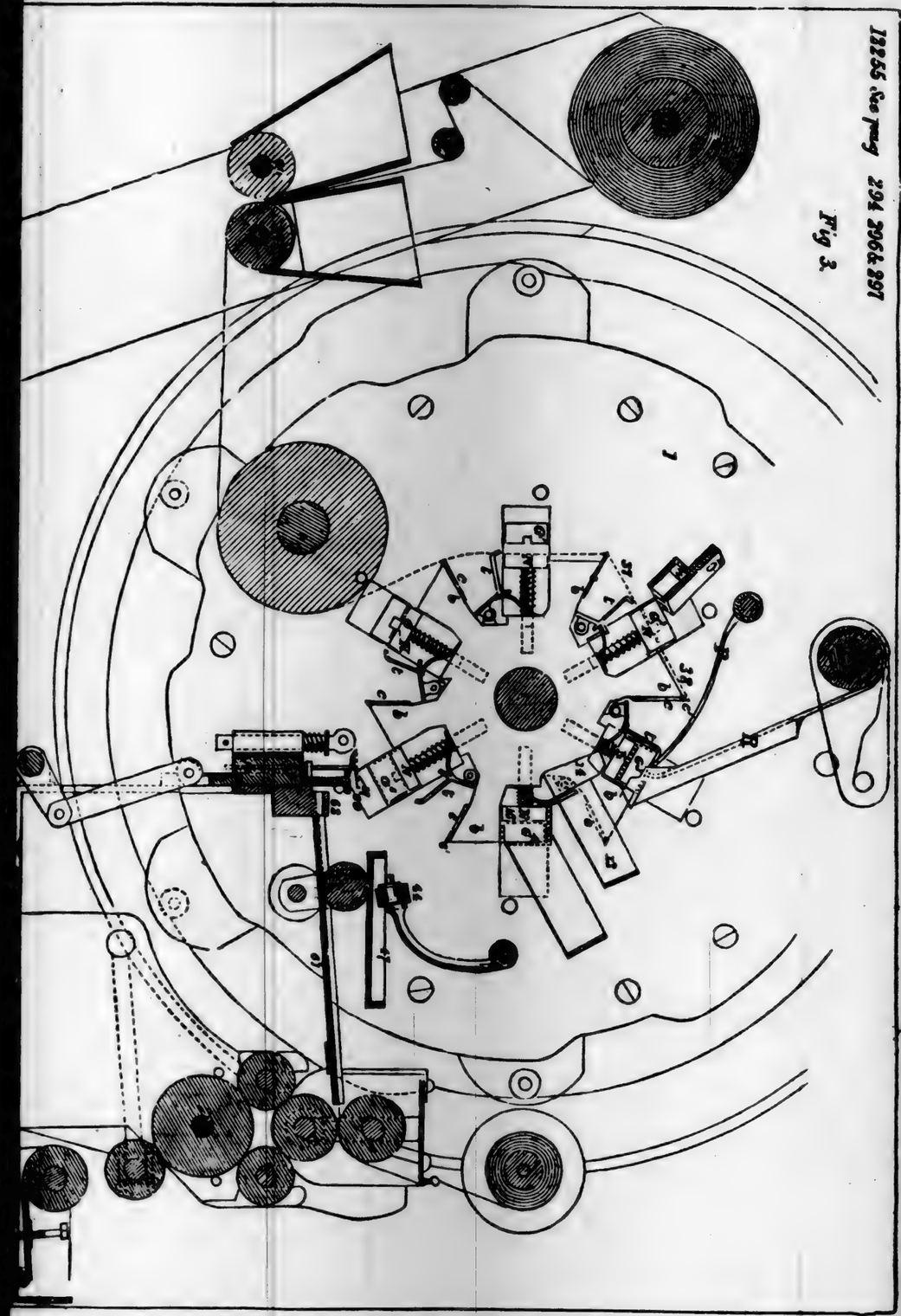


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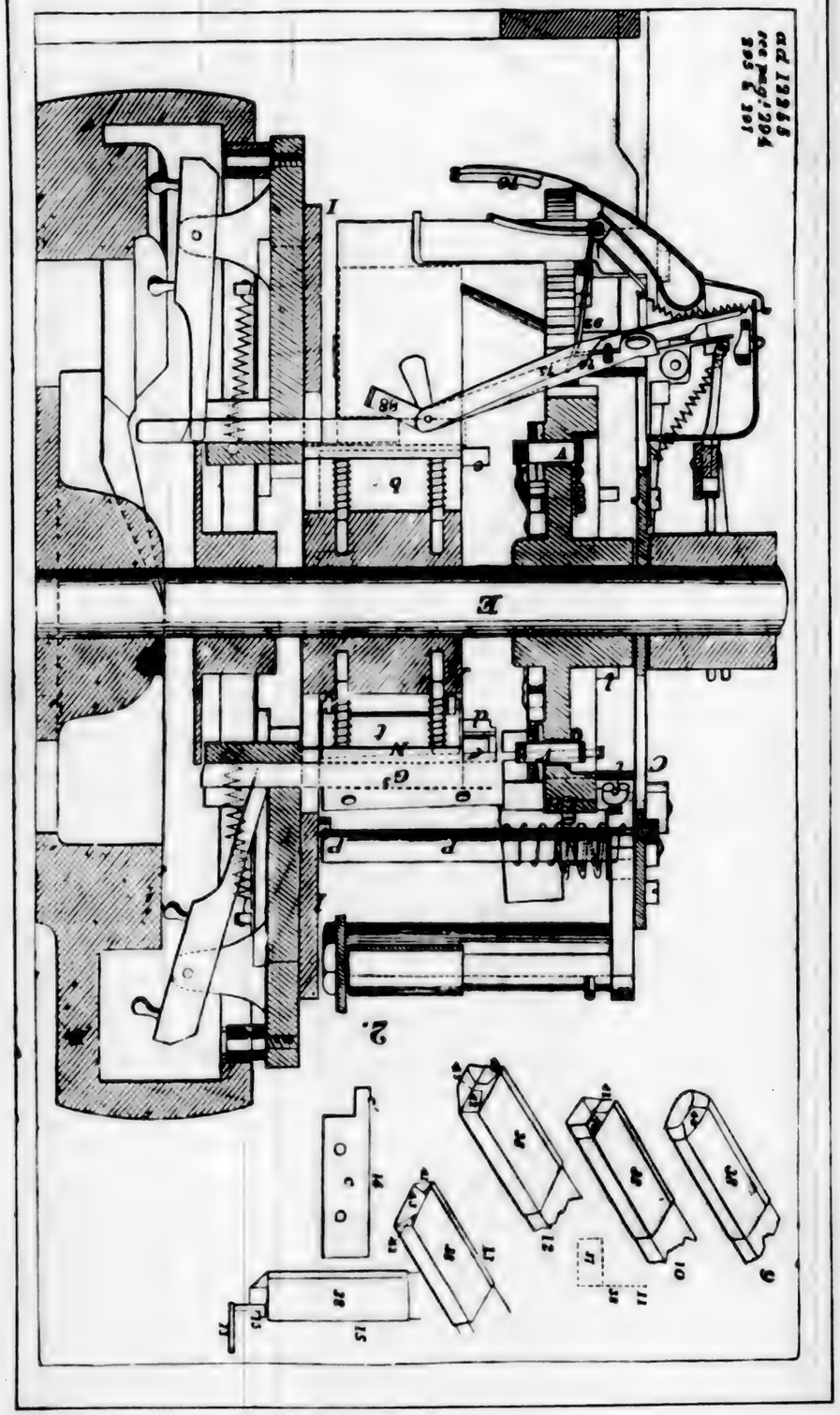


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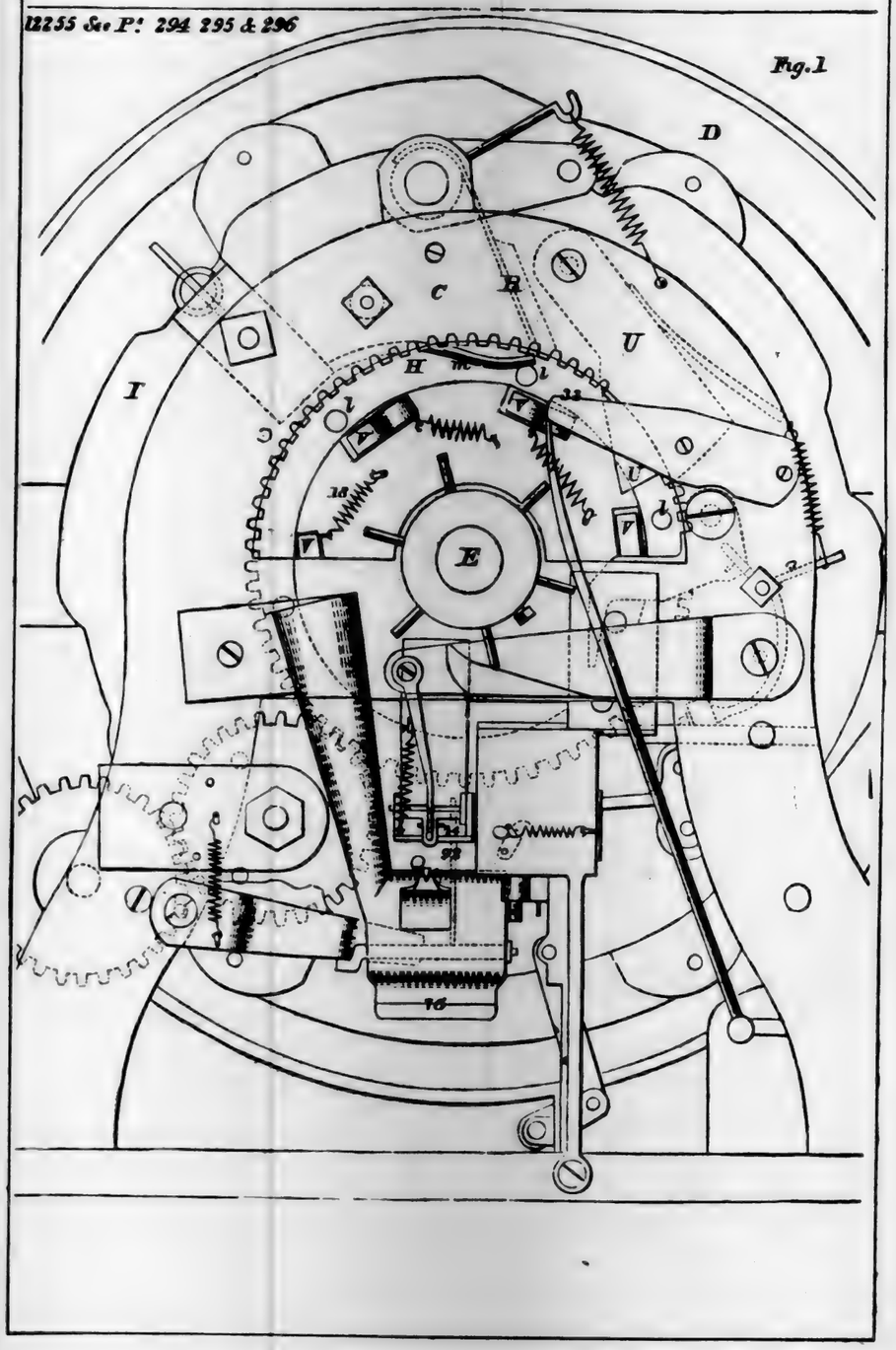


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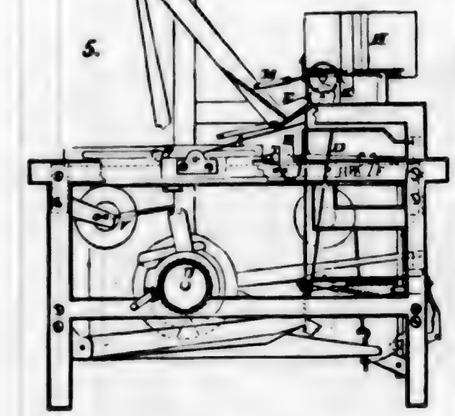
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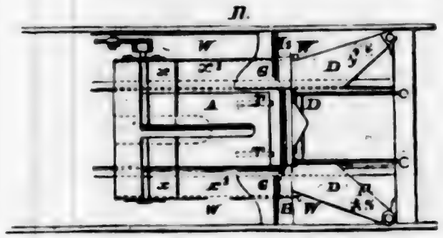


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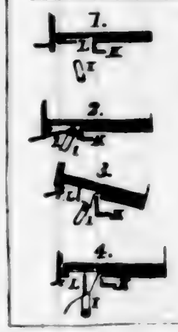
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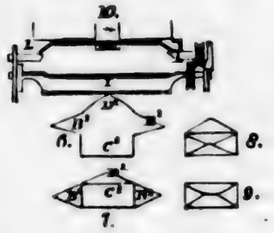
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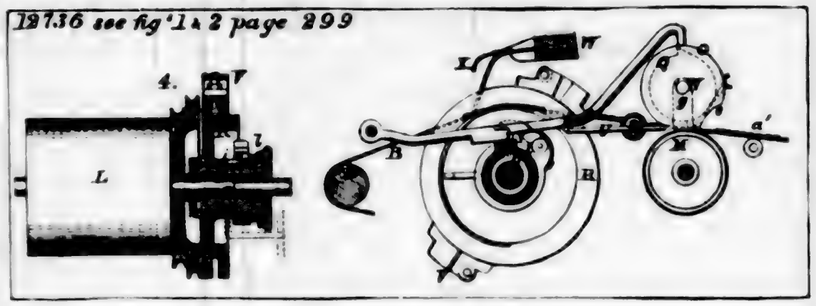
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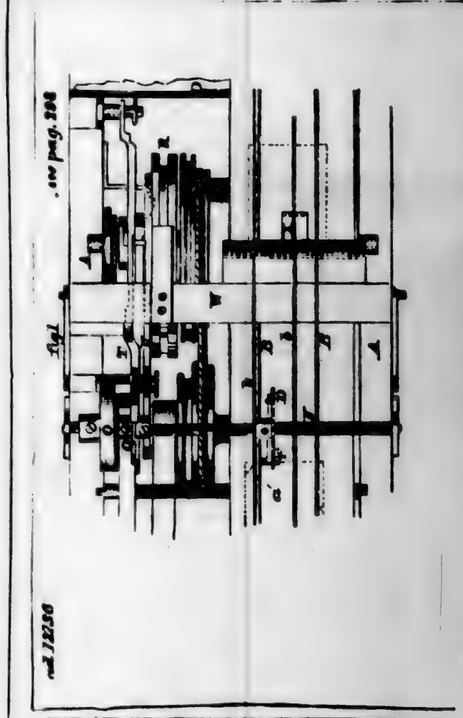


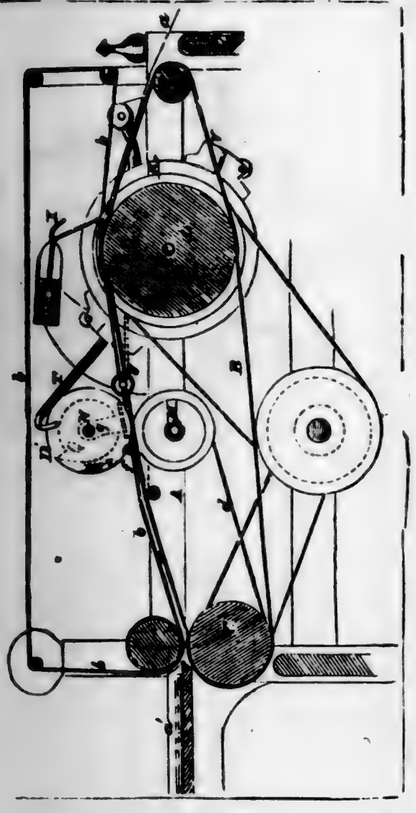
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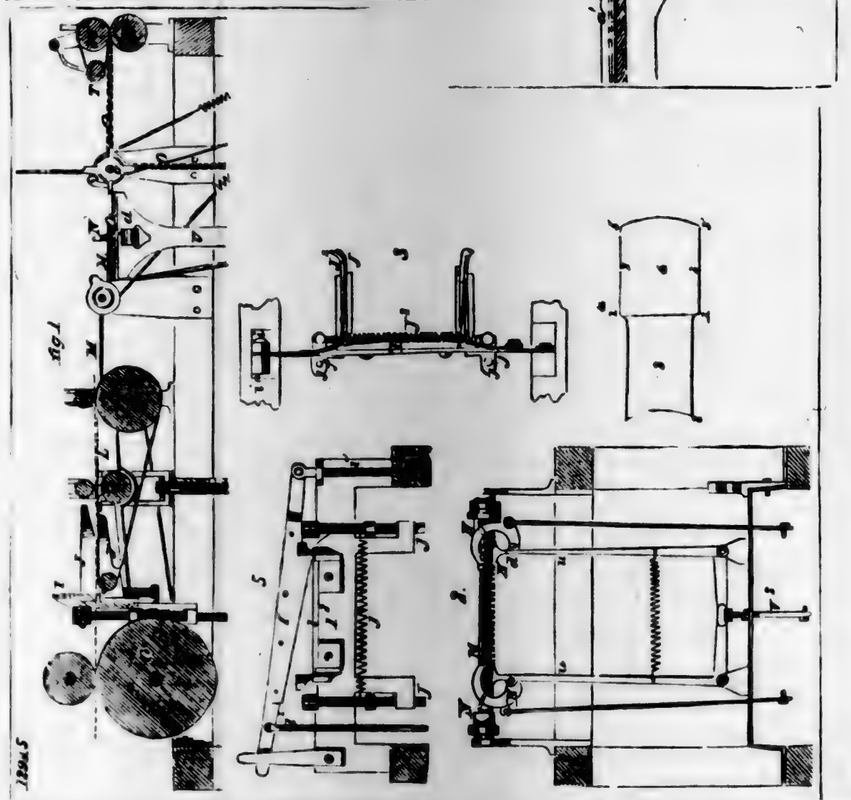
9.

12786 see fig 1 & 2 page 299









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fig. 1

Fig. 2

fig. 4

fig. 5

fig. 3

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fig 1

fig 2

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Fig. 3

fig. 4

fig 1

fig. 5

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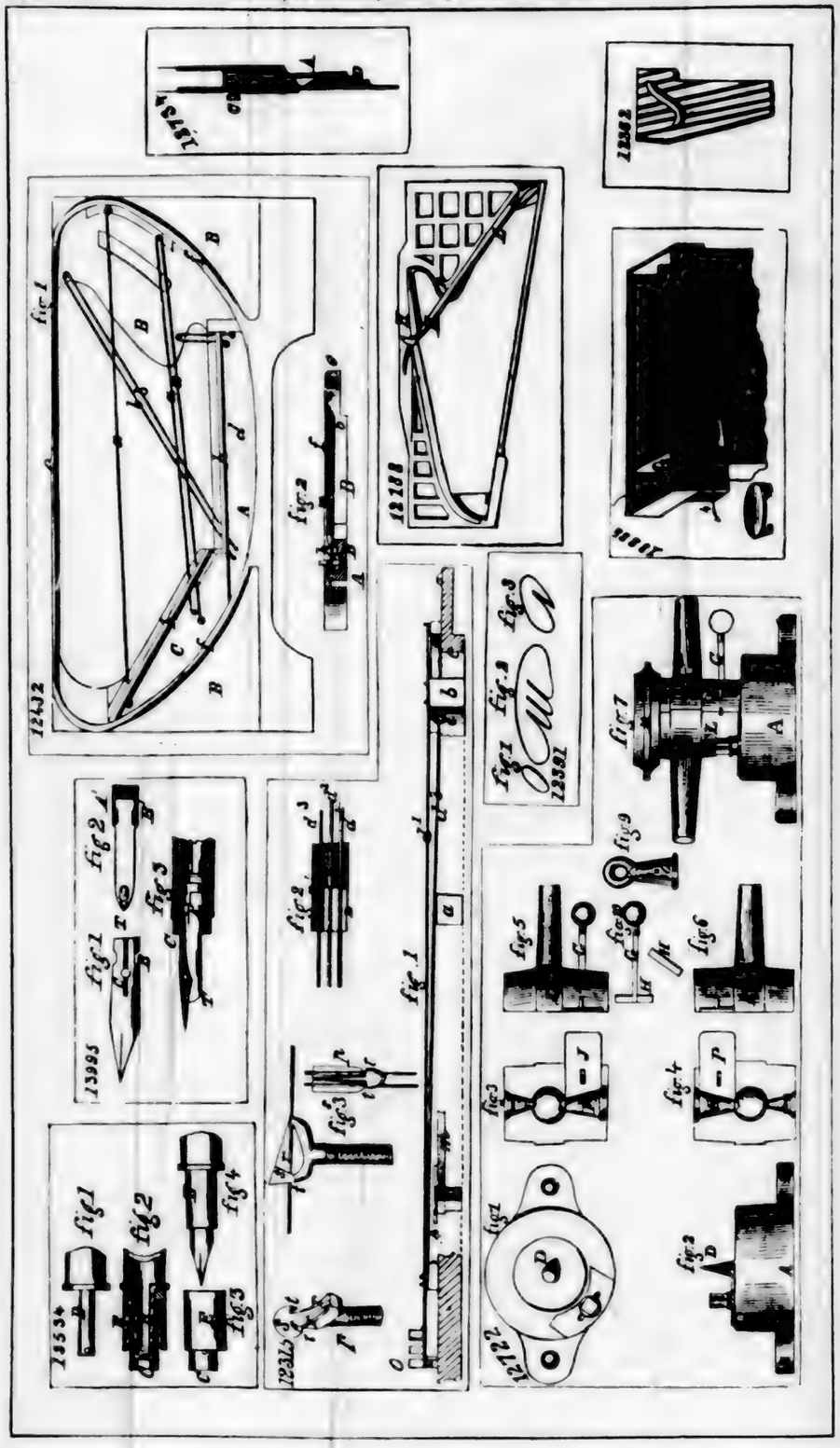
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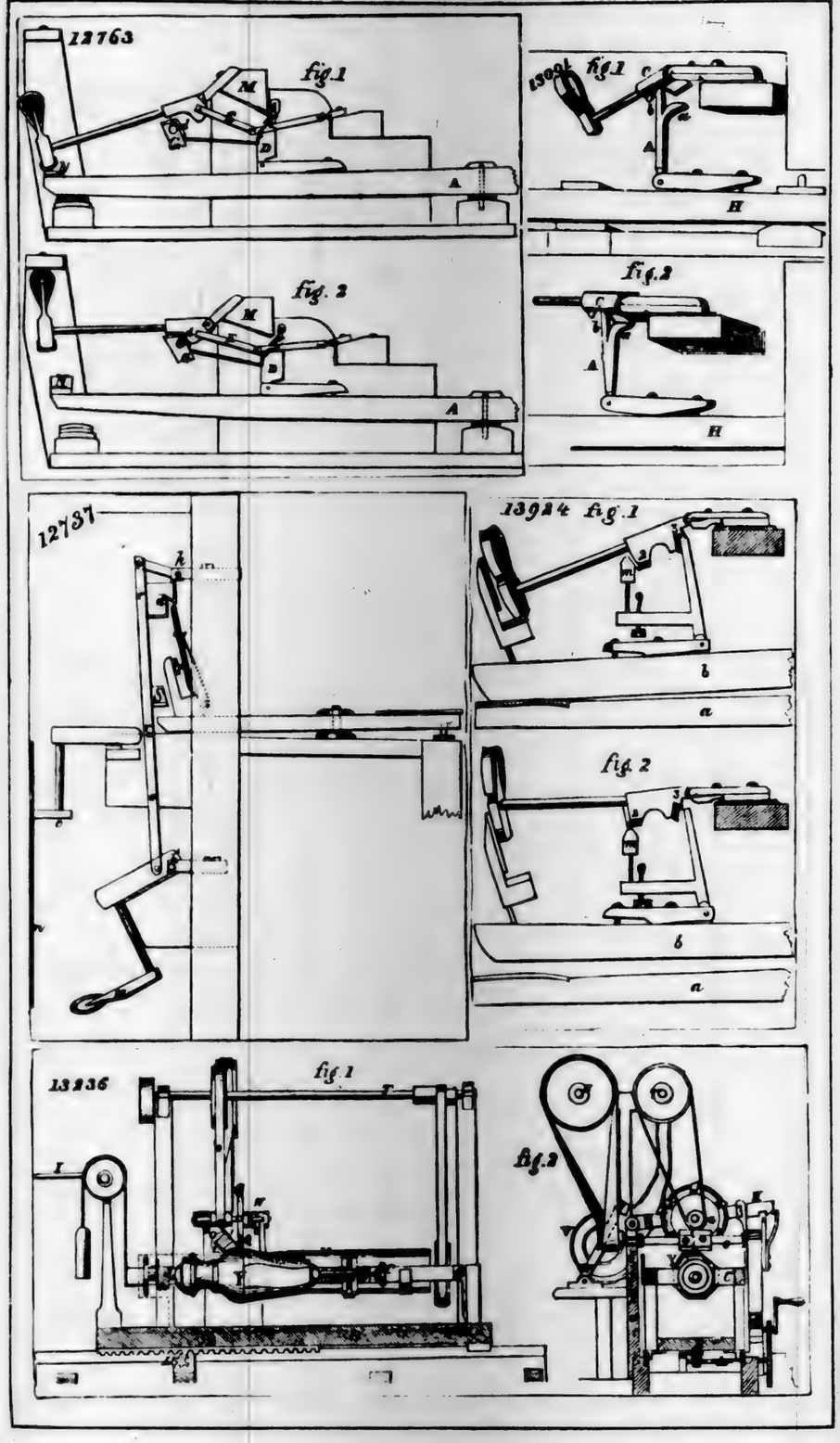
fig 2

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fig 2

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fig. 1

fig. 2

fig. 3

fig. 4

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fig. 1

fig. 2

13913 fig 1

fig 2.

fig 2.

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fig 2.

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fig 1

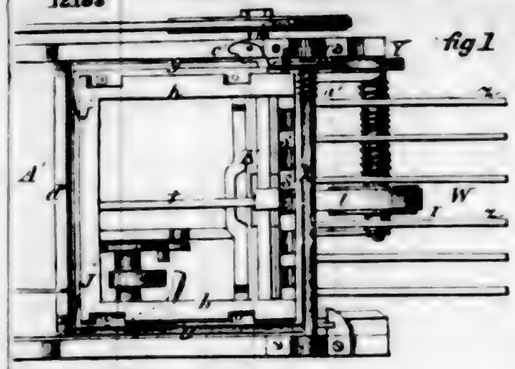
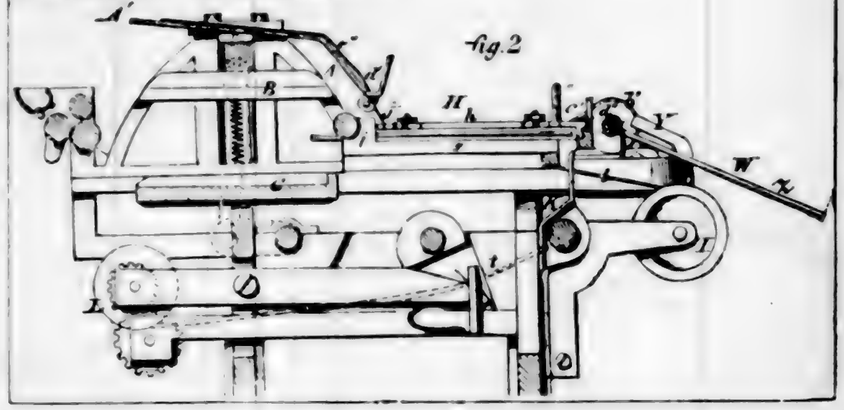


fig 2



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fig 2

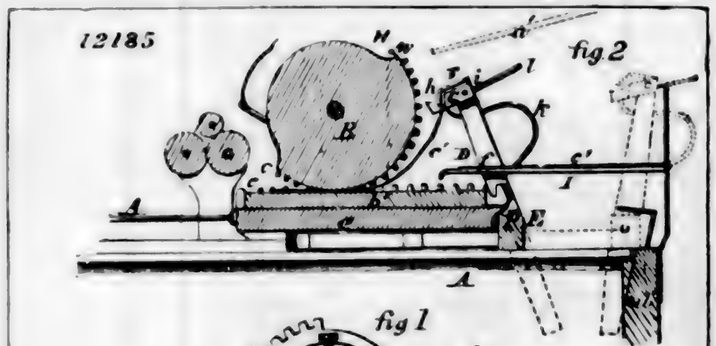


fig 1

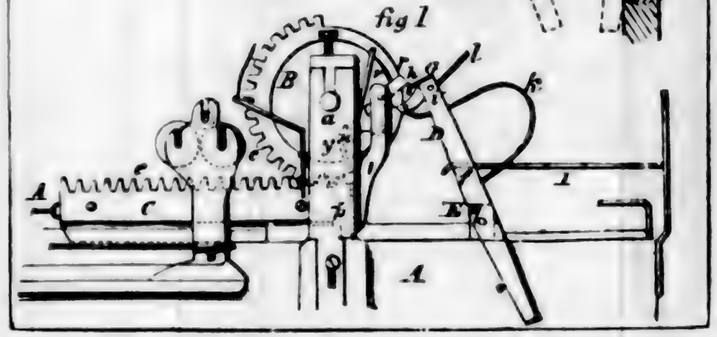


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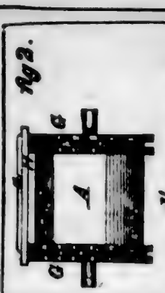


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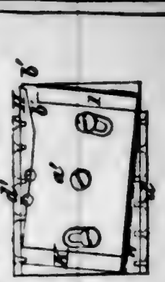
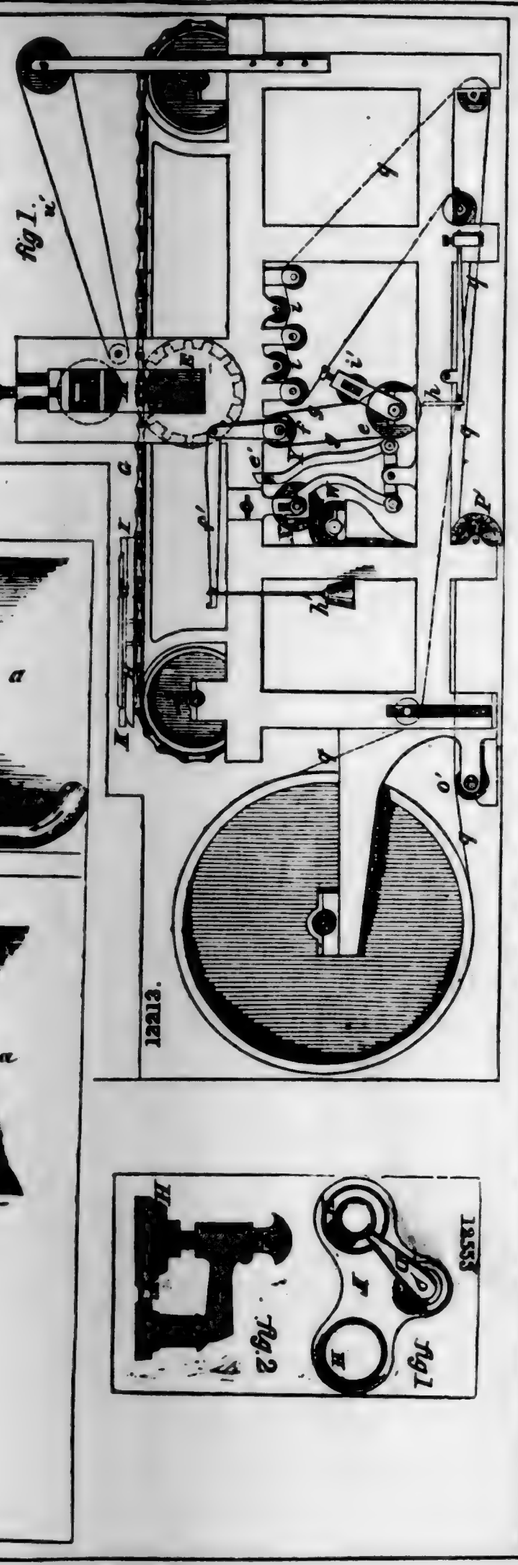


fig 1.



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fig 1

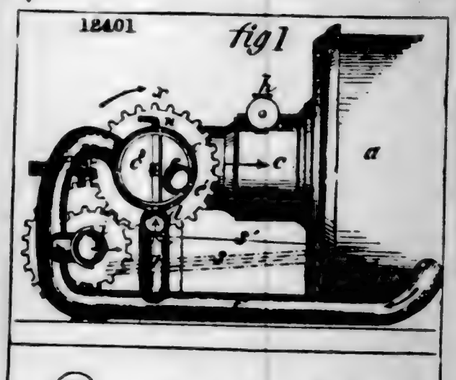
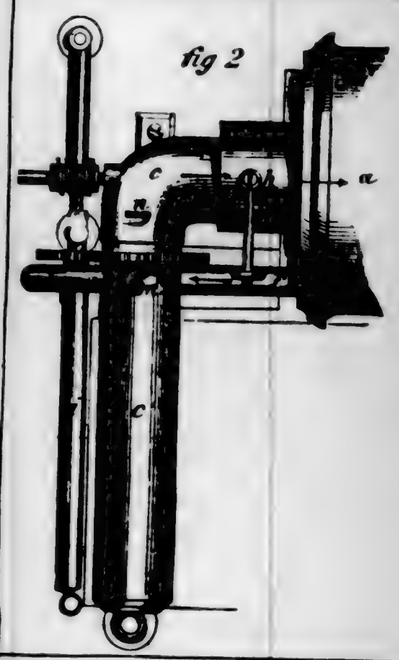
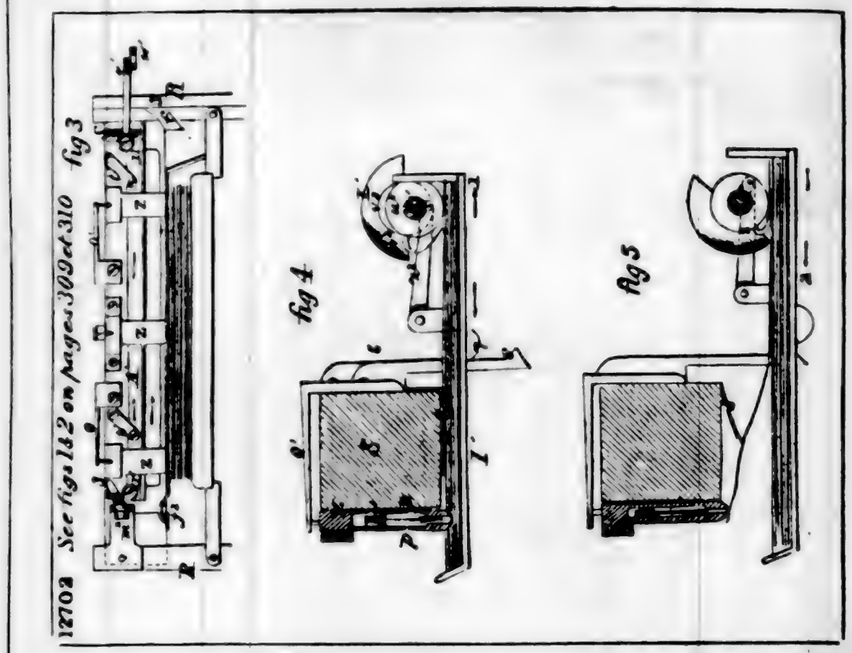


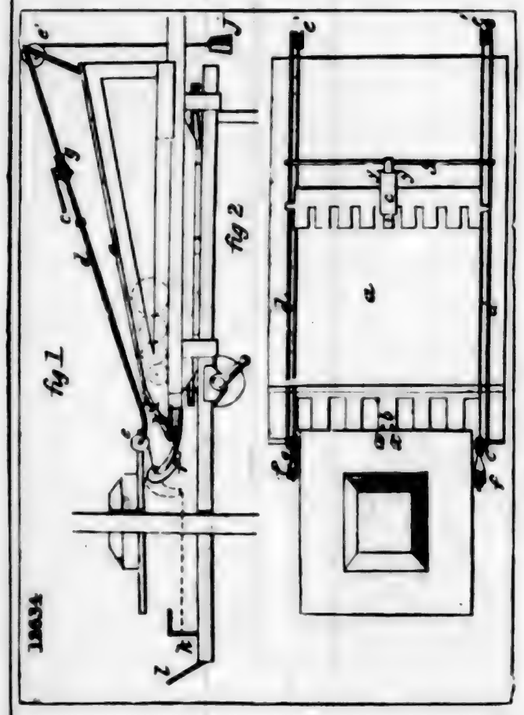
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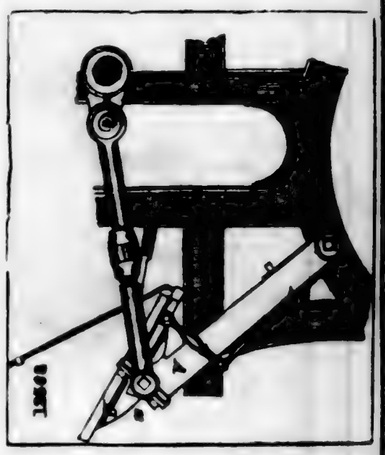


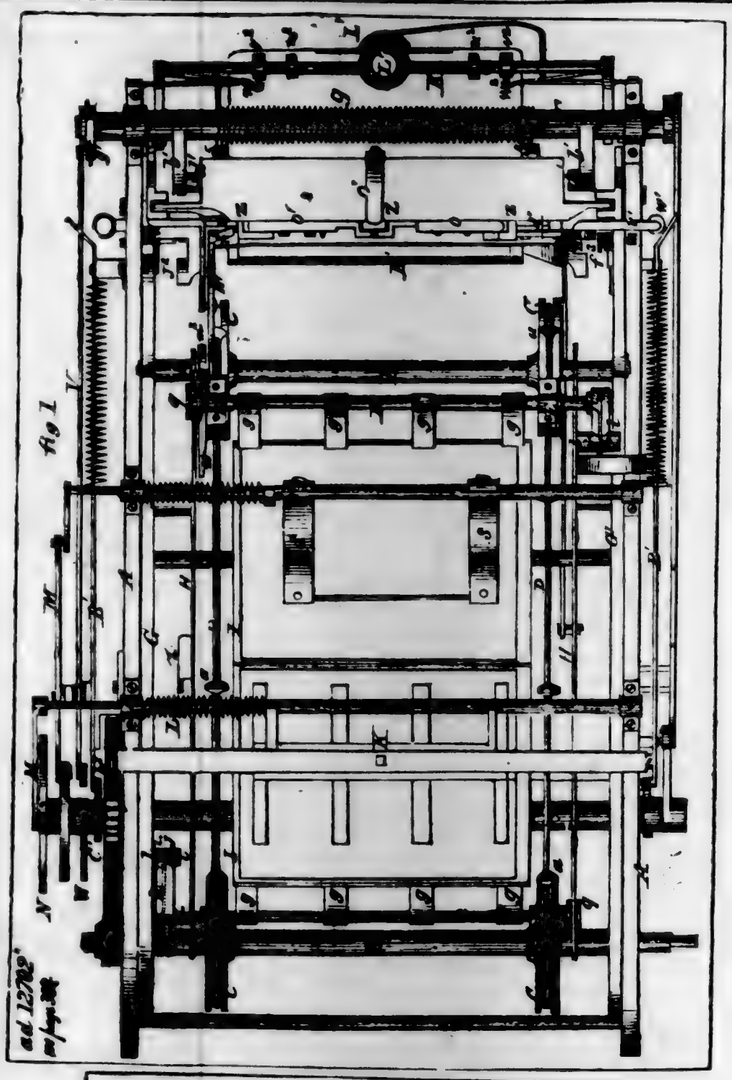
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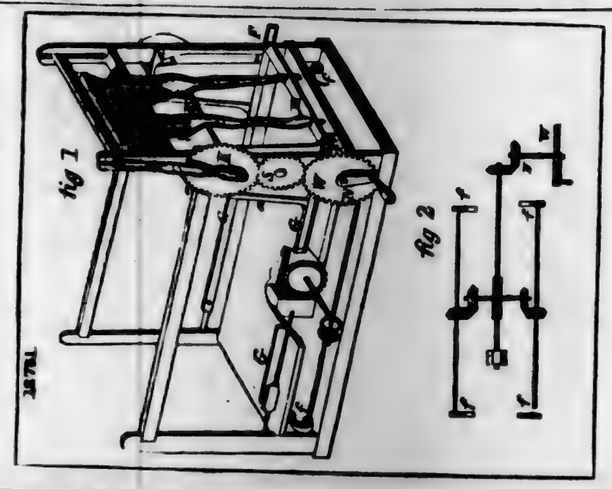
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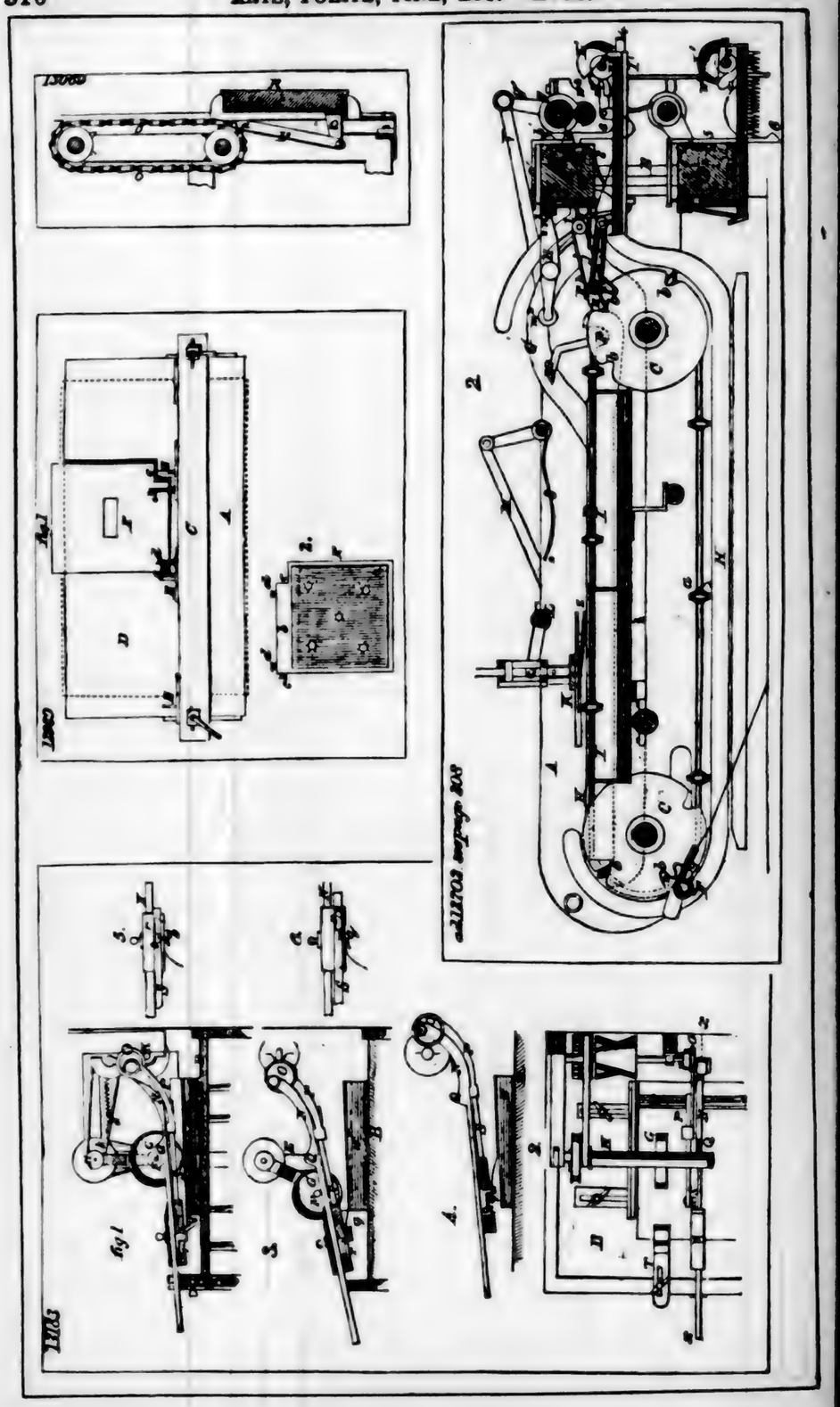

12702 See figs 1&2 on pages 309 & 310
fig 3
fig 4
fig 5

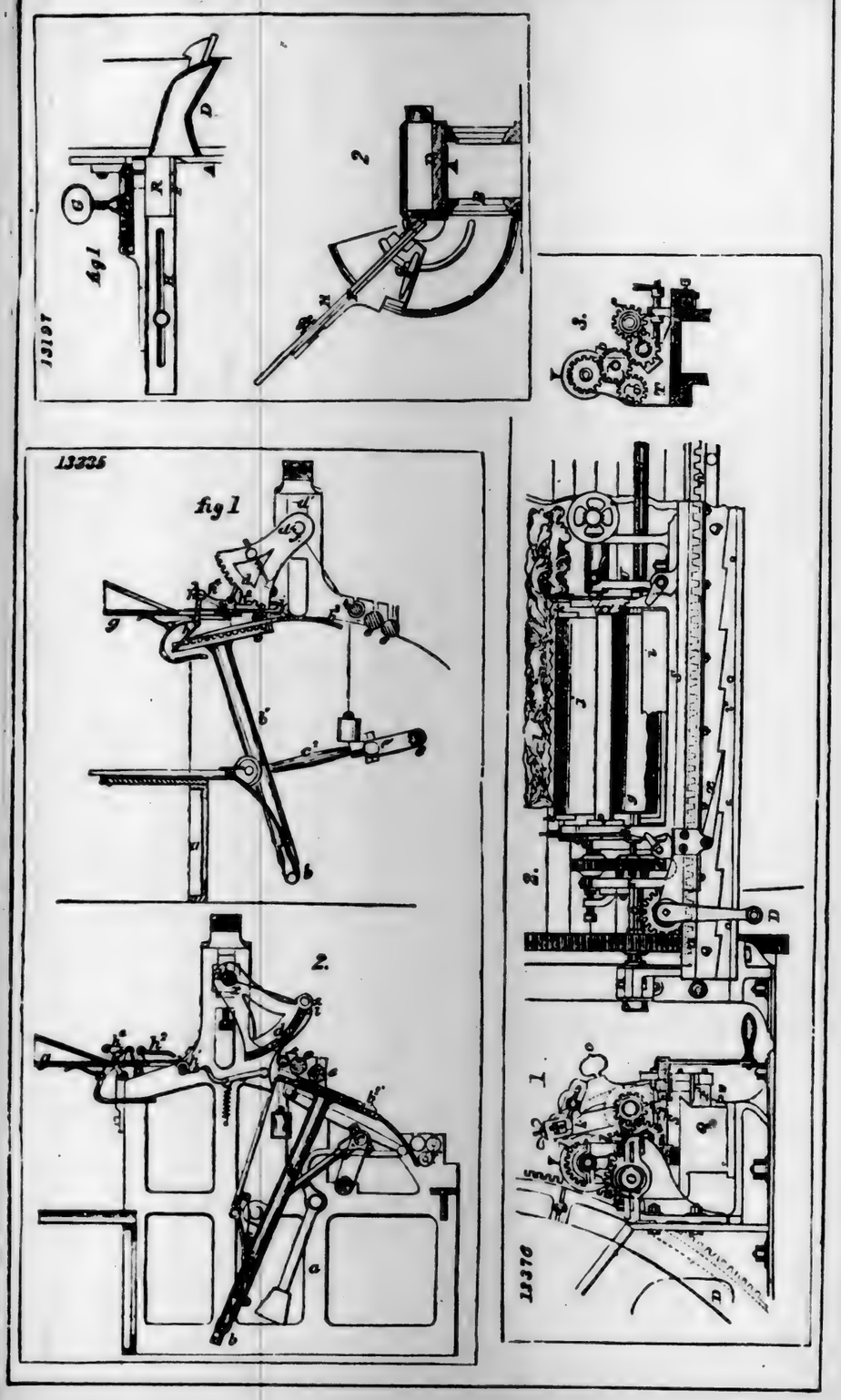

fig 1
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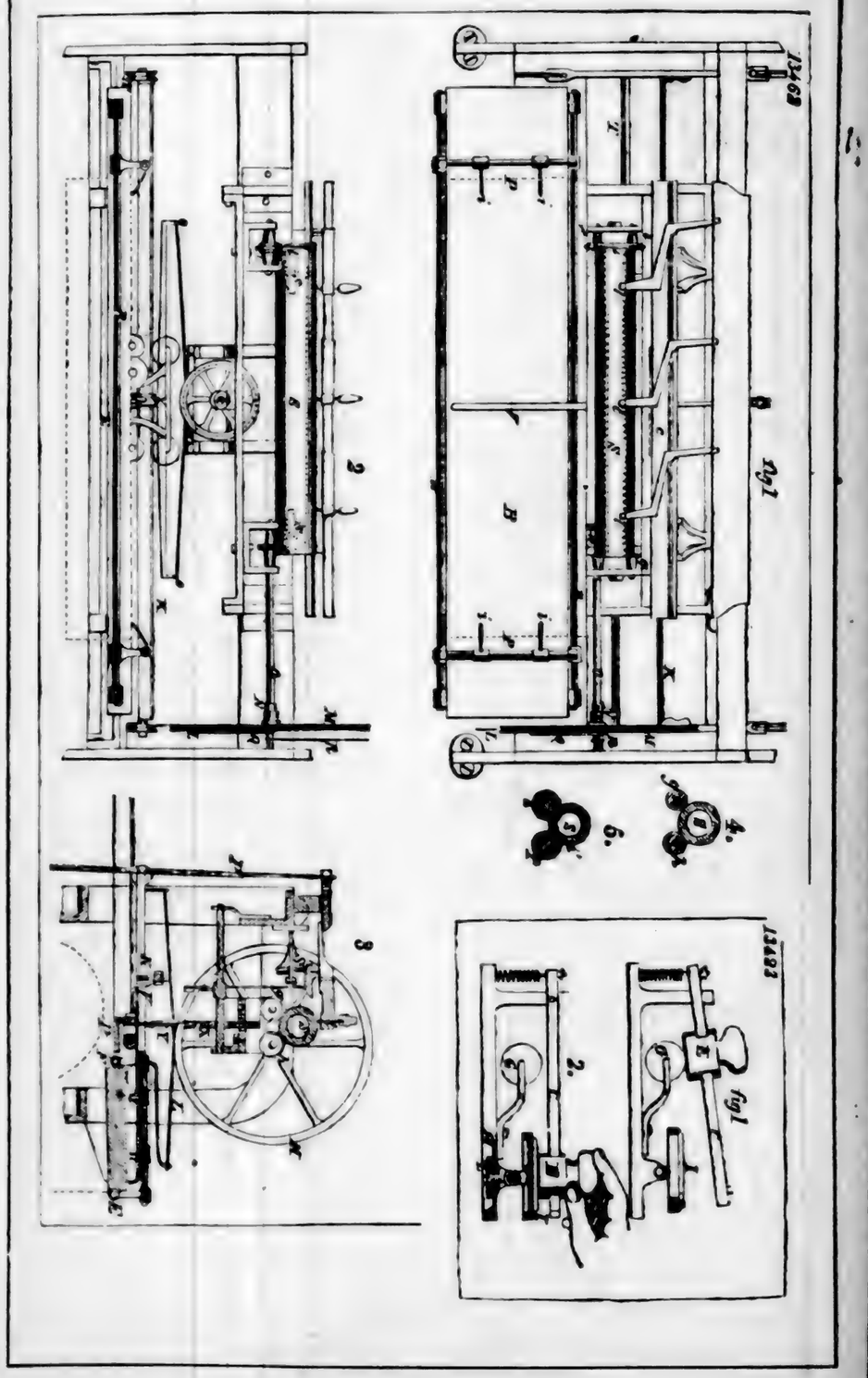


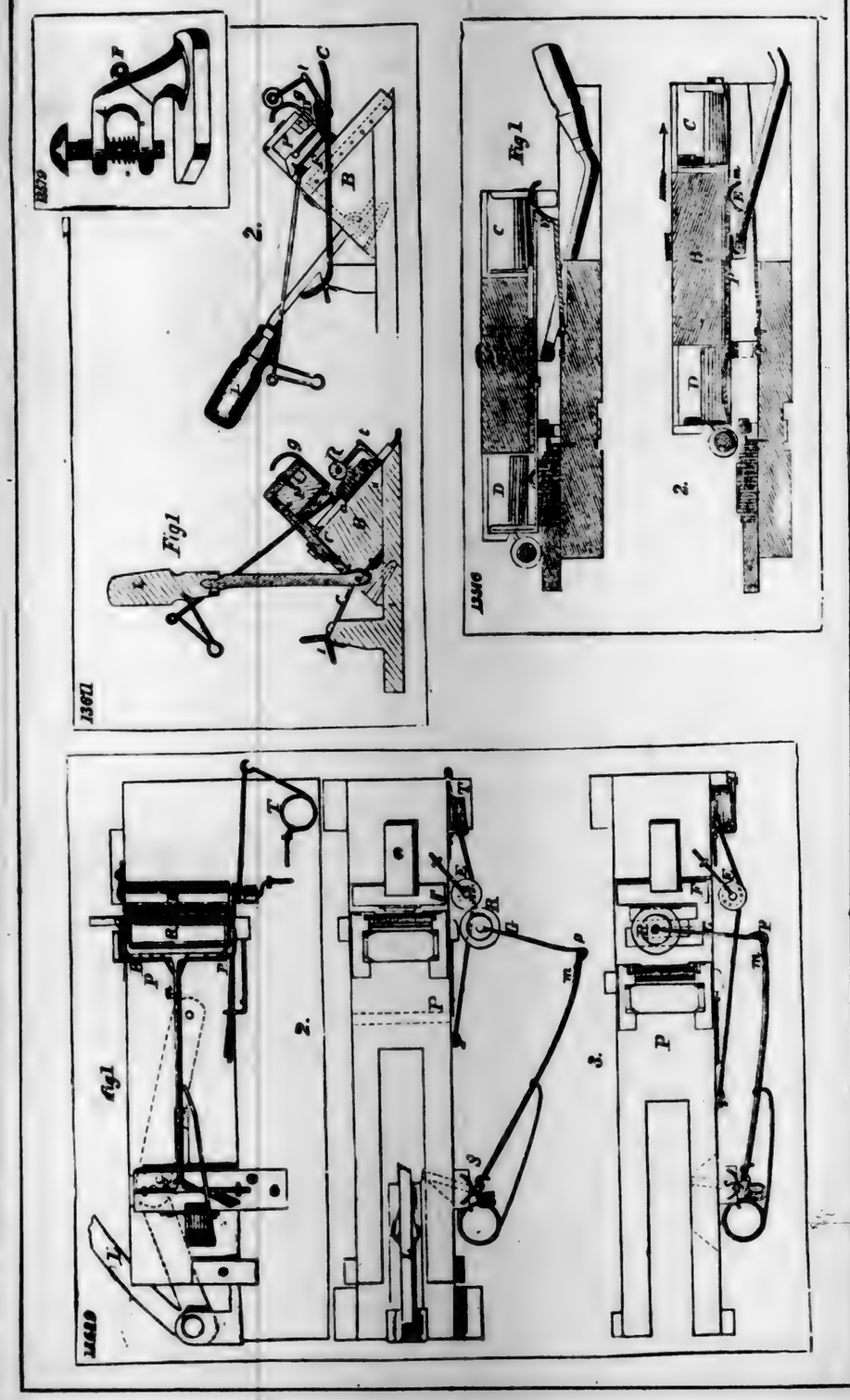

fig 1


fig 1
fig 2


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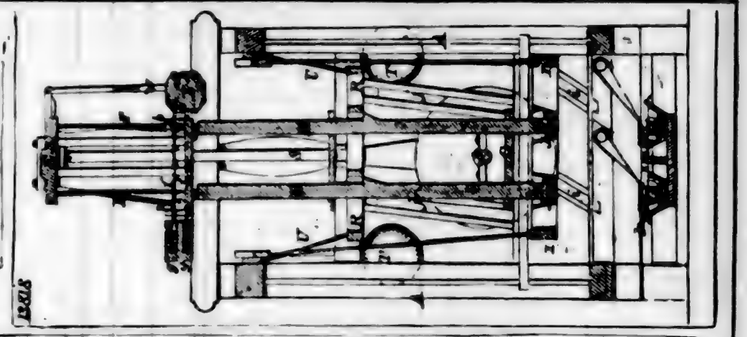

Fig 1
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Fig 1
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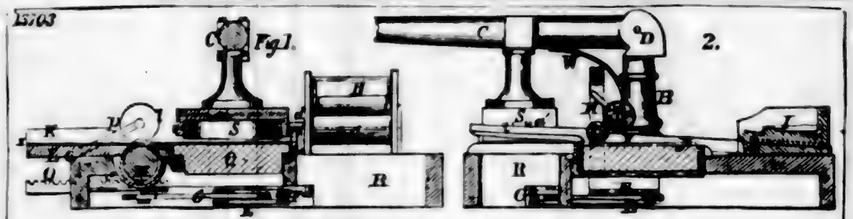
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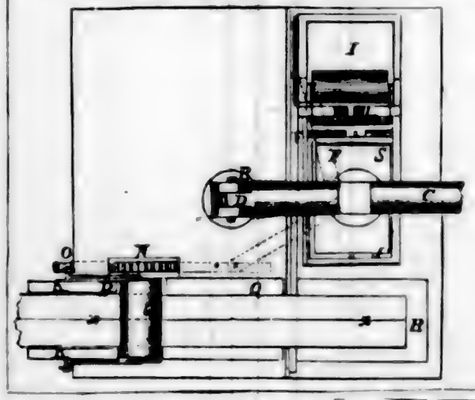
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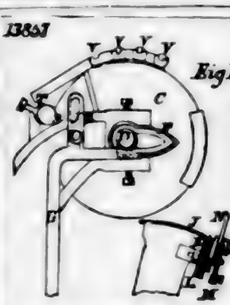


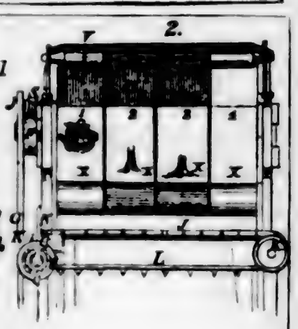
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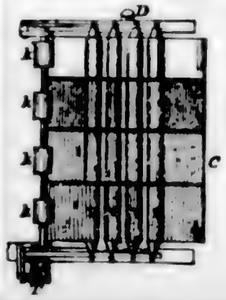
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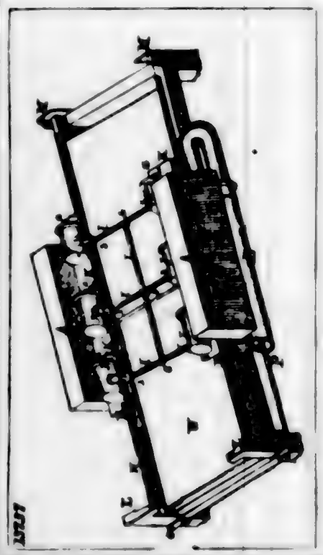




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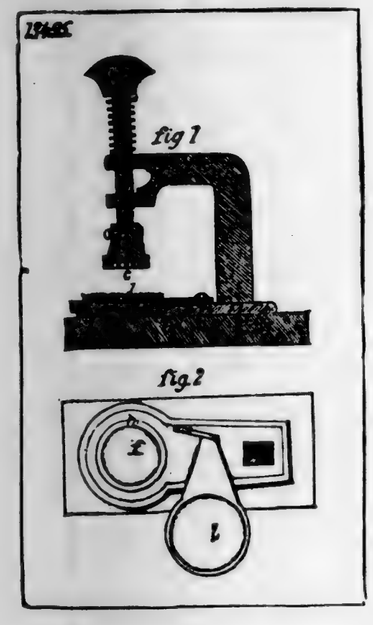
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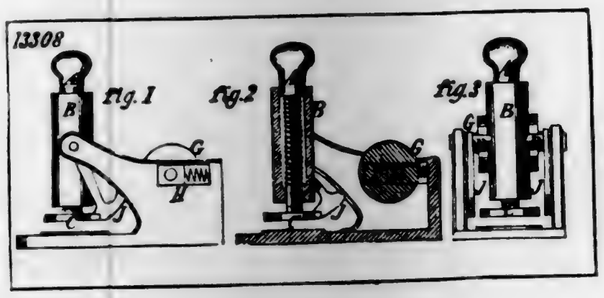
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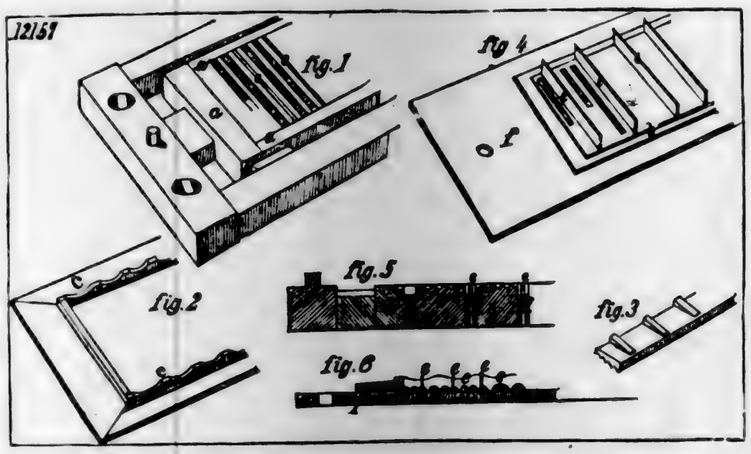
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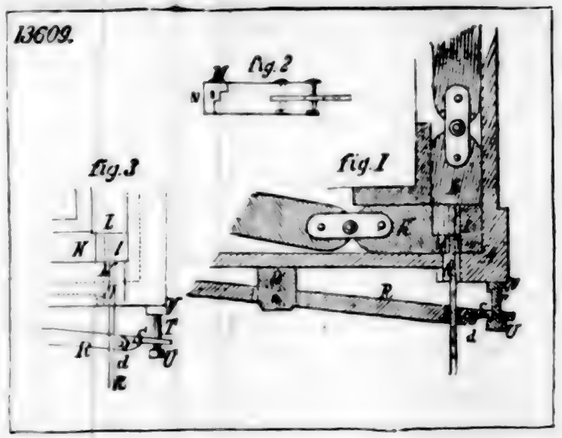
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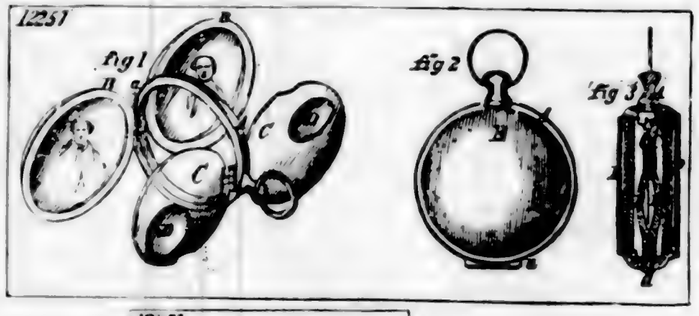
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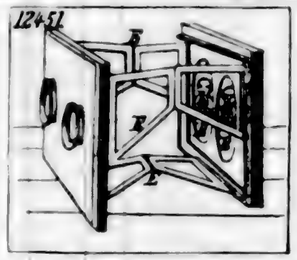
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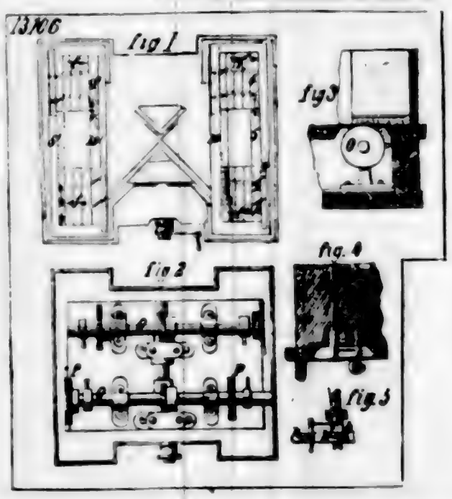
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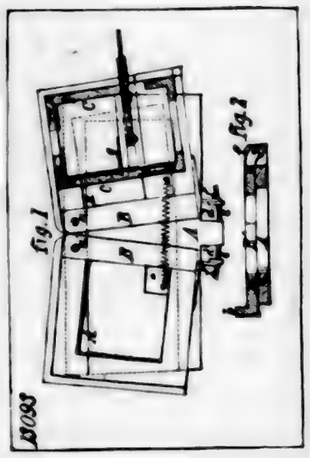


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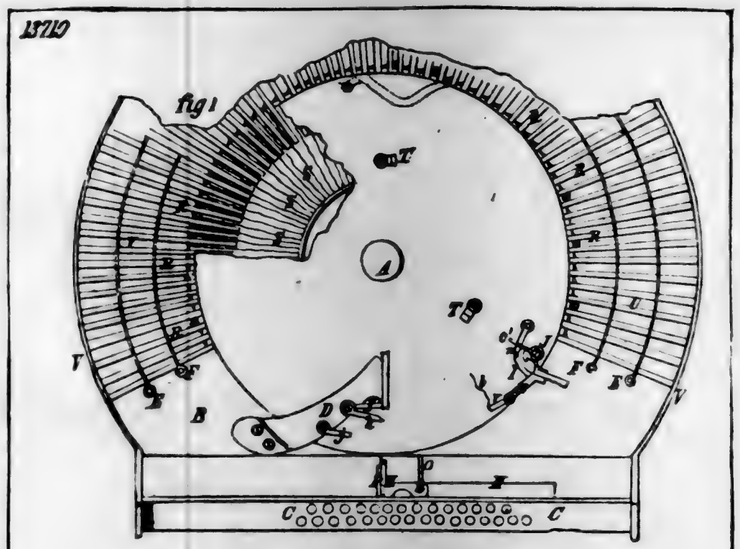


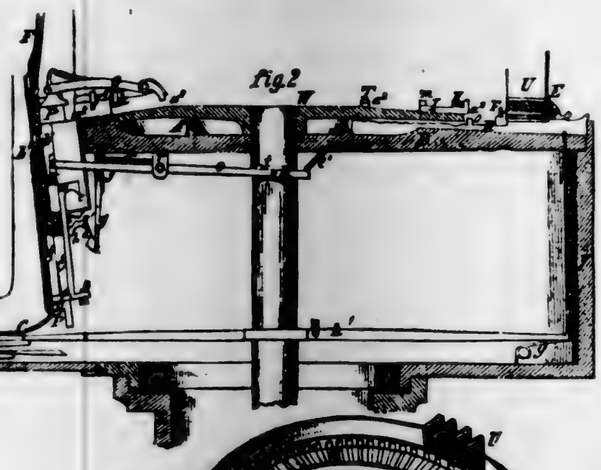
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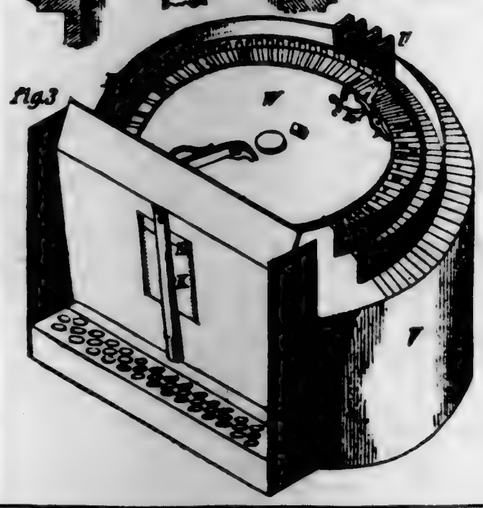




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fig. 2

fig. 3

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fig. 1

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fig. 1

fig. 2

fig. 3

fig. 4

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fig. 1

fig. 4

fig. 2

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fig. 1

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12942 fig. 2

fig. 1

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fig. 1

fig. 2

fig. 3

fig. 4

fig. 5

fig. 6

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fig. 2

fig. 4

fig. 1

fig. 3

12230 fig. 1 fig. 3 fig. 2

12189 fig. 1

B

fig. 3

fig. 2

12244 fig. 1

fig. 2

12328. fig. 1

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fig. 2

fig. 3

M

B

fig. 4

12470 fig. 1

fig. 1

fig. 5

fig. 3

fig. 2

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fig. 6

12528 fig. 1

fig. 2

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fig. 1

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fig. 1

fig. 2

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fig. 1

fig. 2

fig. 3

fig. 4

fig. 5

13354 fig 1 fig 2 fig 3

13304 B F' F

13030 fig 1 fig 2 fig 3 P

13056 fig 1 fig 2

13000 fig 1 fig 2 fig 3 fig 4

13209 fig 1

fig 2

fig 3

13547 Fig 1 Fig 2 Fig 3

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13581 Fig. 1 Fig. 2 Fig. 3 Fig. 4

13574 Fig. 1

Fig. 2

Fig. 3

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Fig. 1

Fig. 2

Fig. 3

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Fig. 1

Fig. 3

Fig. 2

Fig. 4

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Fig. 1

Fig. 3

Fig. 1

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Fig. 2

Fig. 1

Fig. 3

Fig. 5

Fig. 6

Fig. 4

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Fig. 1

Fig. 2

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Fig. 1

Fig. 2

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Fig. 1

Fig. 2

13523 and Fig. 1 & 2 on Page 328

Fig. 3

Fig. 4

Fig. 5

ad 12522 see pag. 327

fig. 1

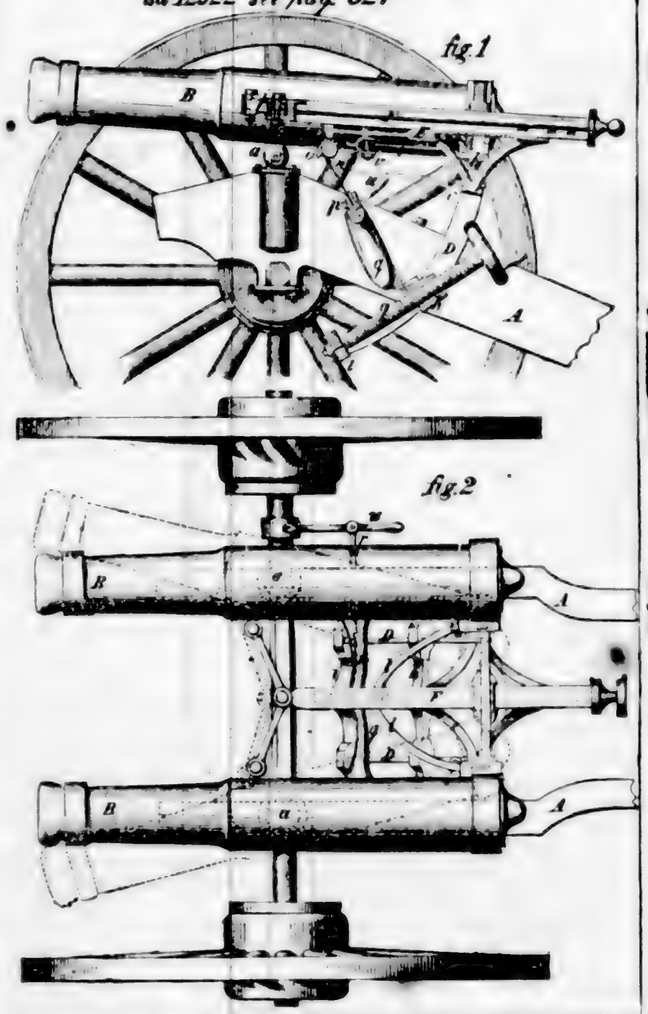


fig. 2

13679

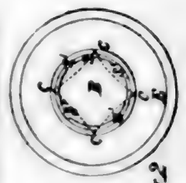


fig. 2

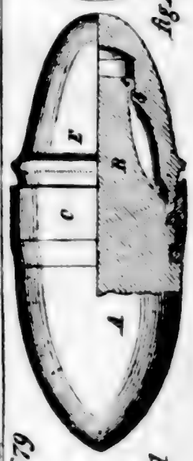
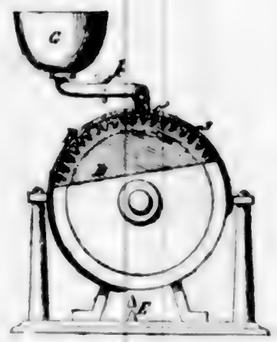


fig. 1

12258



13249

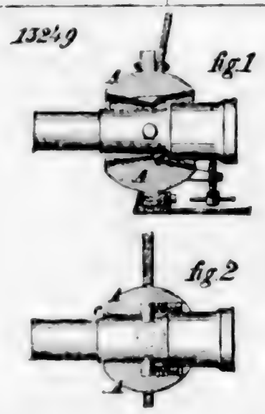


fig. 1

fig. 2

15799

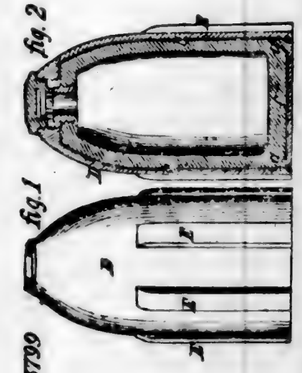


fig. 2

fig. 1

12801



fig. 3

fig. 4

fig. 5

13469

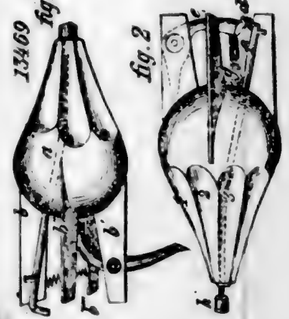


fig. 1

fig. 2

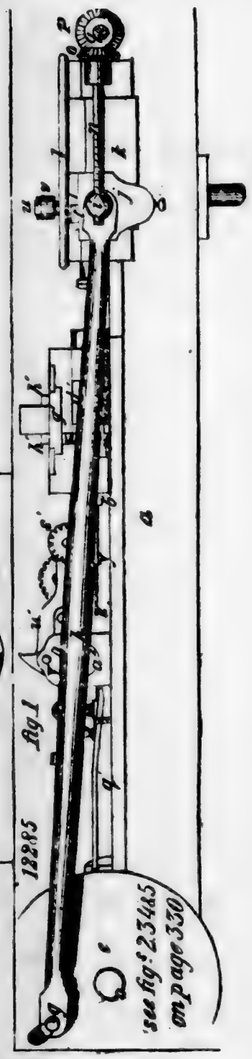
23795



fig. 1

fig. 2

12285



see fig. 2345 on page 330

fig. 3



fig. 4



fig. 1

12574

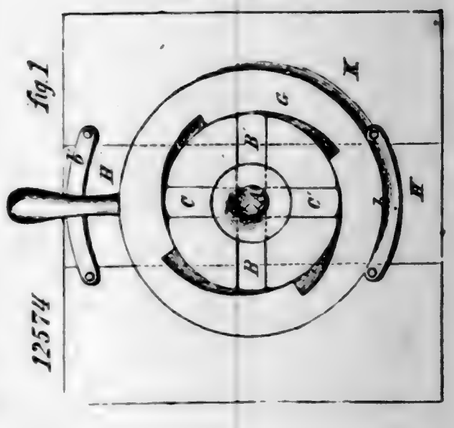
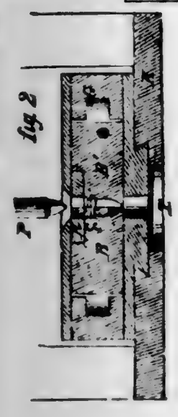
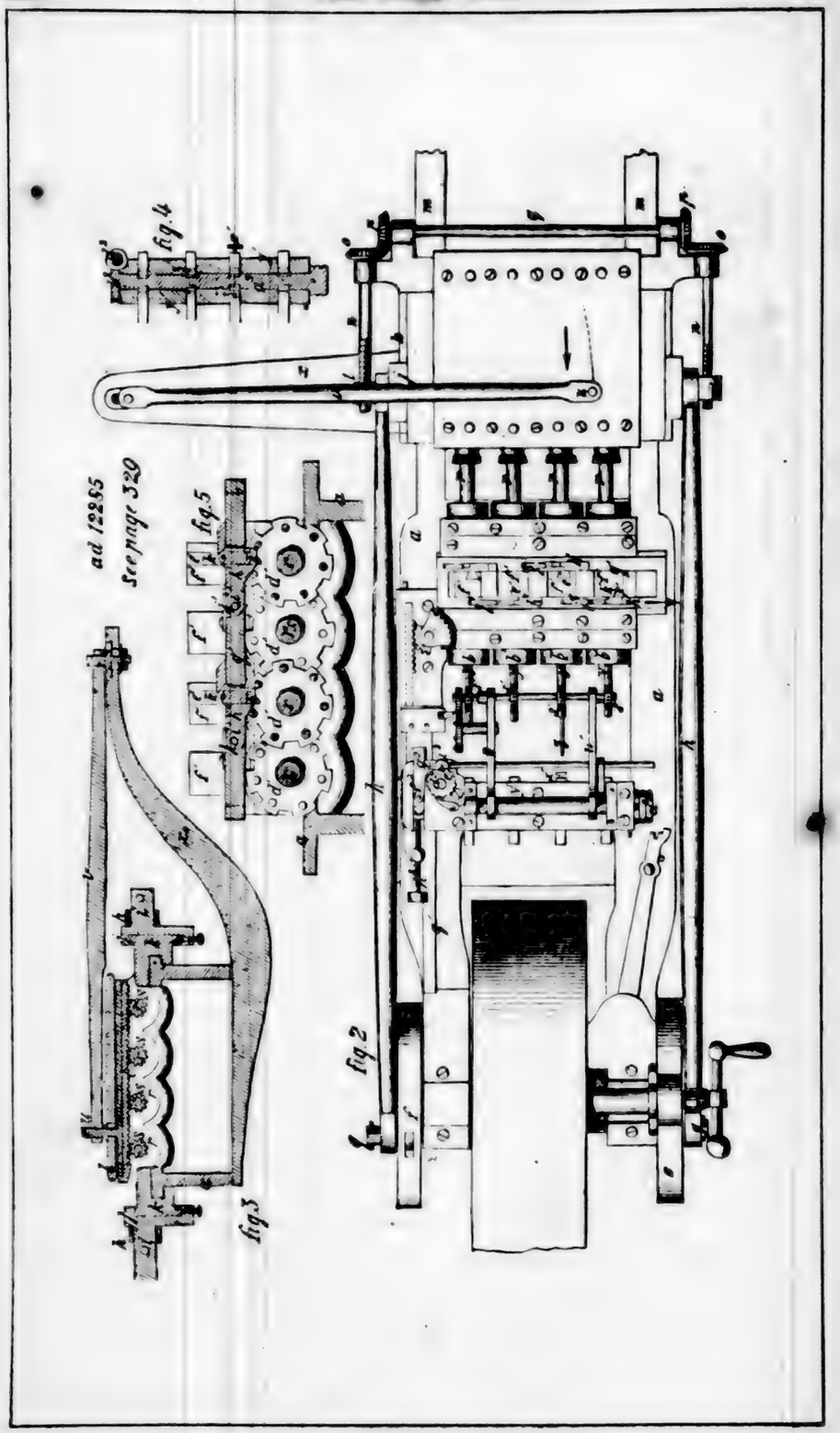
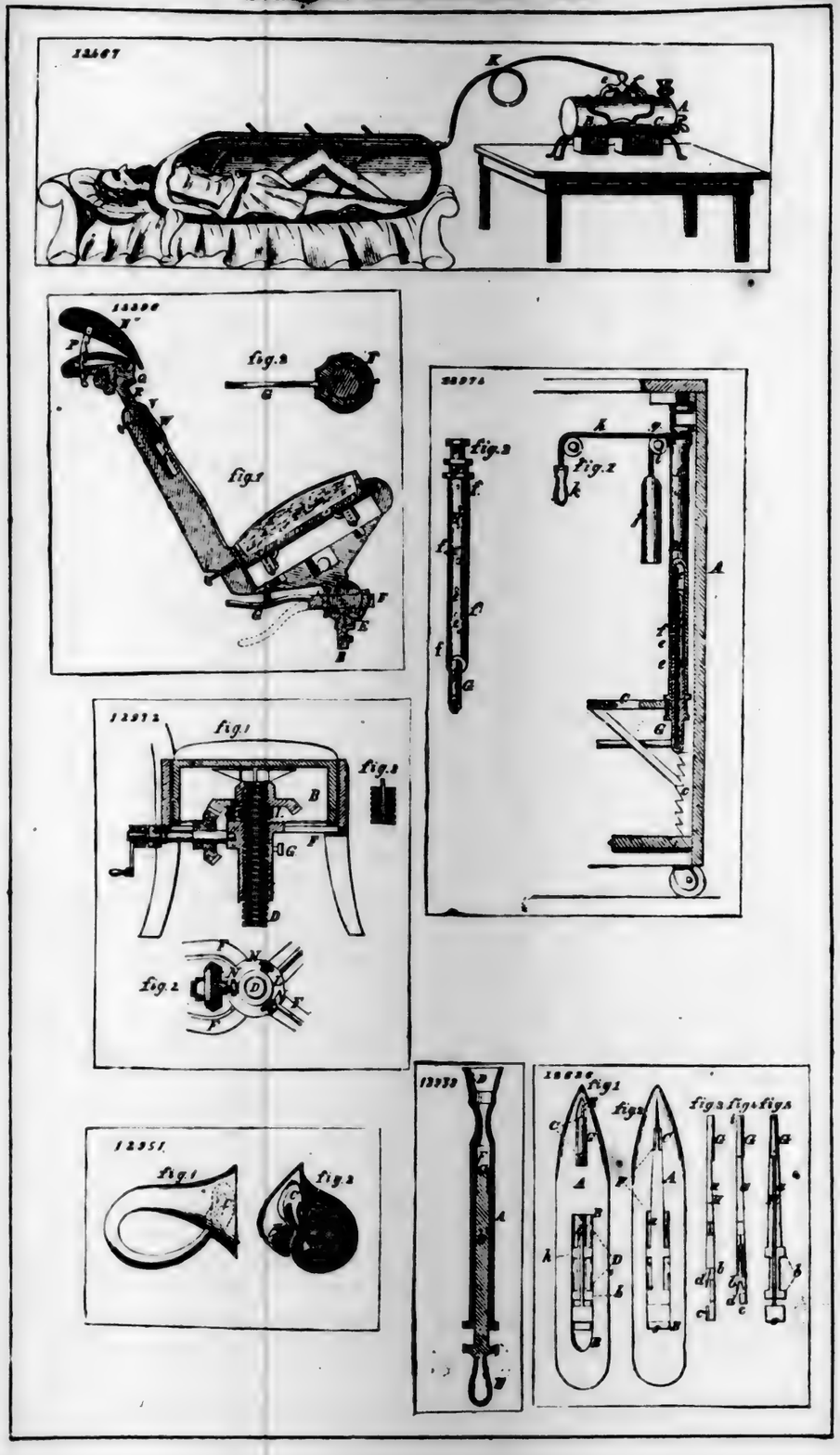


fig. 2




fig.4
ad 12285
See page 320
fig.5
fig.2
fig.3


12267
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12300
fig.2
fig.1
12272
fig.1
fig.3
fig.2
12274
fig.3
fig.2
12351
fig.1
fig.2
12333
12326
fig.1
fig.2
fig.3
fig.4
fig.5

13156 fig. 1

fig. 2 fig. 4 fig. 5 fig. 3 fig. 6

13404

13413 fig. 1 fig. 2 fig. 3

13511

13950 fig. 1 fig. 3 fig. 2

13518

12156

13861 fig. 1 fig. 2

13864 fig. 1 fig. 2 fig. 3

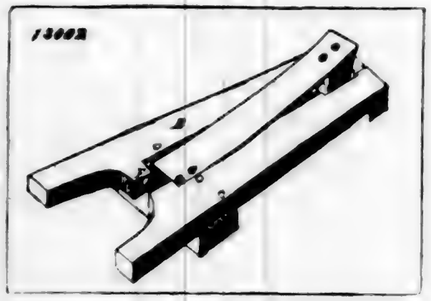
13830 fig. 1 fig. 2

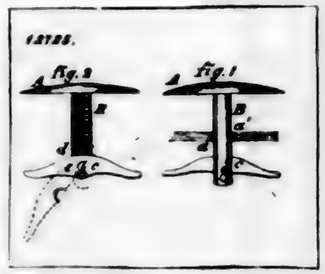
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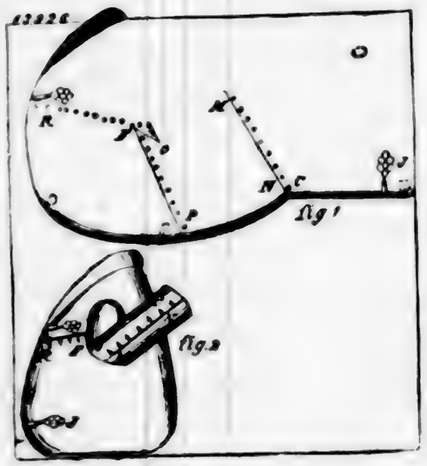
12986 fig. 1 fig. 3 fig. 4 fig. 2

13548 fig. 1 fig. 2

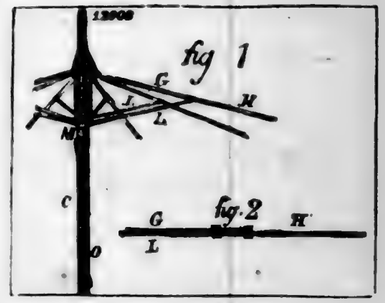



12788.
fig. 2
fig. 1

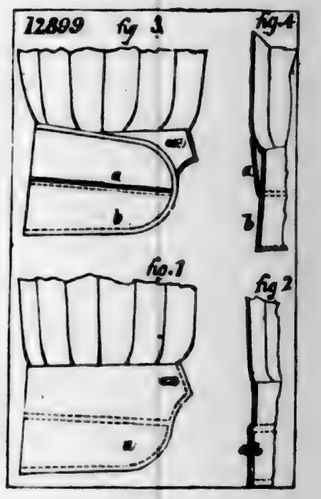

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fig. 1
fig. 2

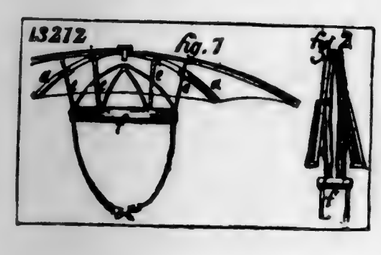

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fig. 1
fig. 2

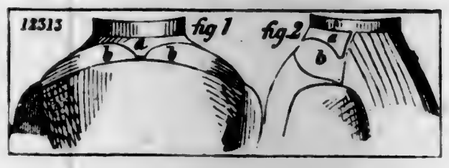

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fig. 1
fig. 2
fig. 3

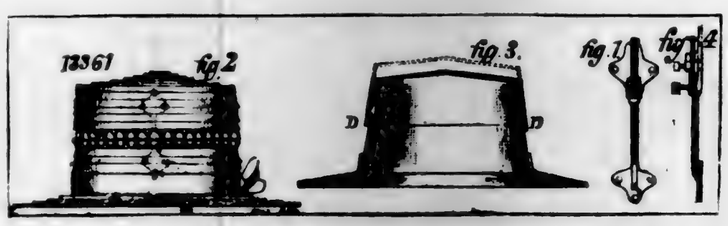

12908
fig 1
fig. 2


12878


12899
fig. 3
fig. 4
fig. 1
fig. 2


13212
fig. 1
fig. 2

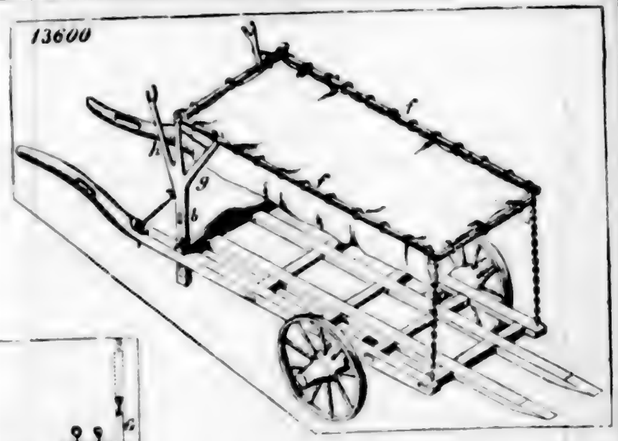

12313
fig 1
fig 2


12361
fig. 2
fig. 3.
fig. 1
fig. 4

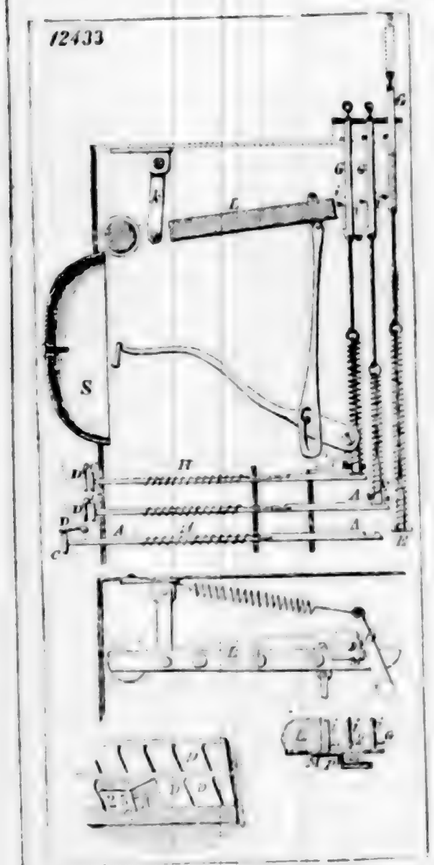
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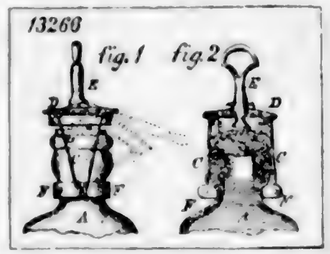
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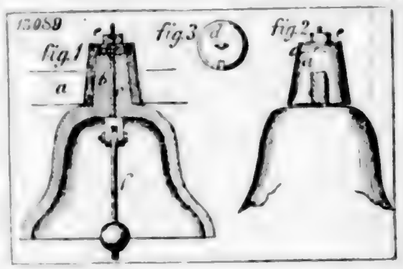
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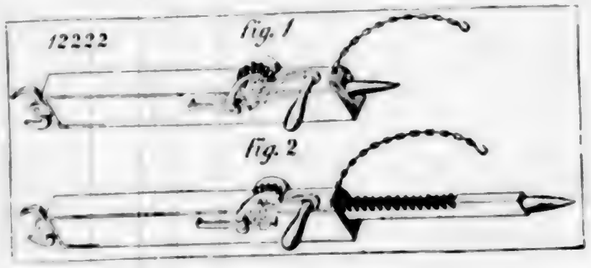
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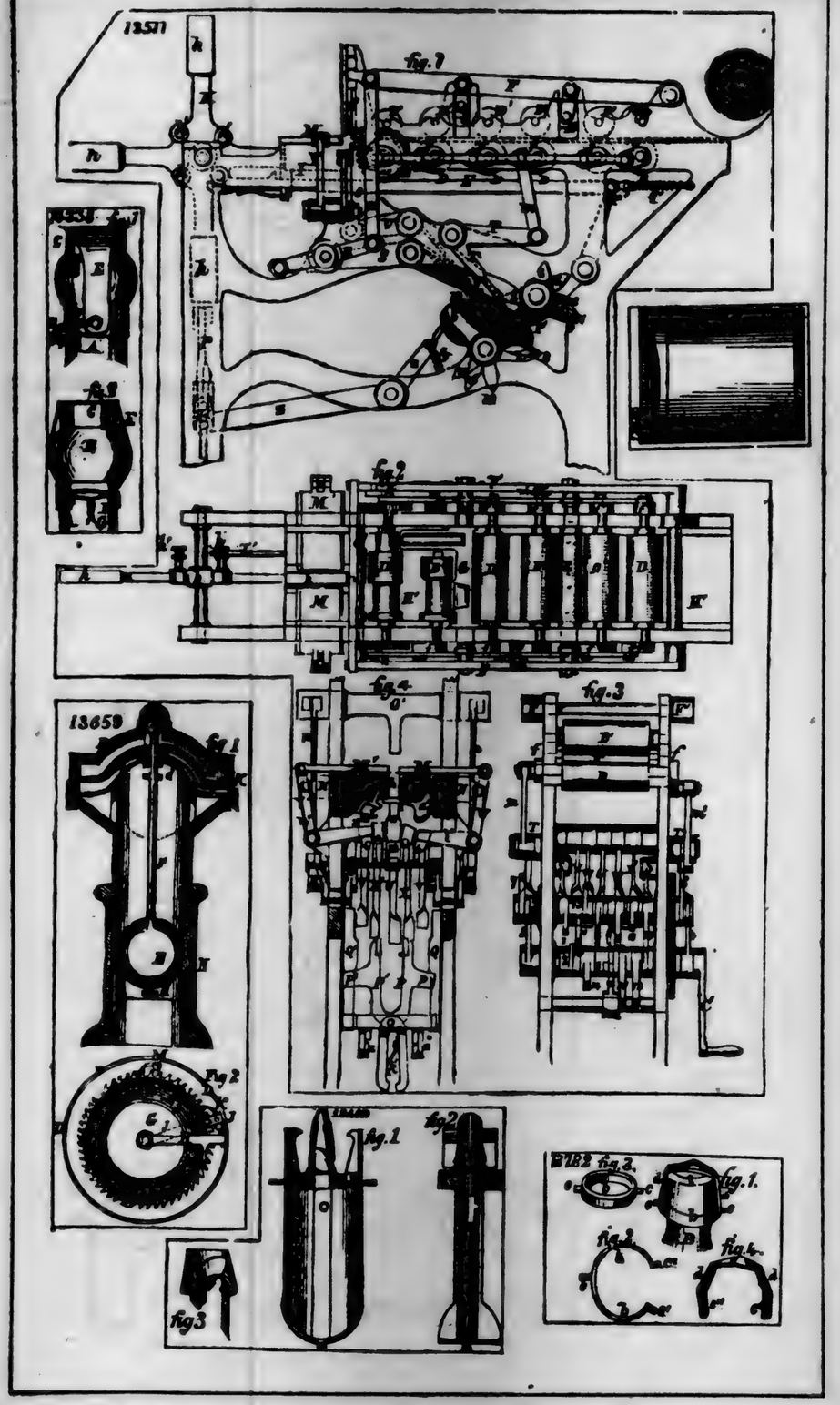
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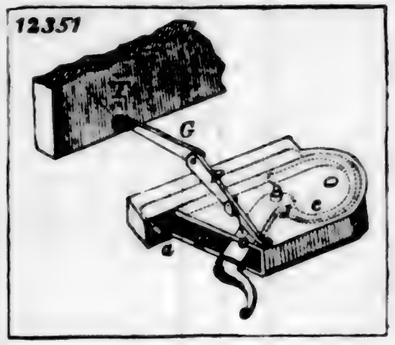


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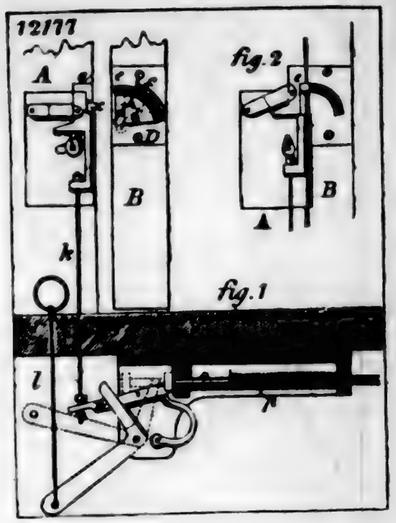


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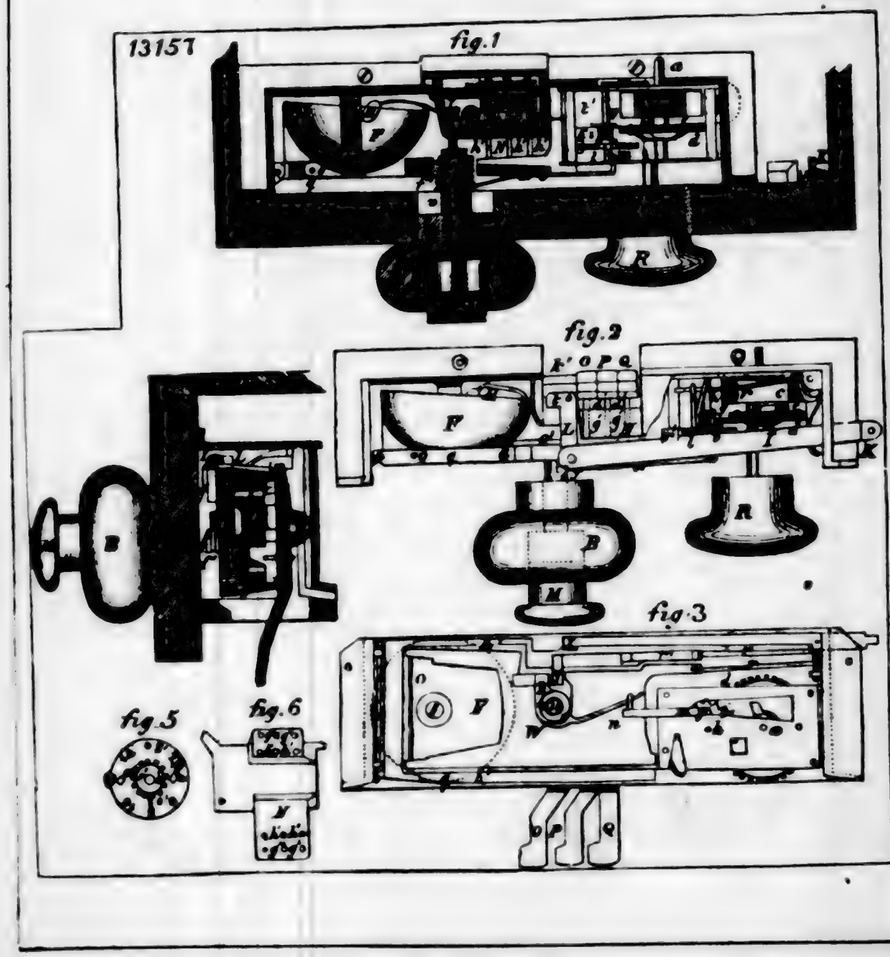
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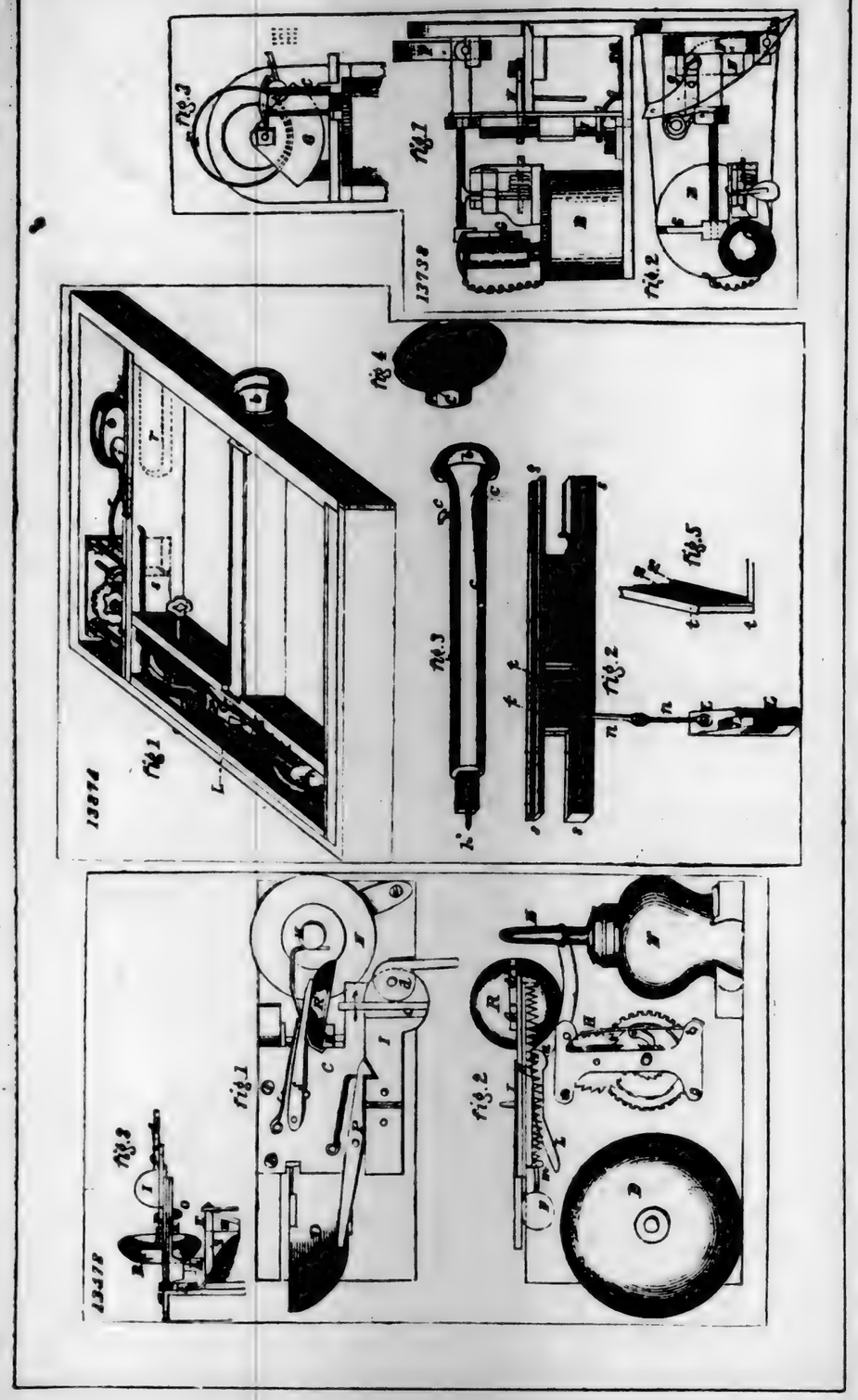


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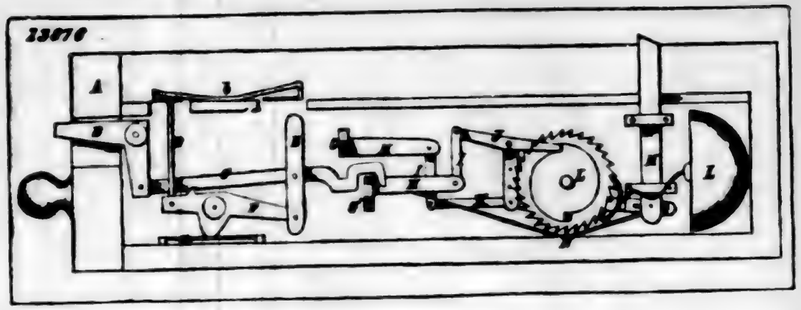


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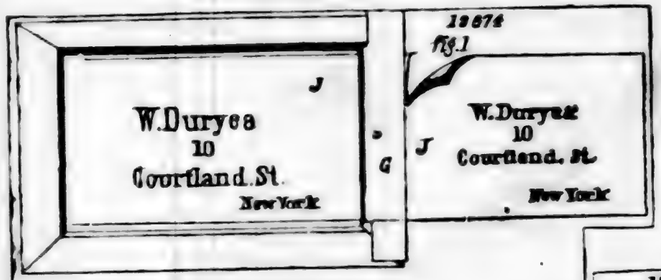
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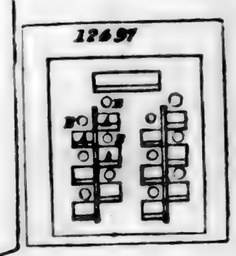
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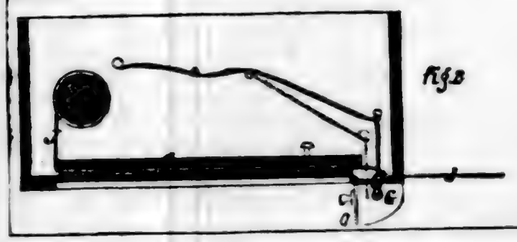


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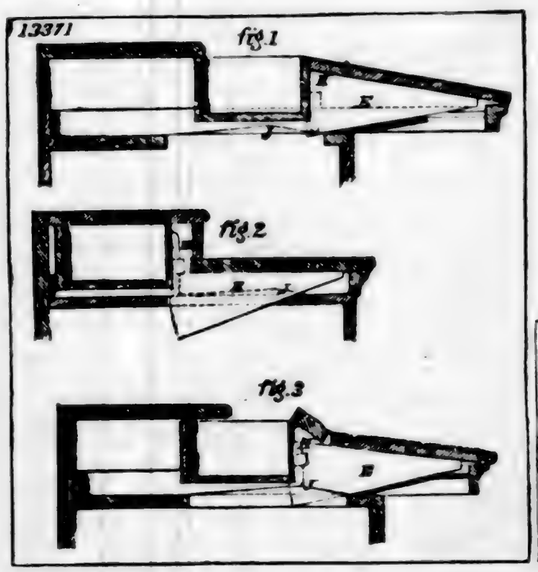


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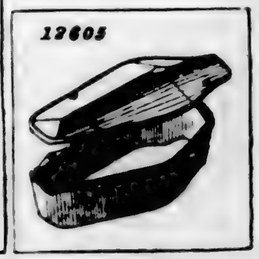
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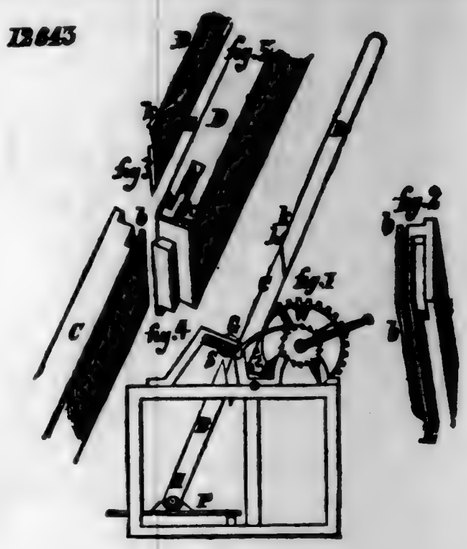
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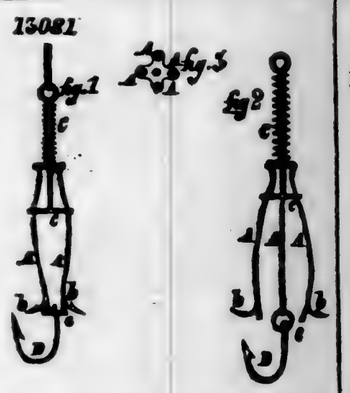
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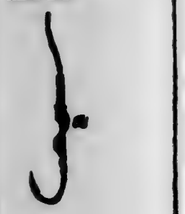
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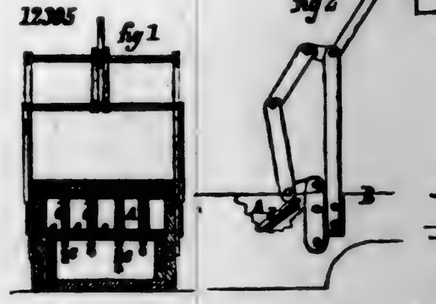
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13748



12385



12409 fig 1

13759 fig 1 fig 2

fig 2

fig 3

12096 fig. 1 fig. 2

13809

13834 fig 1 fig 2

12141 fig. 1

fig. 2

fig. 3 fig. 4 fig. 5

fig. 8 fig. 7 fig. 6

13823 fig. 1 fig. 2

13627

K913 fig. 1

12338 fig. 2 fig. 1

fig. 2

13449

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fig 1

fig 3

fig 2

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fig 3

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fig 2 12926

fig 2

13709

fig 1

fig 2

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fig 1

fig 4

fig 2

fig 3

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13463

fig 1

fig 2

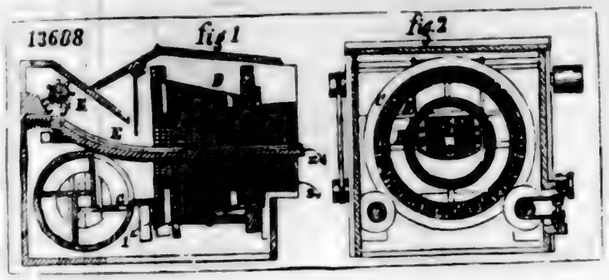
fig 3

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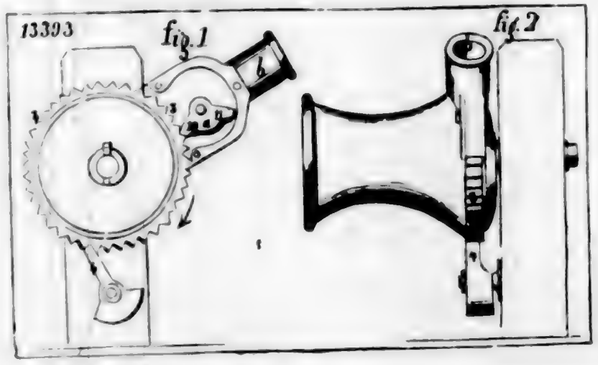
fig 1

fig 2

13608 fig. 1 fig. 2



13393 fig. 1 fig. 2



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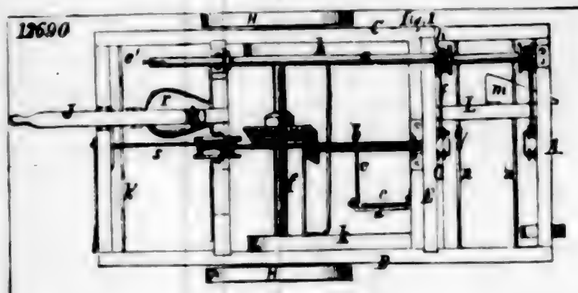


fig. 4

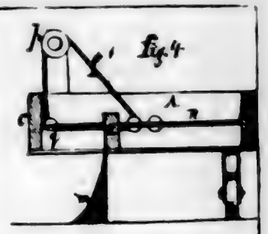


fig. 2

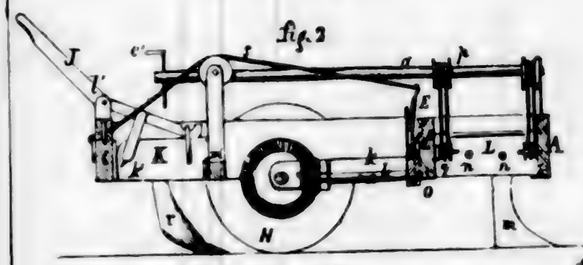


fig. 5

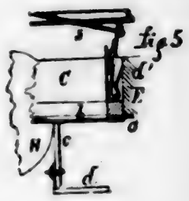


fig. 3

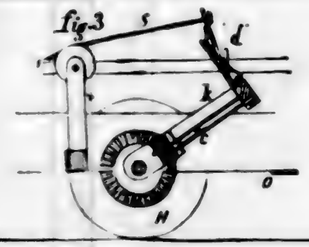
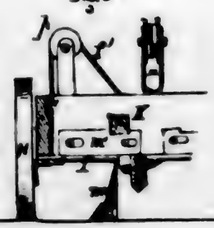
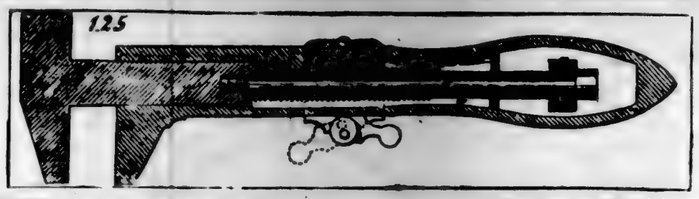


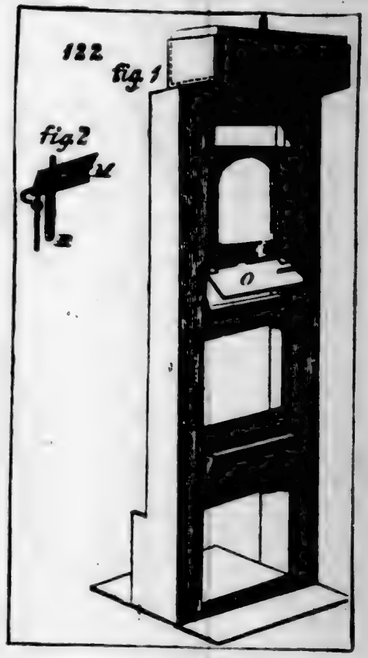
fig. 6



125



122 fig. 1 fig. 2



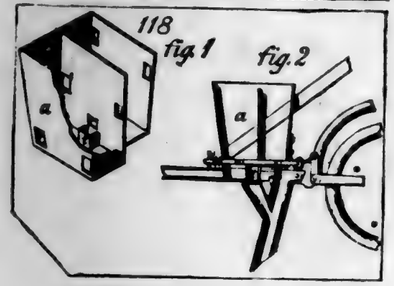
119



120 fig. 1 fig. 2



118 fig. 1 fig. 2



124 fig. 1

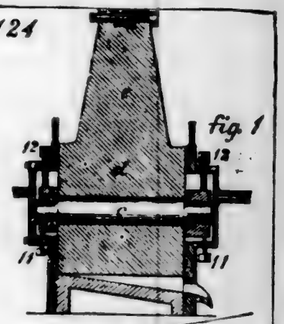
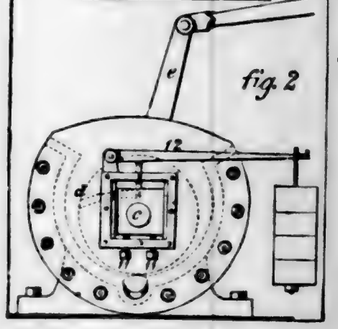
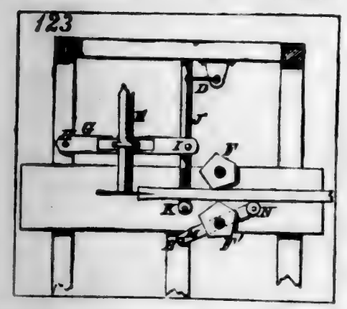


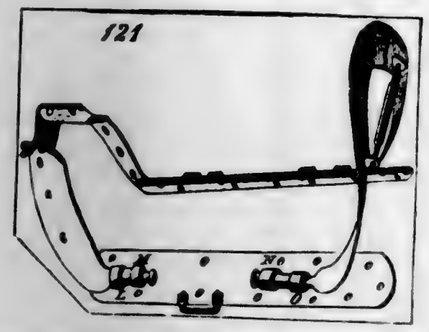
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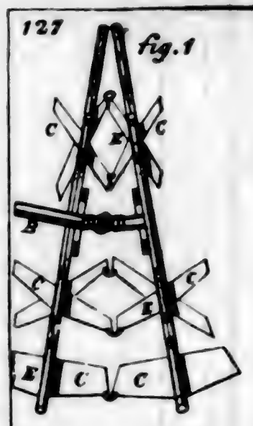
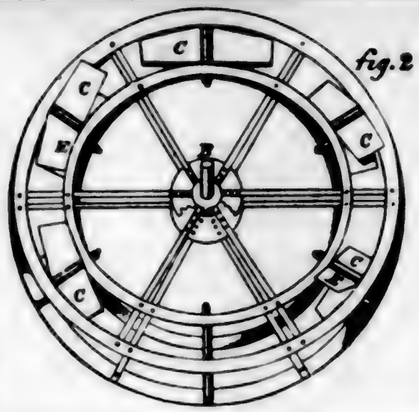


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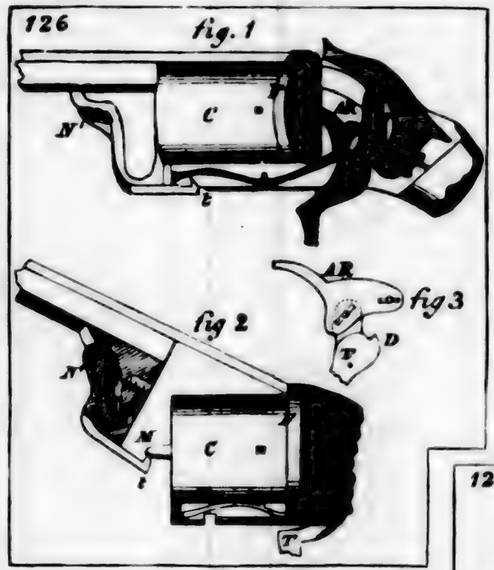


fig 2

fig 3

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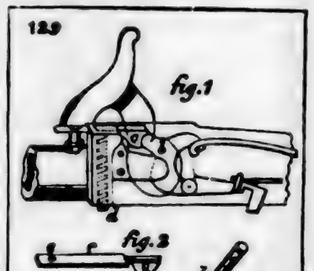


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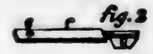


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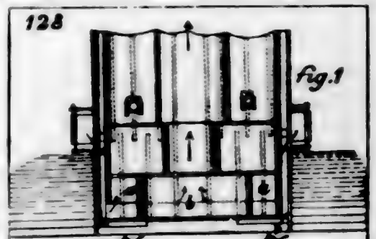
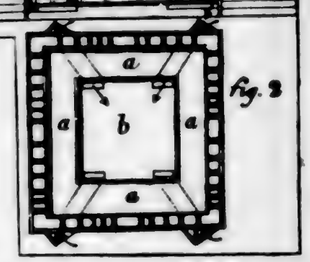


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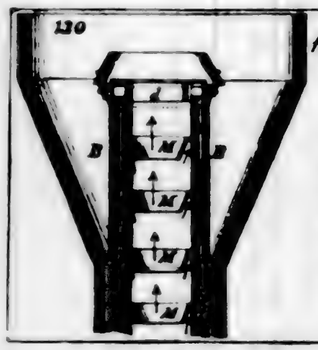


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535	Benzole Vapor Apparatus	461	96
536	Cultivator	229	3
537	Folding Life-Boats	596	133
538	Swivel for Watch-Chains	II, 229	318
539	Wagon Brake	669	164
540	Knobs for Fastening Curtains, and for other like purposes	II, 151	282
541	Method of Self-Ventilation for Railroad Cars	537	115
542	Device for Air-Chamber of Pumps	723	186
543	Machine for cutting Barrel Heads	II, 4	211
544	Pump	723	186
545	Shot-Cartridge	II, 232	319
546	Feeding Fuel to Furnaces	504	105
547	Rake and Elevator	285	28
548	Extension Table	II, 158	284
549	Valve for Hydraulic Ram	715	182
550	Lamp	521	110
551	Ship-Auger	II, 1	210
552	Railroad-Car Brake	669	164
553	Hand-Press for Printing	II, 203	307
554	Seed Planter	266	21
555	Fire-Arms	II, 240	322
556	Cartridge	II, 232	319
557	Seed Planter	267	21
558	Manufacture of Bricks	II, 88	257
559	Mowing Machine	240	10
560	Machine for polishing Daguerreotype Plates	II, 169	290
561	Seed Planter	267	21
562	Self-loading Cart	689	172
563	Mortising and Tenoning Machine	II, 34	227
564	Valve Gearing for Steam-Engines	578	127
565	Loom	398	72
566	Pump	724	186
567	Breech-Loading Fire-Arms	II, 241	322
568	Printing-Press	II, 203	308
569	Centrifugal Water-Wheel	736	191
570	Grain and Grass Harvester	240	10
571	Cultivator	229	5
572	Arrangement of Wheels, Axles, and Friction-Rollers	701	177
573	Sewing Machine	434	87
574	Press for making Cylindro-Conical Hollow Projectiles by Pressure	II, 257	329
575	Attaching Augers to Handles	II, 1	210
576	Ore Separator	341	52
577	Sewing Machine	433	87
578	Castors for Furniture	II, 147	280
579	Rotary Pump	724	186
12,580	Clamp and Mouth-piece for Lumber-Jointing Machines	II 26	223

No.	Invention or discovery.	Text.	Plates.
12,581	Preparing Woollen Roving	425	84
582	Spinning Wool	453	93
583	Machine for turning the Lips of Augers	II, 2	210
584	Grain and Grass Harvester	240	10
585	Process for refining Jewellers' Scraps	480	
586	Speed and Resistance Governor	769	204
587	Chairs		280
588	Mode of supporting Table-Leaves	II, 158	285
589	Cultivator	229	5
590	Screw Wrench	353	57
591	Packing Journal Boxes	694	173
592	Operating Valves in Direct-acting Steam-Engines	579	127
593	Loom	402	73
594	Fire Proof Safes	311	39
595	Illuminating Vault-Cover	665	163
596	Loom	402	73
597	Grate-Bar	519	110
598	Tool for boring Hubs to receive Boxes	II, 6	212
599	Method of chalking Lines	II, 286	340
600	Shingle-Machine	II, 68	246
601	Self-Adjustable or Anchoring Pump	724	186
602	Charcoal Furnace	504	105
603	Seed Planter	268	21
604	Bill-Holder	II, 274	336
605	Coffin	II, 286	340
606	Current-Wheel	737	191
607	Manufacture of Boots and Shoes	II, 111	267
608	Seed Planter	268	21
609	Cultivators	230	5
610	Hulling Cotton Seed	260	18
611	Cultivators	230	5
612	Process for making Kerosene	480	
613	Manufacture of Zinc-White	490	101
614	Factitious Oil	476	
615	Press	754	197
616	Manufacture of White Lead by Precipitation	474	98
617	Lubricating Pistons of Air-Pumps	725	186
618	Seed Planter	268	21
619	Condenser for Steam-Engines	564	123
620	Ship's Riding Bitt	606	137
621	Adjustable Paddle-Wheel	599	134
622	Anchor	590	131
623	Safety Port for Coal-Holes	638	149
624	Valve for Steam-Engines	580	127
625	Direct-acting Hydraulic Steam-Pump	725	187
626	Hose-Coupling	714	182
627	Plough	281	26
628	Valve for Wind-Musical Instruments	II, 175	293
629	Loading Rifled-Cannon	II, 231	319
630	Loom	403	73
631	Double-acting Pump	726	187
632	Rake and Hay Elevator	286	29
633	Hoisting and Dumping Coal-Cars	636	148
634	Feeding Paper to Hand Printing-Presses	II, 204	308
635	Cotton Gin	367	62
636	Lancet	II, 263	331
637	Coal-Hole Cover	638	149
638	Breech-Loading Fire-Arms	II, 242	322
639	Stove-Pipe Tube	532	114
640	Pully-Arrangements for Dumb-Waiters	II, 153	283
12,641	Seed Planter	269	22

No.	Invention or discovery.	Text.	Plates.
12,642	Fire-Proof Floor-Ceiling	636	148
643	Fire Escape Ladder	II, 286	341
644	Railroad-Car Seats	676	167
645	Chain-Pump	726	187
646	Protector for Lamp-Shades	521	110
647	Bank Lock	323	45
648	Repeating Fire-Arms	II, 242	323
649	Repeating Fire-Arms	II, 243	323
650	Plough	281	27
651	Excavating-Machine	643	151
652	Mechanism for Opening and Closing Gates by Vehicles	646	153
653	Cultivator	230	5
654	Freeing Steam-Boilers from Sediment	541	117
655	Breech-Loading Fire-Arm	II, 244	323
656	Folding Bedstead	II, 137	277
657	Grain-Cleaner	768	204
658	Washing-Machine	II, 159	285
659	Harrow	234	7
660	Scraper for Removing Dirt from Boots and Shoes	II, 158	284
661	Fixtures for Curtain-Rollers	II, 150	282
662	Lathe	II, 23	222
663	Drill for Artesian Wells	631	147
664	Saw-Teeth	II, 50	237
665	Steam-Boiler	542	117
666	Machine for Raising and Transporting Stone	II, 106	265
667	Rotary Harrow	235	7
668	Machinery for winding up Lines, Twist, or Cord	360	60
669	Arrangement of Dies and Stocks for Ornamenting Metal Tubes	306	37
670	Boot-Form	II, 111	267
671	Machine for Recording Votes in Legislative Bodies	II, 298	345
672	Seed Planter	269	22
673	Locomotive Boiler	543	117
674	Card Exhibitor	II, 285	340
675	Portable Door Fastener	307	38
676	Framing for Building Concrete Walls	666	163
677	Tool for Boring Hubs	II, 6	212
678	Furnace for Burning Wet Fuel	505	105
679	Guiding Reciprocating Saws	II, 51	237
680	Railroad-Car Coupling	674	167
681	Fire-Arms	II, 244	323
682	Steam-Generator	575	125
683	Straw Cutter	292	31
684	Spiral-Wheel for replacing Railroad Cars upon the Track	678	168
685	Graduating the Tension of Car-Brakes	670	165
686	Stationary Hydro-Pneumatic Engine for Extinguishing Fires	707	180
687	.....	.....	.....
688	Machinery for Boring Wells	632	147
689	Machine for Paring Apples	II, 136	277
690	Cultivator	II, 300	346
691	Machine for Mortising Blinds	II, 34	227
692	Gas-Regulator	516	109
693	Bedstead Fastening	II, 137	277
694	Straw Cutter	292	31
695	Venetian Window-Blind	628	144
696	Straw Cutter	293	32
697	.....	.....	.....
698	Platform Balance	761	200
699	Straw Cutter	293	32
700	Plate-Holder for Cameras	II, 168	290
12,701	Adjustable Friction-Roller	645	153

No.	Invention or discovery.	Text.	Plates.
12,702	Feeding Paper to Printing-Presses	II, 204	308-9-10
703	Cabin Chair	592	131
704	Wooden Splice-Piece for Railways	655	157
705	Device allowing Circular Saw-Spindles to yield	II, 51	237
706	Implement for Boring the Earth	633	147
707	Paint-Mill	773	205
708	Lathe for Turning Locomotive Drivers	330	48
709	Bleaching Apparatus	462	96
710	Sash Fastener	345	54
711	Construction of Glass Retorts	471	98
712	Machine for Punching Metal	333	49
713	Melodeon	II, 173	292
714	Grain and Grass Harvester	241	10
715	Explosive-Gas Engine	553	121
716	Lubricating Compound	475	.....
717	Putting a Gas-Generator in a Parlor Stove	513	108
718	Ship's Windlass	608	138
719	Process for Melting Sugar	487	100
720	Dredging-Machine	641	151
721	Grain and Grass Harvester	241	11
722	Mould for Casting Pencil-Sharpeners	II, 190	302
723	Machine for Punching Metal	333	49
724	Apparatus for Turning the Leaves of Music-Books	II, 176	293
725	Stud and Button Fastening	II, 269	334
726	.....	.....	122
727	Fountain Pen	II, 189	301
728	Hay-Making Machine	258	17
729	Cut-off Valve Gear	581	128
730	.....	.....	.....
731	Horse Power	770	204
732	Compensation Bearings	746	195
733	Making Printer's Ink	II, 207	309
734	Pen-holder	II, 189	302
735	Dies for Bolt-Forging Machine	306	37
736	Paper-Ruling Machine	II, 182	298-9
737	Piano-Forte Action	II, 193	303
738	India-Rubber Springs	473	98
739	Rollers for Making Metal Tubes	334	49
740	Hay-Press	754	198
741	Gas Cooking-Stove	533	114
742	Slide-Rest for Lathes	II, 24	222
743	Life-Preserving Door	596	133
744	Cultivator	230	5
745	Grain and Grass Harvester	242	11
746	Rotary Engine	560	122
747	Slide-Rest for Lathes	II, 24	222
748	Metallic Hone	II, 289	341
749	Furnace for Locomotives	505	105
750	Rake	286	29
751	Folding-Top for Carriages	685	170
752	Propeller	601	135
753	Elastic Tube Pump	726	187
754	Sewing-Machine	434	87
755	Cast-iron Pavement	650	155
756	Platform of Grain Harvesters	243	12
757	Spring Connecting-Rod for Washing Machines	II, 160	285
758	Stoves, &c.	533	114
759	Manufacture of Slate-Pencils	II, 291	342
760	Implement for shearing Sheep	290	31
761	Feeding Paper to Printing Presses	II, 207	309
12,762	Loom	403	74

No.	Invention or discovery.	Text.	Plates.
12,763	Machine for Punching Metal	II, 333	49
764	Machine for Punching Metal	333	49
765	Machine for Punching Metal	333	49
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13,000	Machine for Punching Metal	333	49

No.	Invention or discovery.	Text.	Plates.
13,001	Machine for Punching Metal	II, 333	49
002	Machine for Punching Metal	333	49
003	Machine for Punching Metal	333	49
004	Machine for Punching Metal	333	49

No.	Invention or discovery.	Text.	Plates.
12,763	Piano-Forte Action	II, 193	303
764	Carriage-Spring	696	175
765	Combined Table and Writing-Desk	II, 159	285
766	Machine for polishing Stone	II, 106	265
767	Machine for planing Metal	335	50
768	Attaching Wheels to Harvesters and other Machines	243	12
769	Harvester	243	12
770	Forge-Hammer	315	41
771	Machine for dressing Lawns	392	69
772	Ticket Register for Railroad Cars	679	169
773	Fire-Engine	499	103
774	Bullet-Mould	II, 230	319
775	Clothes-Pin Machine	II, 148	281
776	Wheelwright's boring and tenoning Machine	II, 7	212
777	Process for purifying and cleansing Wheat	481	.....
778	Machine for bundling Fleeces of Wool	765	202
779	Applying Eccentric Wheels to Water-Power	737	191
780	Shuttle for Looms	404	74
781	Shuttle for Looms	404	74
782	Horse Power	771	205
783	Corn Planter	270	22
784	Attachment for Door Locks	324	45
785	Window-Sash Supporter	657	158
786	Machine for making Paper-Bags and Envelopes	II, 180	293
787	Bench-Plane Stock	II, 40	231
788	Alloy for Journal-Boxes	693	.....
789	Machine for sawing off Piles under water	651	155
790	Farm-Gate	646	153
791	Gang Plough	281	27
792	Spring-Roller for Curtains	II, 151	282
793	Boot and Shoe Stretcher	II, 112	267
794	Boot-Crimping Machine	II, 112	267
795	Projectile for Fire-Arms	II, 258	329
796	Mitre-Box	II, 30	225
797	Machine for Clamping Sash, &c.	II, 46	235
798	Sewing Machine	435	87
799	Machine for burnishing Metals	336	50
800	Furnace for heating Wrought-Iron Wheels for Forging	506	105
801	Projectile	II, 258	329
802	Arranging Shafts and Pulleys at an Angle	763	201
803	Lubricator	751	197
804	Self-loading and unloading Cart	689	172
805	Regulating the Discharge of Exhaust-Steam in Locomotives	570	124
806	Machine for polishing Leather and Morocco	II, 130	274
807	Furnace for burning Bagasse	506	106
808	Machine for boring Fence-Posts	II, 7	213
809	Machine for sawing Fire-Wood	II, 51	238
810	Tape-Fuse	II, 254	327
811	Seed Planter	270	22
812	Preparing Turpentine for Distillation	469	97
813	Stone and Marble Saw	II, 98	260
814	Lamp for Burning Fluid	521	110
815	Machine for making Bolts	300	34
816	Boot Crimp	II, 112	268
817	Faucet	709	180
818	Railroad Car Ventilator	537	115
819	Apparatus for dissolving Silica	483	99
820	Facing-bed for grinding Artificial Granite, &c.	II, 97	260
821	Machine for sawing or felling Trees	II, 52	239
822	Checking Windmill	775	206
12,823	Propeller	602	135

No.	Invention or discovery.	Text.	Plates.
12,824	Grain Harvester	245	13
825	Grass and Grain Harvester	245	13
826	Guides for Hemming and Cording	435	87
827	Ventilating Railroad Car	538	115
828	Window Sash	658	158
829	Spark Arrester	573	125
830	Balance-Gate Faucet	709	180
831	Nozzle for Hose-Pipes	714	182
832	Machine for leathering Tacks	II, 296	344
833	Sash-Supporter	658	158
834	Process for preparing Liquids for aiding Digestion	481	.....
835	Regulating Supply of Water to Steam-Boilers	543	117
836	Fire-Arms	II, 245	324
837	Machine for rolling Railroad Rails	345	54
838	Plough	282	27
839	Smut Machine	784	209
840	Silvering Looking-Glasses	484	99
841	Inkstand	II, 172	291
842	Shingle Machine	II, 68	246
843	Sawing a Log by its own Weight	II, 53	239
844	Gas-Regulator	517	109
845	Plaiting and twisting Cord	362	60
846	Apparatus for manufacturing Starch	486	100
847	Artificial Fuel	500	.....
848	Machine for sawing Wedges or Shingles	II, 69	247
849	Circular Metallic Plate Spring	696	175
850	Sleigh	695	174
851	Ventilating and Cooling Apparatus	538	116
852	Rosin Still	486	100
853	Double-Acting Spring Hinges	318	43
854	Window-Sash Fixture	658	158
855	Connecting Clamps for the Plates of Galvanic Batteries	617	141
856	Sewing Machine	436	87
857	Machine for splitting Wood	II, 86	256
858	Cording Guide for Sewing Machines	436	88
859	Velocitrot Lubricator	751	197
860	Hominy Machine	II, 154	283
861	Gauge for slitting Lumber	II, 26	223
862	Mitre and Bevelling Machine	II, 32	226
863	Condenser for Fibrous Material	364	61
864	Adjustable Tenoning-Tool	II, 82	254
865	Spark-Arrester	573	125
866	Curtain Fixture	II, 152	282
867	Cotton-Seed Planter	270	22
868	Securing Brace-Bits in their Sockets	II, 2	210
869	Joint-bodied Carriage	685	170
870	Regulating Windmills	783	209
871	Attaching Hubs to Axles	691	173
872	Window Shutter	628	145
873	Steam Engine Valve	582	128
874	Slide-Lathe	II, 25	223
875	Hot-air Furnace	507	106
876	Butter-Cooler	II, 144	279
877	Machine for polishing the Soles of Boots and Shoes	II, 113	268
878	Machine for creasing the edges of Leather Straps	II, 130	274
879	Temple for Looms	405	74
880	Adjusting Planing Machinery	II, 43	233
881	Spring Curtain Roller	II, 152	282
882	Composition for filling in Fire-Proof Safes	530	.....
883	Furnace Grate-Bar	507	106
12,884	Machine for cutting Irregular Forms	II, 19	219

No.	Invention or discovery.	Text.	Plates.
12,885	Dressing Sewing-Thread	555	94
886	Indicating the Numbers of the Yea and Nay Balls in Machines for taking Votes in Legislative Bodies	II, 299	345
887	Fluid-Meter	716	183
888	Grain-Harvester	216	13
889	Machinery for Spinning	453	94
890	Spring for Carriages	697	175
891	Wooden Saddle-Trees	II, 46	234
892	Rat-Trap	II, 298	345
893	Steam-Boiler	644	118
894	Cotton-Gin	367	62
895	Seed-Planter	271	22
896	Stop-motion of Knitting Machines	379	65
897	Carriage-Wheel	702	177
898	Brick-Press	II, 89	257
899	Wristbands of Shirts	II, 271	335
900	Stave Machine	II, 77	252
901	Warm-air Furnace	507	106
902	Sewing Machine	437	88
903	Umbrellas	II, 272	335
904	Valve Gear for Oscillating Engines	582	128
905	Machine for cutting Screws on Bedstead Rails	II, 138	277
906	Fire-Arms	II, 245	324
907	Grain Harvester	216	13
908	Holler of Buckwheat	260	18
909	Tree-Nail Machine	611	139
910	Carriage Spring	697	175
911	Whiffle-tree	702	178
912	Carriage for Steam Fire Engines	708	180
913	Air-Heating Cook Stove	534	114
914	Farm Gate	646	153
915	Spark-Arrester	573	125
916	Tool for grooving Mouldings	II, 38	230
917	Tool for grooving Mouldings	II, 39	231
918	Lubricating Compound	475	.....
919	Sub-marine Excavating Machine	643	152
920	Cordage Machinery	362	61
921	.....	.....	152
922	Apparatus for Drying Grain	496	103
923	Sewing Machine	437	88
924	Seed Planter	271	23
925	Ox Yoke	296	33
926	Mandrel for cutting Papering Sticks	II, 295	344
927	Curb for Water-Wheels	737	191
928	Self-acting Nipper Block	747	195
929	Telegraphic Key Apparatus	621	143
930	Closing and Opening Gates, &c	647	153
931	Spikes	318	55
932	Bank Lock	324	45
933	Knitting Machine	380	65
934	Water-Meter	717	183
935	Screw Wrench	353	57
936	Burning Fluid	492	.....
937	Hose-Coupling	714	182
938	Swell of Melodeons	II, 174	292
939	Sewing Machine	438	88
940	Invalid Bedstead	II, 138	277
941	Shuttle Motion of Looms	405	75
942	Cartridge	II, 293	319
943	Gas Regulator	517	109
12,944	Invalid Bedstead	II, 139	278

No.	Invention or discovery.	Text.	Plates.
12,945	Machine for making Paper Bags	II, 182	299
946	Hub and Axle Fastening	691	173
947	Vapor Engine	565	123
948	Process for treating Auriferous and Argentiferous Sulphurets	481	.....
949	Water-Wheel	738	191
950	Fluid Faucet	709	180
951	Construction of Ear-Trumpets	II, 263	331
952	Swing-Bridge	634	147
953	Cider-Mill	778	207
954	Apparatus for paging Books	II, 164	288
955	Buoyant Propeiler	602	135
956	Mitre-Machine	II, 32	226
957	Door Lock	324	46
958	Seed Planter	272	23
959	Shoe for Grain-Mills	782	209
960	Pill-making Machine	II, 266	332
961	Forging Machine	313	40
962	.....	.....	.....
963	Grain Harvester	216	13
964	Lubricating Compound	476	.....
965	Uterine Supporter	II, 268	333
966	Cut-off Valve	583	128
967	Grate Bar for Furnaces	508	106
968	Reefing Topsails	606	137
969	Sewing Machine	439	88
970	Loom	406	75
971	Machine for helically creasing Sheet Metal Pipes	336	50
972	Chair for Dentists' Use	II, 262	331
973	Grain Drills	231	6
974	Straw Cutter	293	32
975	Pin-Sticking Machine	342	53
976	Whiffle-tree	703	178
977	Corn Grinder and Crusher	776	207
978	Preparing Wood for Paper Pulp	422	83
979	Vehicle	686	171
980	Mowing Machine	247	13
981	Loom	406	75
982	Machine for making Paper Bags	II, 184	300
983	Devulcanizing India-rubber	473	.....
984	Sewing Machine	439	89
985	Hand-Pegging Machine	II, 113	268
986	Pad for Hernial Truss	II, 268	333
987	Burning Fluid Compound	492	.....
988	Amalgamating the Precious Metals	460	96
989	Registering Blocks for printing Oil-Cloths	II, 208	310
990	Seed Planter	272	23
991	Burning Brick	II, 98	260
992	Ship Ventilator	538	116
993	Feeding Water to Steam Boilers	544	118
994	Drain for Sewers	662	160
995	Seed Planter	272	23
996	Washing Machine	II, 160	286
997	Soak-pit of Brick Machine	II, 90	257
998	Brick Machine	II, 90	257
999	Reaping and Mowing Machine	247	13
13,000	Securing Washboards to Walls	666	163
1	Method of Composing Music	II, 176	293
2	Boot-Jack	II, 269	334
3	Machine for skiving Boot and Shoe Counters	II, 114	268
4	Grain and Grass Harvester	248	13
13,005	Process of manufacturing Hats	372	.....

No.	Invention or discovery.	Text.	Plates.
13,006	Floating Cabin for Steam and other Vessels	614	140
7	Double-acting Pump	627	187
8	Apparatus for bleaching Rags	462	96
9	Fastening for Carpets	II, 146	280
10	Hydro-carbon Vapor Apparatus	489	101
11	Brace for supporting Garments	II, 270	334
12	Wagon Wheel	702	177
13	Manufacture of Hats	374	63
14	Portfolio	II, 197	305
15	Furnace for warming Buildings	508	106
16	Bench-Rest	II, 4	211
17	Machine for Kneading Clay	II, 95	259
18	Manufacture of Ornamental Felt Cloth	358	59
19	Steam Engine Regulator	566	123
20	Gas Regulator	518	109
21	Melodeon	II, 174	292
22	Loom	407	76
23	Boot-crimping Machine	II, 114	269
24	Ring Spinning-Frames	454	94
25	Wrought Iron Beam and Girder	200	34
26	Filter	711	181
27	Hydrant Filter	712	181
28	Feed-motion for Saw-mills	II, 53	239
29	Mill-Brush	772	205
30	Buoys for raising Sunken Vessels	614	140
31	Supplying Furnaces with Hot Air	508	106
32	Window Sash	659	159
33	Fastening Scythes to Snathes	287	29
34	Bedstead	II, 139	278
35	Machine for Planing Staves	II, 78	252
36	Machine for Jointing Staves	II, 78	252
37	Door Lock	325	46
38	Bumper for Self Acting Car-Brakes	671	165
39	Revolving Fire-Arms	II, 245	324
40	Sawing Machine	II, 54	240
41	Propeller	603	135
42	Cutting Clay into Bricks	II, 91	257
43	Saw-Mill Dog	II, 54	240
44	Methods of tuning Accordeons	II, 163	288
45	Stave Machine	II, 79	252
46	Sheet Metal Folding Machine	336	50
47	Faucet	710	180
48	Coupling for Organs and Melodeons	II, 174	292
49	Tenoning Machine	II, 82	254
50	Door Lock	325	46
51	Railroad Guard-Rail for Pronged Cow-Catchers	656	157
52	Plank Roof for Buildings	657	157
53	Heating Wrought Iron Wheels for Forging	314	40
54	Portable Floating Filter	712	181
55	Curvilinear Sawing Machine	II, 55	240
56	Artificial Fuel	500	------
57	Soda Water Generator	485	100
58	Buckets of Paddle-Wheels	599	134
59	Pile Machine	665	163
60	Self-Acting Cotton Press	54	198
61	Pressing Tobacco in Plugs	755	198
62	Wheat Fans	231	5
63	Machine for cutting the Edges of Boot and Shoe Soles	II, 115	269
64	Sewing Machine	440	89
65	Sewing Machine	440	89
13,066	------	------	------

No.	Invention or discovery.	Text.	Plates.
13,067	Wind-Mill	743	193
68	Serpentine Spinner to Catch Fish	II, 287	341
69	Printing-Press	II, 209	310
70	Metallic Medium for Filtering	712	181
71	Machine for Ruling Leather	II, 130	275
72	Machine for cutting out Boot and Shoe Soles	II, 115	269
73	Attaching Gutta Percha Soles to Boots and Shoes	II, 116	269
74	Stone-Sawing Machine	II, 99	260
75	Two-Motion Cone-Valve	764	202
76	Machine for cutting Irregular Forms	II, 19	219
77	Corn Planter	273	23
78	Reciprocating Railway Propeller	603	136
79	Railroad-Car Seat	677	167
80	Replacing Railroad Cars upon the Track	679	169
81	Fish Hook	II, 287	341
82	Plough	282	27
83	Coal Screen	495	102
84	Machine for cutting the inside Hold of Shovel-Handles	II, 73	249
85	Spring for Hinges, &c	318	43
86	Scaffold	661	160
87	Expanding Block for Horse-Collars	II, 126	272
88	Stump Machine	665	163
89	Mode of Hanging Bells	II, 274	336
90	Door	639	149
91	Piano-Forte Action	II, 194	303
92	Hot-Air Furnace	509	106
93	Taking Stereoscopic Photographs	II, 223	316
94	Fastening for Carpets	II, 146	280
95	Machine for cutting Leather into Strips for Boot and Shoe Soles and Heels	II, 116	269
96	Securing Cutters to Rotary Discs	II, 14	216
97	Machine for cutting Locks and tapering Ends of Wooden Hoops	II, 21	220
98	Ice-House	II, 289	342
99	Machine for Manufacturing Wooden Ware	II, 86	256
100	Fan-Blower	497	103
101	Socket-Handle for Chisels	II, 12	215
102	Intermittent Acceleration of motion in Harvester Rakes, &c.	248	14
103	Grain-Cleaner	768	204
104	Chuck for turning Eccentrics	II, 84	255
105	Seed Drill	288	29
106	Moving Stereoscopic Pictures	II, 224	316
107	Rotary-Engine	560	122
108	Self-Acting Brake for Vehicles	672	165
109	Self-Operating Circular Gate	647	153
110	Brick	II, 91	257
111	Steam-Boiler	545	118
112	Hose-Coupling	714	182
113	Joint for Stove-Pipes	534	114
114	Joints of Pipes for Artesian Wells	667	163
115	Mill-Dress	774	206
116	Manufacture of Artificial Stone	II, 107	------
117	Machine for boring Cylinders	302	35
118	Making Nuts	338	51
119	Bridle-Winker	II, 125	272
120	Wrench	354	57
121	Weather Strip for Doors	639	149
122	Corn-Sheller	224	2
123	Brick and Tile Machine	II, 91	258
124	Hanging Window-Sashes	659	159
13,125	Ice-Pitcher	II, 156	284

No.	Invention or discovery.	Text.	Plates.
13,126	Tidal Alarm Apparatus	735	190
127	Carpenter's Mitre and Bevel Square	II, 33	226
128	Balance-Valve	583	128
129	Brick-Machine	II, 92	258
130	Gas Burner	513	108
131	Cotton Gin	368	62
132	Horse-Collar Block	II, 126	272
133	Improvement in Churns	220	1
134	Gas Lighter	514	108
135	Seeding-Machine	288	30
136	Machine for Cleaning Ore	341	52
137	Straw Cutter	293	32
138	Fuse-Stock for Bomb-Shells	II, 254	327
139	Railroad Car-Brake	672	165
140	Adjuster of Window-Blinds	629	145
141	Window-Blinds, Doors, &c	629	145
142	Wheelwright's Guide-Mandrel	II, 28	223
143	Machine for cutting Grain, Grass, &c	232	6
144	Hand-Machine for pegging Boots and Shoes	II, 117	270
145	Packing for Stuffing Boxes, &c	572	125
146	Steam-Boiler Furnace	545	118
147	Attaching the Raker's Seat to Harvesters	249	14
148			
149	Cutters of Harvesters	249	14
150	Guard-Fingers of Harvesters	249	14
151	Corn Planter to be operated by Hand	273	23
152	Machine for making Harness for Looms	409	77
153	Sand-Paper Cutting Machine	423	83
154	Fire-Arms	II, 246	324
155	Machine for riving Shingles	II, 70	247
156	Self Regulating Windmill	743	194
157	Burglar's Alarm	II, 281	338
158	Machine for boring and turning Wood	II, 8	213
159	Harvester Reel	250	14
160	Grain and Grass Harvester	250	14
161	Mill-Step	773	205
162	Attachment for Lightning Rods	619	142
163	Locking Latches for Doors	326	46
164	Machine for washing Sand	II, 104	263
165	Knitting Machine	380	66
166	Book-Clasp	II, 164	288
167	Horse-Power	771	205
168	Steam-Boiler	545	118
169	Machine for cutting Cavities, Spherical, Ellipsoidal, &c	II, 14	216
170	Lard Lamp	521	110
171	Setting Bows for Carriage-Tops	686	171
172	Regulating the Issue-Apertures and suspending Turbine-Wheels	738	192
173	Grain and Grass Harvester	250	14
174	Hanging Plane-Stocks and their Mouth-Pieces	II, 40	231
175	Machine for making Rivets	344	54
176	Attaching the Connecting-Bar to the Cutters of Harvesters	250	14
177	Screw Fastenings	346	55
178	Sewing Machine	441	89
179	Trip Hammer	316	41
180	Machine for dressing Conical-Tapering Surfaces	II, 17	217
181	Mowing Machine	251	14
182	Machine for Shucking and Shelling Corn	224	2
183	Feeding Sheets of Paper to Printing-Presses	II, 209	310
184	Cutting Straight or Curved Mortises	II, 35	228
13,185	Corn Planter	273	22

No.	Invention or discovery.	Text.	Plates.
13,186	Loom	409	78
187	Loom	411	78
188	Spring-Bed Bottoms	II, 139	278
189	Horse Collar Block	II, 126	273
190	Paddle-Wheel	600	134
191	Plough	282	27
192	Cooling and drying Flour	707	203
193	Heating Feed-Water to Steam-Boilers	546	118
194	Stove	534	114
195	Sewing Machine	443	89
196	Bevelling and polishing the inner edges of Daguerreotype Face-Plates or "Mats"	II, 169	291
197	Machine for mitering Printers' Rules	II, 209	311
198	Water-Meter	718	183
199	Cotton-Press	755	198
200	Cork-Machine	II, 13	215
201	Sewing Machine	442	89
202	Marine Steam-Engine Governor	566	123
203	Apparatus for draining Sugar	487	100
204	Ventilating Railroad Cars	539	116
205	Method of Raising and Lowering the Cutters of Harvesters	251	14
206	Process for treating Wool	482	
207			
208	Automatic Machine for turning Ship Spars, &c	II, 84	255
209	Air and Steam Engine	550	120
210	Gas Regulator	518	109
211	Lubricating Compound	476	
212	Sun-Shade	II, 271	335
213	Saddle-Tree	II, 134	276
214	Escape of Waste-Water from Pump-barrel	727	188
215	Straw Cutter	294	32
216	Spark-Arrester	574	125
217	Loom	413	79
218	Buckles	303	35
219	Ship-Pump	728	188
220	Fastening for Carpets	II, 146	280
221	Slide Wrench	354	58
222	Washing Machine	II, 160	286
223	Steam-Boiler	546	118
224	Machine for pulverizing Clay	II, 95	259
225	Machine for cutting Screws on Bedsteads	II, 140	278
226	Harvester	251	14
227	Saw-set	II, 55	240
228	Attaching Cast Point to Steel Mould Boards of Ploughs	283	27
229	Rope and Cordage Machine	423	83
230	Stave Machine	II, 80	253
231	Vibrating Stop-Water for Ships and other Vessels	606	137
232	Counter-Scales	761	200
233	Self-Regulating Water-Packing for Pumps, &c	728	188
234	Excavator	643	152
235	Railroad Draw-Bridge Signal	653	156
236	Machine for cutting Legs for Pianos, Tables, &c	II, 195	303
237	Gauge for Stair-Rails	II, 45	234
238	Increasing Draught in Locomotives	571	125
239	Brick-Press		258
240	Open-Stirrup	II, 135	276
241	Machine for making Bolts	300	35
242	Sewing Machine	443	90
243	Machine for boring Posts and pointing Rails	II, 8	213
244	Self-Regulating Windmill	744	194
13,245	Manufacturing Plate-Glass from Cylinders	II, 96	259

No.	Invention or discovery.	Text.	Plates.
13,246	Machine for Cutting Screws on Bedsteads	II, 140	278
247	Machine for Cutting Screws on Bedsteads	II, 140	278
248	Machine for Cutting Screws on Bedsteads	II, 140	278
249	Machine for Cutting Screws on Bedsteads	II, 140	278

No.	Invention or discovery.	Text.	Plates.
13,246	Grain and Grass Harvester	251	15
247	Self-Regulating Windmill	744	194
248	Pneumatic Spring	697	175
249	Mode of mounting Ordnance	II, 256	328
250	Lantern	526	112
251	Window-Blind	629	145
252	Nut Machine	339	52
253	Invalid Bedstead	II, 140	278
254	Operating Valves of Pumps	728	188
255	Machine for forming Metal Tubes	337	51
256	Adjustable Vice	350	56
257	Harrow	235	7
258	Safety Railroad Draw-Bridge	634	148
259	Rosin-Oil Lamp	522	111
260	Fan-Blower	498	103
261	Expanding Auger or Bit	II, 2	210
262	Ship's Capstan	608	138
263	Alarm Bedstead	II, 140	278
264	Railroad-Car Coupling	675	167
265	Bedstead	II, 141	278
266	Bottle-Fastening	II, 275	336
267	Trebling a Single Strand and twisting Sewing-Thread	455	94
268	Wind-Mill	741	194
269	Derrick	748	196
270	Apparatus for heating Feed-Water to Locomotive Engines	571	125
271	Machine for mortising Window-Blinds	II, 35	228
272	Attaching Metallic Heels to India-rubber Soles	II, 118	270
273	Rotary Wrecking-Pump	729	188
274	Railroad-Car Coupling	675	167
275	Guide for Sewing Machine	443	90
276	Cross-head Attachment for working Steam-Engine Valves	583	128
277	Machine for sawing down Trees	II, 56	241
278	Constructing Iron Ships	605	137
279	Metallic Blind for Doors and Windows	640	150
280	Water-Wheel	738	192
281	Improvement in Churns	221	1
282	Excavating Machine	644	152
283	Gas-Burning Gridiron	514	108
284	Loom	413	79
285	Harvester	252	15
286	Lantern	526	112
287	Turbine Water-Wheel	739	192
288	Self-Regulating Wind-Mill	745	194
289	Knitting Machine	381	66
290	Machine for preparing Wool for Combing	459	95
291	Device for sealing Preserve-Cans	II, 144	280
292	Fire-Arms	II, 246	324
293	Fire-Arms	II, 248	324
294	Cocking Repeating Fire-Arms	II, 248	324
295	Machine for Cutting Sheet Metal	337	51
296	Cutting Boot and Shoe Uppers, Soles, &c., from Sheets of India-rubber	II, 118	270
297	Whiffletree	703	178
298	Feeding Water to Steam-Boilers by Auxiliary Engines	546	118
299	Double Reciprocating Split Piston-Rod for Pumps, &c	729	188
300	Window Blind	630	145
301	Machine for turning Cylinders of Wood, &c	II, 85	255
302	Paging Machine	II, 165	288
303	Hydro-Pneumatic Machine for exhausting and sealing Vessels	715	183
304	Machine for sizing Hat Bodies	375	63
13,305	Sawing Machine	II, 56	241

No.	Invention or discovery.	Text.	Plates.
13,306	Bridle-Rein	II, 125	272
307	Machine for boring and mortising Hubs	691	173
308	Hand-Stamp	II, 221	315
309	Machinery for making Rope	424	84
310	Machine for cutting Files	310	39
311	Carriage	686	171
312	Stalls for Horses, &c	II, 295	.....
313	Machine for making Railway Chairs	638	149
314	Parlor Stove	535	115
315	Making Gutta Percha Boats	591	131
316	Process for smelting Iron	482	.....
317	Process for hulling Cotton-Seed	482	.....
318	Apparatus for administering Pulverulent Medicines	II, 265	332
319	Balance Water-Gate	713	182
320	Water-Meter	718	184
321	Hinge	319	43
322	Shuttle Guide for Looms	414	79
323	Wagon	700	176
324	Hydro-dynamic Friction Joint	.....	182
325	Preparing Potash and Soda	478	99
326	Seed Planter	274	24
327	Washer for Axle	668	164
328	Oscillating Valve and Gearing for Pumping Engines	584	129
329	Refrigerator	II, 157	284
330	Grain and Grass Harvester	253	15
331	Union Platform-Scales	762	200
332	Furnace for treating Zinc Ores	509	107
333	Feeding Paper to Printing Presses	II, 210	.....
334	Candle-Mould Apparatus	465	97
335	Printing-Press	II, 212	311
336	Propeller	604	136
337	Cheese-Press	756	198
338	Bottle Fastening	II, 275	337
339	Wrought-Iron Shaft	783	209
340	Starch Making	486	.....
341	Calendar-Clock	615	141
342	Machine for dressing Lumber from the Log	II, 27	223
343	Machinery for dressing and carving Stone	II, 107	266
344	Washing-Machine	II, 161	286
345	Feeding Planks to Planing Machines	II, 44	233
346	Fan-Blower	498	103
347	Washing Machine	II, 156	284
348	Air-Engine	551	120
349	Machine for ruling and paging Paper	II, 185	300
350	Machinery for sizing and dressing Warp	457	95
351	Cross-Cut Sawing-Machine	II, 55	241
352	Vault-Cover	665	163
353	Sewing-Machine	444	90
354	Machine for sawing Ratan	II, 57	241
355	Machine for compressing Puddlers' Balls and other masses of Iron	319	43
356	Washing-Machine	II, 161	286
357	Circular-Saw Mandrel	II, 58	241
358	Distilling Coal with Hydrogen Gas	469	97
359	Cut-off Valve for Steam Engines	585	130
360	Artificial Leg	II, 264	332
361	Ventilating Hats	II, 271	335
362	Sewing-Machine	444	90
363	Water Gauge for Steam-Boilers	547	118
364	Excluding Dust from Railway Cars	680	169
13,365	Musical Reed Instrument	II, 177	293

No.	Invention or discovery.	Text.	Plates.
13,366	Bucket for Water-Wheel	739	192
367	Soap-Cutting Machine	484	99
368	Soap-Cutting Machine	484	100
369	Operating Steam Valves	586	130
370	Direct-Acting Hydraulic Steam-Pump	729	189
371	Writing Desk	II, 286	340
372	Washing Machine	II, 161	286
373	Seeding Machine	289	30
374	Hot-air Furnace	510	107
375	Oven	528	113
376	Machine for printing Textile Fabrics	II, 213	311
377	Gas Regulator	518	110
378	Railroad Signal	654	157
379	Iron House	636	148
380	Machine for preparing Flock	366	61
381	Plane-Scraper	II, 40	231
382	Loom	414	79
383	Machine Drill	309	38
384	Hanging Mill-stones	775	206
385	Straw Cutter	294	32
386	Cutter-Head for Irregular Forms	II, 19	219
387	Corn Planter	274	24
388	Wrench	354	58
389	Discharging Atmospheric Electricity from Telegraph Wires	622	143
390	Gauge-Attachment for Hand-Saws	II, 58	241
391	Braiding Machine	355	59
392	Mode of securing Tires upon Wheels	349	56
393	Ship's Winch	608	346
394	Propelling Vessels by the direct action of Steam on the Water	604	136
395	Manufacturing Carpets	357	59
396	Dental Chair	II, 262	331
397	Machine for measuring and weighing Grain	753	197
398	Adjusting Blinds to Windows, &c	630	145
399	Machine for sawing Lumber	II, 58	242
400	Molasses-Pitcher	II, 156	284
401	Seed Planter	275	24
402	Screw-Threads, &c., in the Necks of Glass Bottles and similar articles	II, 275	337
403	Tanning Apparatus	II, 135	276
404	Construction of Artificial Legs	II, 264	332
405	Self Adjusting Tongue-Iron	699	176
406	Oil-Dripper	752	197
407	Bed-Spring of Leather-Splitting Machines	II, 132	275
408	Spoke Machine	II, 75	250
409	Attaching Hooks and Eyes to Cards	II, 289	342
410	Manufacture of Daguerreotype Cases	II, 170	291
411	Manufacture of Plate-Glass	II, 96	259
412	Machinery for making Paper Pulp	423	83
413	Temple for Looms	415	80
414	Egg-Holder	II, 286	340
415	Governor for Steam Engines, &c	567	123
416	Making Zinc-White	491	101
417	Apparatus for replacing Cars	680	169
418	Whiffletrees	704	178
419	Corn Planter	275	24
420	Composition for treating Rubber and Gutta Percha	468	.....
421	Churns	221	1
422	Straining Saws by Atmospheric Pressure	II, 59	242
423	Hand-Press for Printing	II, 214	312
13,424	Ventilating Faucet	710	181

No.	Invention or discovery.	Text.	Plates.
13,425	Steam-Boiler	547	62
426	Cotton-Press	756	196
427	Alloy for Journal Boxes	693	.....
428	Extension Vehicle	687	171
429	Windlass	765	202
430	Hernial Press	II, 268	333
431	Making Zinc-White	491	101
432	Furnace for heating Buildings	510	107
433	Cutting Apparatus of Harvesters	253	15
434	Forging Machine	314	40
435	Hanging Window-Sashes	660	159
436	Machine for gathering Cotton Stalks	226	3
437	Gas Regulator	518	110
438	Harvester	253	15
439	Furnace for heating Buildings	510	107
440	Railroad-Car Brake	673	166
441	Cotton Gin	368	63
442	Gun-Lock	II, 255	327
443	Tanning Compound	II, 136	.....
444	Portable Steam Sawing Machine	II, 60	242
445	Device for opening and closing Gates	648	154
446	Drawing Water from Wells	735	196
447	Coffee-Roaster	II, 148	281
448	Mill for compressing and grinding Grapes and other small Fruits	779	207
449	Apparatus for Sifting	II, 294	343
450	Candlestick	493	102
451	Application of Conical Pendulum to Time-Keepers	620	142
452	Sealing Cans	493	102
453	Obstetrical Extractor	266	332
454	Glass Journal-Box	694	173
455	Swimming-Glove	II, 296	344
456	Wrench	354	58
457	Basin Stop-Cock	706	179
458	Pressure Water-Wheel	740	192
459	Pump	730	189
460	Hemp Cutter	259	18
461	Bridge	634	148
462	Engraving Calico Printers' Rolls	II, 214	312
463	Apparatus for Vessels to indicate their Locality when they sink, and to supply a means of raising them	612	139
464	Railroad Car Seat	677	167
465	Journal Box Alloy	693	.....
466	Journal Box Alloy	693	.....
467	Warm Bath Apparatus	II, 261	331
468	Pressure Gauge	569	124
469	Percussion Projectile	II, 259	329
470	Hand Stamp	II, 221	315
471	Railroad-Car Seat	677	168
472	Horse Yoke	296	33
473	Door Knob	308	40
474	Breech Loading Magazine Fire-Arms	II, 248	325
475	.....	.....	247
476	Corn and Cob Mill	776	207
477	Machine for Paging Books, &c	II, 166	289
478	Burglars' Alarm	II, 282	339
479	Folding Chair	II, 147	281
480	Harvester	253	15
481	Curtain Roller	II, 152	282
482	Window-Shade	II, 163	287
13,483	Trap for Catching Animals	II, 298	345

No.	Invention or discovery.	Text.	Plates.
13,484	Cottin-Gin Saw	369	62
485	Machine for Splitting Fire-Wood	II, 87	256
486	Preparation of Wood Oil	477	.....
487	Carriage	687	171
488	Facilitating the Removal of Incrustations from Steam-Boilers	547	119
489	Vice	350	56
490	Harvester Rake	287	29
491	Sash-Fastener	346	54
492	Rotary Wood-Splitting Machine	II, 87	256
493	Plough	283	27
494	Lime-Kiln	II, 98	260
495	Hand-Stamp	II, 221	315
496	Scythe-Fastening	287	29
497	Weighing-Scales	762	201
498	Regulating Valve for Steam-Engines	587	130
499	Sewing-Machine Case	444	90
500	Shutter or Blind for Stores	630	146
501	Trimming Books	II, 167	289
502	Brick Machine	II, 93	258
503	Wagon	700	176
504	Mechanism for Changing Harvesters from Reapers to Mowers, &c.	254	15
505	Machine for Cutting Standing Cotton Stalks	226	3
506	Ship's Windlass	609	138
507	Breech-Loading Fire-Arms	II, 249	325
508	Grain and Grass Harvester	254	15
509	Straw-Cutter	295	32
510	Collapsible Boat	592	131
511	Machine for Cutting Irregular Forms	II, 20	220
512	Reaping and Mowing Machine	254	16
513	Vault-Light	666	163
514	Flask for Moulding Bath-Tubs	312	40
515	Inkstand	II, 172	292
516	Machine for Electrotyping	II, 171	291
517	Mowing-Machine	255	16
518	Supporting Ship's Top-masts	607	137
519	Telegraphic Tide-Gauge	623	143
520	Chimney Stack or Cap	494	102
521	Mould for Backing Electrotype Shells	II, 172	291
522	Dovetailing-Machine	II, 15	217
523	Grass Harvester	255	16
524	Harvester	256	16
525	Apparatus to prevent an Over-supply of Coal to the Fire-Box of Hot-Air Furnaces	511	107
526	Consuming Escape Steam as an Adjunct in Heating Furnaces	510	107
527	Valve for Regulating Steam-Engines	587	130
528	Operating and Dumping Earth-Cars	681	169
529	Operating Dumping Cars	681	169
530	Seeding-Machine	289	30
531	Machine for Sawing Hoops	II, 60	242
532	Grain-Separator	232	6
533	Brick Machine	II, 93	258
534	Fountain-Pen	II, 189	302
535	Spike-Machine	348	55
536	Universal Dog for Planing-Machines	II, 41	234
537	Locomotive-Lamp Case	522	111
538	Machine for Cutting Standing Cotton Stalks	226	3
539	Lantern Guard	526	112
540	Machine for Sawing Marble	II, 99	261
541	Securing Keys in Connecting-Rods, &c.	767	203
13,542	Self-Regulating Valve for Ventilation	539	116

No.	Invention or discovery.	Text.	Plates.
13,543	Machinery for Folding and Measuring Cloth	358	59
544	Saw-Mill Carriage	II, 60	243
545	Harvesting-Machine	256	16
546	Life-Preserving Bed for Ships	597	133
547	Charge for Fire-Arms, &c.	II, 249	325
548	Hernial Truss	II, 268	333
549	Hominy-Machine	770	204
550	Rotary Steam-Engine	561	122
551	Seed-Planter	276	24
552	Conical Plate Railroad-Car Spring	697	175
553	Machine for Crimping Paper for Sticking Pins	344	54
554	Operating Reciprocating-Saws	II, 61	243
555	Construction of Beds for Shingle-Machines	II, 71	248
556	Cotton-Seed Huller	260	18
557	Steam Apparatus for Extracting Vegetable Oil	477	99
558	Grinding Cotton and other Seed for their Oils	779	208
559	Double-Acting Force-Pump	730	189
560	Horometer	617	141
561	Knitting-Machine	382	66
562	Machinery for Trebling a Single Thread	456	95
563	Steam-Gauge Cock	576	125
564	Machinery for Cleaning Cotton	362	61
565	Mowing and Reaping Machine	256	16
566	Heater for Smoothing-Irons	II, 158	284
567	Feed-Water Apparatus of Steam-Boilers	548	119
568	Machine for Felling Trees	II, 17	218
569	Corn and Cob Mill	777	207
570	Cutting Wire	351	56
571	Loom for Weaving Suspender Webbing	416	80
572	Brick-Machine	II, 93	258
573	Sawing-Mill	II, 61	243
574	Dovetail Key-Cutter	II, 16	217
575	Plane-Bit	II, 41	232
576	Card-Printing Press	II, 215	313
577	Lantern for Locomotives	.....	112
578	Machinery for Picking Fibrous Material	365	61
579	Seal and Stamping Press	II, 216	313
580	Piano-Forte Action	II, 196	304
581	Fire-Arms	II, 250	325
582	Revolving Fire-Arms	II, 251	326
583	Safety Apparatus for Steam-Boilers	548	119
584	Instrument for Determining Latitude and Longitude	618	166
585	Cooling Cast-Iron Car-Wheels	702	177
586	Knitting Machine	382	67
587	Preparation of Metallic Plates for Printers	II, 216	.....
588	Curtain Fixtures	II, 153	282
589	Cooking-Stoves	535	115
590	Apparatus for Discharging Reservoirs, &c.	734	190
591	Machine for Sawing Stone	II, 99	261
592	Fire-Arms	II, 251	326
593	Pressure-Stopper for Chain Cables	593	132
594	Regulating Length of Stroke in Mortising Machine	II, 36	228
595	Coffee-Pots	II, 149	281
596	Rake for Reaping Machines	285	28
597	Wrench	355	58
598	Method of Actuating Gas-Engines	554	121
599	Corrugated Beam	299	34
600	Awning for Horse and Dray	II, 273	336
601	Ship's Rudder	607	137
602	Machine for Cutting Ornamental Mouldings	II, 39	231
13,603	Optical Instrument	620	142

No.	Invention or discovery.	Text.	Plates.
13,604	Hold-Back for Carriages	687	171
605	Leather-Finishing Machine	II, 132	275
606	Boring-Machine	II, 9	213
607	Bedstead	II, 141	279
608	Trip-Hammer	316	41
609			316
610	Flouring-Mill	782	299
611	Artificial Leg	II, 265	332
612	Ship's Windlass	610	138
613	Preparing Materials for Hat Bodies	375	63
614	Machine for Manufacturing Hat Bodies	376	64
615	Corrugated Reflector	621	143
616	Sewing-Machine	445	91
617	Screw Wrench	355	58
618	Feed-Motion for Planing-Machines, &c	II, 45	234
619	Steam-Boiler	548	119
620	Chimney Stack	494	102
621	Knitting Machine	383	67–68
622	Ship's Pump	710	189
623	Clock Escapement	615	141
624	Opening and Closing Hatchways	649	154
625	Moulding Circular and Under-Cut Work	338	51
626	Cooper's Crozing-Plane	II, 41	232
627	Machine for Preparing Ratans, &c	II, 292	343
628	Thermo-Udoric Filter	712	181
629	Machinery for Filling Seine Needles	426	84
630	Sewing-Machine	446	91
631	Gauging, Measuring, &c., Staves	II, 80	253
632	Manufacture of Acid Sulphate of Lime	474	98
633	Manufacture of Borax from Native Borate of Lime	463	
634	Corn Shellers	224	2
635	Washing-Machine	II, 161	286
636	Preparing Vegetable Fibre	366	
637	Cut-off Valve for Oscillating Engines	588	130
638	Improvement in Churns	221	1
639	Apparatus for Heating Buildings by Steam	530	113
640	Corn Shellers	224	3
641	Cotton Gin	369	62
642	Wind Regulator for Organ-Pipes	II, 177	293
643	Vibrating Pump	731	189
644	Grain Separator	233	6
645	Amalgamator	297	34
646	Portable Boring Engine	567	124
647	Machine for Making Envelopes, &c	II, 186	301
648	Variable Exhaust of Locomotive Engines	572	125
649	Fish Hook	II, 288	341
650	Apparatus for Washing and Bleaching Fibrous and Textile Substances	365	61
651	Making Wire Dish Covers	351	56
652	Economizing Steam	576	126
653	Plough	283	27
654	Radiators of Steam-Heating Apparatus	531	113
655	Telegraph	623	142
656	Sash Fastener	346	54
657	Mutual Arrangement of Vinegar Rooms and White Lead Corroding Chambers	489	
658	Farm-Gate	648	154
659	Register Bottle-Fastening	II, 275	337
660	Applying Fire-Extinguishing Cartridges	493	102
661	Sewing-Machine	447	91
13,662	Sewing-Machine	448	92

No.	Invention or discovery.	Text.	Plates.
13,663	Mortising Machine	II, 36	229
664	Seeding Machine	289	30
665	Daguerreotype-Plate Holder	II, 170	291
666	Method of Feeding Shingle-Bolt to Knives	II, 72	248
667	Machine for Double-Seaming Cans	II, 145	280
668	Producing Music by Steam or Compressed Air	II, 177	293
669	Interlocking Grate-Bar	519	110
670	Gauge-Attachment for Sawing Machines	II, 62	243
671	Card Printing Press	II, 217	313
672	Leading Clasp for Cattle	219	1
673	Operating Farm-Gates	648	154
674	Argand Lamp	522	111
675	Lard Lamp	523	111
676	Dust Reflector for Windows of Railroad Cars	681	169
677	Faucet	710	181
678	Bench-Hook	II, 5	211
679	Projectile for Ordnance	II, 257	328
680	Excavator	644	152
681	Vise	350	56
682	Wash-Board	II, 162	287
683	Seed Planter	276	25
684	Wringer for Clothes	II, 163	287
685	Impact Water-Wheel	740	193
686	Churn	221	1
687	Sewing Machine	449	92
688	Grain Separator	234	346
689	Card Printing-Press	II, 217	313
690	Extension Reach for Carriages	688	171
691	Breech-Loading Fire-Arms	II, 252	326
692	Washing Machine	II, 162	287
693	Knitting Machine	387	68
694	Seed Planter	276	25
695	Casting Tea-Pot Spouts and Handles	303	35
696	Dovetailing Machine	II, 16	217
697	Scythe Fastening	288	29
698	Felting Hat Bodies	377	64
699	Coal Sifter	495	102
700	Gas Regulator	519	110
701	Daguerreotype-Plate Vise	II, 171	291
702	Finishing Carpets	357	59
703	Card Printing-Press	II, 217	314
704	Melodeon	II, 175	292
705	Safety-Attachment in front of Railroad Cars	682	169
706	Seed Planter	277	25
707	Sealing Preserve Cans	II, 145	280
708	Preparing Cotton Seed for extracting Oil	478	
709	Machine for sweeping Gutters, &c	II, 296	344
710	Machine for composing and setting Types	II, 225	317
711	Elastic Diaphragm Steam-Pressure Regulator	576	126
712	Whiffletree	704	178
713	Rice-Hulling Machine	261	19
714	Machine for manufacturing Corks	II, 13	216
715	Gauging and setting Saw-Mill Dogs	II, 63	244
716	Hanging Mulley-Saws	II, 63	244
717	Cooking-Range and Air-Heater	529	113
718	Straw Cutter	295	32
719	Machinery for Braiding	356	59
720	Nut Machine	340	52
721	Surface Condenser for Steam-Engines	568	124
722	Lock	326	46
13,723	Lamp	523	111

No.	Invention or discovery.	Text.	Plates.
13,724	Loom	417	81
725	Ventilating Railroad-Car	539	116
726	Ring and Traveller Spinning Frames	454	94
727	Sewing-Machine	450	92
728	Stove	535	115
729	Lamp for burning Volatile Liquids	524	111
730	Corn and Cob Mill	777	207
731	Spoke and Axe-Helve Machine	II, 75	251
732	Method of Ventilating Railroad Cars	540	116
733	Roofing Composition	468	.....
734	Lath-Machine	II, 12	215
735	Machine for cutting Double-Tenons	II, 83	254
736	Bedstead Fastening	II, 141	279
737	Feeding Paper for Printing Presses	II, 218	314
738	Burglars' Alarm	II, 283	339
739	Gas Bracket	514	109
740	Sugar Filter	487	100
741	Cider or Wine Mill	779	208
742	Machine for Sawing Marble	II, 100	261
743	Method of Heating Air for Blast Furnaces	705	179
744	Whiffletree	704	178
745	Bench-Plane Iron	II, 41	232
746	Lath-Machine	II, 22	220
747	Brick-Machine	II, 94	259
748	Two-Beam Engine with parallel Shafts	568	124
749	Automatic Lubricator for Railroad Axles	752	197
750	Knitting Machine	389	68
751	Washing-Machine	II, 162	287
752	Self-Acting Mules	421	82
753	Lock	367	47
754	Gas-Holder	471	98
755	Saw-Horse	II, 63	244
756	Machine for splitting Leather	II, 132	276
757	Cutter Head for Rotary Planes	II, 41	232
758	Composition for kindling Fires	500	.....
759	Mortising Machine	II, 37	229
760	Chain-Locker Pipe	593	132
761	Steam-Boiler	549	119
762	Marble-Sawing Machine	II, 100	261
763	Rotary Steam Engine	562	123
764	Hanging Window Sashes	660	159
765	Clothes-Clamps	II, 147	281
766	Drilling and Boring Machine	309	38
767	Arranging and Feeding Screw Blanks	347	55
768	Sewing Machine	451	92
769	Self-Feeding Atmospheric Lubricator	752	197
770	Door Spring	308	38
771	Sofa Life-Boat	598	133
772	Chimney Cap	495	102
773	Marble-Sawing Machine	II, 101	261
774	Hanging Window-Sashes	660	159
775	Upsetting Tire, &c	698	176
776	Weighing Attachment for Faucets	711	181
777	Marble-Sawing Machine	II, 101	262
778	Attaching Shafts to Axles	694	174
779	Device for partially excluding Dust from Railroad Cars	682	169
780	Making Boring Implements	392	35
781	Seeding Machine	289	30
782	Ring and Gudgeons for Bottle Fastenings	II, 276	337
783	Supporting-Jack	750	196
13,784	Marble Sawing Machine	II, 101	262

No.	Invention or discovery.	Text.	Plates.
13,785	Separating Pin	344	54
786	Rotary Engine	563	123
787	Lathe-Chuck	II, 25	223
788	Marble-Sawing Machine	II, 101	262
789	Argand Gas-Burner	515	109
790	Tobacco-Press	757	199
791	Marble-Sawing Machine	II, 102	262
792	Water-Meter	718	184
793	Self-Feathering Adjusting Tide-Wheel	740	193
794	Corn Planter	277	25
795	Giving Tension to the Endless Band of Throstle-frames	457	95
796	Cutting Boot and Shoe Uppers	II, 119	270
797	Hanging Carriage Bodies	638	172
798	Lasting and applying Soles to Shoes	II, 119	270
799	Compound Projectile	II, 259	329
800	Machine for adding Numbers	615	141
801	Preparing Artificial Teeth	II, 267	333
802	Refrigerator	529	113
803	Forming Heads on Bedstead Screws	II, 141	279
804	Securing Shafts to Axles	695	174
805	Marble-Sawing Machine	II, 102	262
806	Process for making Zinc-White	491	101
807	Straw Cutter	295	33
808	Planing Machine	II, 45	234
809	Machinery for raising Ice from Rivers, &c	II, 290	342
810	Road-Scraper	662	160
811	Knitting Machine	390	69
812	Mop-Head	II, 156	284
813	Cutting Teeth of Gear Wheels	748	196
814	Lock	328	47
815	Cotton Gin	369	62
816	Double-Acting Pump	731	189
817	Ticket Holders	II, 288	341
818	Machine for printing Yarns and Cloths	II, 219	314
819	Treating Leather for Enamelling	II, 133	276
820	Hand Seed Planter	277	25
821	Attaching Tops to Seats of Carriages	688	172
822	Potato Digger	284	28
823	Policemen's Rattles	II, 293	343
824	Railroad-Station Indicator	II, 291	342
825	Gun-Lock	II, 255	327
826	Cotton-Press	757	199
827	Preparing Leather for the Manufacture of Boots and Shoes	II, 120	270
828	Harvesting-Machine	257	17
829	Marble-Sawing Machine	II, 102	263
830	Street-Sweeping Machine	663	161
831	Coal-Sifter	496	102
832	Method of inserting Tubes in Evaporating Pans, &c	497	103
833	Revolving Measuring Wheel	619	142
834	Nutmeg-Grater	II, 154	283
835	Lifting-Jack	750	196
836	Filtering Faucet	711	181
837	Mill for grinding Coffee, &c	780	208
838	Envelope	II, 188	301
839	Mill for grinding Apples	781	206
840	Balance for detecting Spurious Coin	762	201
841	Blacksmith's Striker	349	55
842	Steam-Heating Apparatus	531	113
843	Belt-Coupling	766	203
844	Fence	645	153
13,845	Drilling and Screw Cutting Machine	309	39

No.	Invention or discovery.	Text.	Plates.
13,846	Cooper's Tool	II, 12	215
847	Cat-Head Anchor Stopper	590	131
848	Bag Loom	419	81
849	Method of hanging the Screens of Winnowing Machines	295	33
850	Preparation of Umbrella Sticks, &c., of Ratan	II, 272	.....
851	Cannon	II, 231	319
852	Mode of cutting the "Uppers" of Boots	II, 120	271
853	Attaching Castors to Trunks	II, 298	345
854	Rasping and dressing the Heels and Soles of Boots and Shoes	II, 121	271
855	Oven for baking Bread and other Aliments	529	113
856	Sawing Machine	451	93
857	Printing-Press	II, 219	314
858	Metallic Saddle-Tree for Harness	II, 128	273
859	Feet-Warmer	498	103
860	Fluid Lamp	524	111
861	Suspending Ships' Yards	607	137
862	Cutting Pile Fabrics	363	61
863	Hanging Window-Sashes	661	159
864	Military Saddle	II, 134	276
865	Making Plough Mould Boards	284	28
866	Machine for sawing out tapering Blocks of Marble	II, 103	263
867	Chamfering the Edges of Shoe-Soles, &c	II, 121	271
868	Arrangement of Flues and Dampers of Cooking-Apparatus	536	115
869	Railroad Car Coupling	676	167
870	Wool-combing Machine	459	95
871	Feet-Warmer	498	103
872	Military Wagon	701	177
873	Bagasse Furnace	511	107
874	Burglar's Alarm	II, 284	339
875	Cutting out Boot and Shoe Soles	II, 121	271
876	Burglar's Alarm	II, 285	340
877	Hand Cotton-Pickers	227	4
878	Cutting the Fronts and Backs of Violins	II, 228	318
879	Amalgamator	298	34
880	Lock	328	47
881	Pump	732	189
882	Spoke Machine	II, 76	251
883	Machine for Scouring Knives	II, 155	283
884	Lock	329	47
885	Photographic Bath	II, 191	302
886	Boot Tree	II, 122	271
887	Self-Regulating Hot-blasts for Furnaces	512	108
888	Cloth-Stretching Roller	359	59
889	Connection between Regulator-Valve and Governor's Stem	588	130
890	Blind Fastener	630	146
891	Machine for paring and slicing Apples	II, 137	277
892	Quartz-Crushing Machine	342	53
893	Hand Seed-Sower	290	30
894	Machine for preparing Cotton Seed for Planting	227	4
895	Water-Wheel	741	193
896	Machine for Channelling Stone	II, 109	266
897	Gimlet	II, 20	220
898	Machinery for Opening and Feeding Cotton to the Gin	370	40
899	Application of Embossed Veneers	II, 85	.....
900	Machinery for Folding and Measuring Cloth	359	60
901	Boot and Shoe Peg Cutter	II, 123	271
902	Fountain-Inkstand	II, 172	292
903	Water Gauge for Steam-Boilers	549	119
904	Gas-Apparatus	515	109
905	Railroad-Car Spring	693	175
13,906	Tile Roofing	657	185

No.	Invention or discovery.	Text.	Plates.
13,907	Buckles	303	35
908	Machine for Raking and Loading Hay	258	18
909	Bedstead	142	279
910	Mode of Attaching Extinguishers to Lamps	524	111
911	Lock for Freight Cars	329	47
912	Corn-Shellers	225	4
913	Sand-Paper-making Machine	II, 293	343
914	Cutting out, Punching, and Stamping the Soles of Boots and Shoes	II, 123 II, 130	271 3
915	Process for Calico Printing	II, 103	263
916	Machine for Sawing Marble, &c., in Taper Form	568	124
917	Packing Pistons for Steam-Engines	742	193
918	Impact Water-Wheel	692	173
919	Carriage-Hub	II, 133	276
920	Machine for Cutting Articles from Leather	II, 11	215
921	Machine for Carving Wood, &c	225	3
922	Corn-Shellers	589	130
923	Slide Valve for Steam-Engines	II, 195	303
924	Piano-Forte Action	II, 3	210
925	Auger Handle	II, 269	334
926	Cutting Cloaks	II, 231	319
927	Manufacture of Cannon	463	96
928	Device for Bleaching Ivory	304	37
929	Chain-making Machine	733	190
930	Rotary Pump	II, 153	282
931	Mosquito Curtain	II, 64	244
932	Adjusting Circular Saws obliquely to their Shafts	257	17
933	Harvester Raker	569	124
934	Variable Cut-off Gear for Steam-Engines	II, 227	318
935	Machine for Rubbing Types	419	81
936	Loom for Weaving Pile Fabrics	769	204
937	Grain-Cleaning Machine	II, 64	244
938	Saw-Set	572	125
939	Nozzle for Exhaust-Pipes of Locomotives	600	134
940	Paddle-Wheel	II, 252	326
941	Fire-Arms	II, 196	304
942	Piano-Forte	II, 3	211
943	Adjustable Crank-Brace for Augers	II, 64	244
944	Automatic Feed-Motion for Saw-Mills	348	55
945	Spike Machine	II, 178	294
946	Machine for Registering Music	II, 45	234
947	Machine for planing Felloes	303	36
948	Moulds for casting Bells	II, 127	273
949	Machine for stuffing Horse Collars	II, 124	272
950	Polishing or burnishing the Edges of Soles and Heels of Boots and Shoes	II, 124	272
951	Mounting the Uppers of Boots and Shoes on Lasts	II, 109	266
952	Stone-Dressing Machine	II, 263	331
953	Modifying Focal Length of the Eye	774	206
954	Mill-Spindle Steps	771	205
955	Horse-Power	652	156
956	Automatic Gate for Railroad Crossings	II, 41	232
957	Plane for finishing Grooves in Patterns, &c	II, 72	249
958	Shingle Machine	II, 175	292
959	Organ Melodeon	II, 197	305
960	Piano Forte	342	.....
961	Treating Galena or Lead Ore	692	173
962	Attaching Hubs to Axles	377	64
963	Felting Hat Bodies	II, 65	244
964	Saw-Set	II, 127	273
13,965	Horse Collar		

No.	Invention or discovery.	Text.	Plates.
13,906	Sewing Machine	451	93
967	Sucker for Pumps	733	190
968	Lock	330	47
969	Machinery for regulating Velocity of Wind-Wheels	745	194
970	Woven Fabrics	363	61
971	Cooking Stove	536	115
972	Lamp-Extinguisher	524	111
973	Candle-Mould Apparatus	465	97
974	Pipe of Vapor-Bath	II, 262	331
975	Combination of Injecting-Springs	II, 266	333
976	Crane	747	195
977	Time Indicator	626	143
978	Double-Acting Steam-Brake	673	166
979	Rotary Pump	734	190
980	Window-Shade	631	146
981	Machinery for Whipping Hair	370	63
982	Method of hanging Saws	II, 65	245
983	Steam-Boiler Furnace	550	119
984	Wrought-Iron Cannon	II, 232	319
985	Dressing Millstones for scouring and hulling Buckwheat, &c.	775	206
986	Seeding Machine	293	30
987	Apparatus for making Salt	483	99
988	Paddle-Wheel	600	134
989	Method of hanging Circular Saws	II, 66	245
990	Machine for mincing Meat	II, 155	283
991	Hoisting-Block	591	131
992	Hulling Machine	261	19
993	Proportional Divider	616	141
994	Combined Log and Sounding-Line	598	134
995	Fountain-Pen	II, 189	302
996	Mill for grinding Grain, &c	783	209
997	Corn Sheller	225	3
998	.....	.....	211
999	Revolving Fire-Arms	II, 258	326
14,000	Loom for weaving Wire	420	82
1	Breech-Loading Fire-Arms	II, 253	326
2	Corn and Cob Mill	777	207
3	Hand Seed Planter	278	25
4	Sad-iron Heaters	II, 157	284
5	Hydraulic Oil-Press	758	199
6	Guard for Lantern	527	112
14,007	Revolving Grate	520	110

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